Lip Sync Measurements

Measurements are taken using a special 30 second ProBel Vistek VALID test signal that is part of the submitted transport stream under test.
The transport stream ASI signal is looped over that 30 second segment to the decoder under test.
The decoder HDSDI output is patched to the VALID reader which produces a very accurate measurement of the audio video latency.

A positive value number indicates audio lags video by that amount in milliseconds.
A negative value number indicates the audio leads the video by that amount in milliseconds

With the VALID generator directly patched to the reader the latency reported is 0ms.
With the VALID generator directly patched to a HDSDI de-embedder then re-embedded the reader the latency reported is +6ms.

All vendor decoders have some form of lip sync latency adjustments available. For this test all decoders are set at 0ms adjustment value.

Lip sync measurements were not done for all streams but for a cross section of the various stream types;

TS1a	MPEG2	422 10bit Chroma @ 38Mbps	1080i 59.94
TS1b	MPEG2	422 8bit Chroma @ 38Mbps	1080i 59.94
TS2	MPEG2	420-8bit Chroma @ 38Mbps	1080i 59.94
TS11	MPEG2	420-8bit Chroma @ 20Mbps	1080i 59.94
TS18	Dolby-E	420-8bit Chroma @ 10.3Mbps	720p 59.94
TS19	PCM	420-8bit Chroma @ 10.3Mbps	720p 59.94
TS20	AAC-LC	420-8bit Chroma @ 10.3Mbps	720p 59.94
TS21	MPEG2	420-8bit Chroma @ 10.3Mbps	720p 50
TS22	MPEG2	420-8bit Chroma @ 20Mbps	1080i 59.94 Lowest Latency

1080i 50Hz was overlooked prior to returning some decoders to vendors

Transport Stream 1a - MPEG2 Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 1a 422-10 38Mbps Mpeg2	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
ATEME	Adtec												
	Ateme		6	5	5	6	6	6	6				
TS1a	Ericsson		8	8	8	8	8	8	8				
	Harris												
	IDC												
	NTT												
Ericsson	Adtec												
	Ateme		-2	-2	-2	-2	-2	-2	-2				
TS1a	Ericsson		0	0	0	0	0	0	0				
	Harris												
	IDC												
	NTT												
Harris	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
IDC	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
NTT	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measurement process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms
Grey indicates no support for 422 10 bit encode / decode

Transport Stream 1b - MPEG2 Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds
- value in ms	- Value number indicates the audio leads the video by that amount in millisecond:
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 1b 422-8 38Mbps Mpeg2	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec		5	5	5	5	5	5					
	Ateme		-2	-2	-2	-2	-2	-2					
TS1b-422-8	Ericsson		1	1	1	1	1	1					
	Harris												
	IDC												
	NTT		2	2	2	2	2	2					
ATEME	Adtec		13	13	13	13	13	13					
	Ateme		6	6	5	5	5	5					
TS1b-422-8	Ericsson		8	8	8	8	8	8					
	Harris												
	IDC												
	NTT		13	13	13	13	13	13					
Ericsson	Adtec		7	7	7	7	7	7					
	Ateme		-1	-1	-1	-1	-1	-1					
TS1b-live-restest-oct6	Ericsson		2	2	2	2	2	2					
	Harris												
	IDC												
	NTT		4	4	4	4	4	4					
Harris	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
IDC	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
NTT	Adtec		4	4	4	4	4	4					
	Ateme		-3	-3	-3	-3	-3	-3					
TS1b_422_8	Ericsson		-1	-1	-1	-1	-1	-1					
	Harris												
	IDC												
	NTT		1	1	1	1	1	1					

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms
Grey indicates no support for 422 8 bit encode / decode

Transport Stream 2 - MPEG2 Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 2 420-8 38Mbps Mpeg2	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec		17	17	17	17							
	Ateme		-24	-24	-24	-24							(Note 1)
TS2-live-retest-Oct4	Ericsson		14	14	14	14							
	Harris		13	13	13	13							
	IDC		15	16	15	15							
	NTT		14	14	14	14							
ATEME	Adtec		13	13	13	13							
	Ateme		-28	-28	-28	-28							(Note 1)
TS2	Ericsson		9	10	9	9							
	Harris		8	8	8	9							
	IDC		11	12	11	11							
	NTT		10	11	11	11							
Ericsson	Adtec		17	17	17	17							
	Ateme		-24	-24	-24	-24							(Note 1)
TS2-live-retest-Oct4	Ericsson		13	13	13	13							
	Harris		13	12	12	12							
	IDC		20	19	19	19	19						
	NTT		14	14	14	14							
Harris	Adtec												no decode of harris audio
	Ateme		-35	-35	-35	-35							(Note 1)
TS2-live-retest-Oct4	Ericsson		2	2	2	2							
	Harris		11	11	11	11							
	IDC		-14	-14	-14	-14							
	NTT		12	12	12	12							
IDC	Adtec		17	17	17	17	17						
	Ateme		-24	-24	-23	-23	-23						(Note 1)
TS2 live retest oct 4 2nd	Ericsson		14	14	14	14	14	14					
	Harris		13	13	13	13	13	13					
	IDC		31	32	32	33	33	32					
	NTT		14	14	14	14	14	14					
NTT	Adtec		4	4	4	4	4	4					
	Ateme		-37	-37	-37	-37	-37	-37					(Note 1)
TS2	Ericsson		1	1	1	1	1	1					
	Harris		-1	0	0	-1	-1	0					
	IDC												blocking video prevents measurement
	NTT		1	1	1	1	1	1					

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms

Note (1) - DR8400 Firmware Version 1.2.0.2 used in testing has an issue that causes a video delay of 1 frame versus the audio under certain conditions
This has since been corrected in DR8400 Firmware Version 1.3.0.0 as of November 1st, 2011.

Transport Stream 11 - MPEG2 Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream **TS 11** 420-8 20Mbps Mpeg2	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec		5	5	5	5	5						
	Ateme		-35	-35	-35	-35	-35						(Note 1)
TS11	Ericsson		2	2	2	2	2						
	Harris												Decoder not available for measurements
	IDC		21	21	21	21	21						
	NTT		2	2	2	2	2						
ATEME	Adtec		13	12	12	13	12						
	Ateme		-27	-28	-28	-28	-28	-28					(Note 1)
TS11	Ericsson		9	9	9	10	9	9					
	Harris												Decoder not available for measurements
	IDC		28	28	28	28	29	28					
	NTT		14	13	13	13	14	14					
Ericsson	Adtec		3	3	3	3	3						
	Ateme		-37	-37	-37	-37	-37						(Note 1)
TS11	Ericsson		0	0	0	0	0						
	Harris												Decoder not available for measurements
	IDC		19	19	19	19	19						
	NTT		0	0	0	0	0						
Harris	Adtec												Audio decode issues
	Ateme		-25	-25	-25	-25	-25						(Note 1)
TS11 LIVE OCT3	Ericsson		12	12	12	12	12						
	Harris												Decoder not available for measurements
	IDC		-14	-14	-14	-14	-14	-14					
	NTT		12	12	12	12	12						
IDC	Adtec		-16	-16	-16	-16	-16						
	Ateme		-56	-56	-56	-56	-56						(Note 1)
TS11 retest live oct 3	Ericsson		-19	-19	-19	-19	-19						
	Harris												Decoder not available for measurements
	IDC		0	0	0	0	0						
	NTT		-19	-19	-19	-19	-19						
NTT	Adtec		4	4	4	4	4	4					
	Ateme		-37	-37	-37	-37	-37	-37					(Note 1)
TS11	Ericsson		1	1	1	1	1	1					
	Harris												Decoder not available for measurements
	IDC		19	19	19	19	19	19					
	NTT		1	1	1	1	1	1					

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms

Note (1) - DR8400 Firmware Version 1.2.0.2 used in testing has an issue that causes a video delay of 1 frame versus the audio under certain conditions
This has since been corrected in DR8400 Firmware Version 1.3.0.0 as of November 1st, 2011.

Transport Stream 18 - Dolby-E Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream **TS 18** 420-8 10.3Mbps Dolby-E	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec		-89 -107	-90 -107	-90 -107	-89 -107	-90 -107	98 -101	-89 -107				
External Dolby Encoder Used	Ateme		-43 -60	-43 -60	-43 -60	-43 -60	-43 -60						
	Ericsson		-25 -42	-25 -42	-28 -45	-28 -45	-25 -42						Results vary between successive loops
TS18	Harris		-42 -25	-45 -29	-45 -62	-45 -62	-45 -62						of the test pattern; between the two
	IDC		-13 -29	-21 -38	-20 -37	-21 -38	-29 -46	-21 -38					values noted.
	NTT		-25 -42	-25 -42	-27 -44	-25 -42	-25 -42						
ATEME	Adtec		36	54	48	54	46	52	54	54			
External Dolby Encoder Used	Ateme		65	72	71	71	71	71	66	71			
ts18 Live retest Oct 5	Ericsson		89	83	83	83	89	89	89	83			
	Harris		105	105	105	105	105	105					
	IDC		92	91	91	91	91	91					
	NTT		89	89	89	89	89	89	82	88			
Ericsson	Adtec												no audio decode, video ok (See Note 1)
External Dolby Encoder Used	Ateme		98	89	98	98	90	98	98	91			
TS18 live retest Oct5	Ericsson		113	116	116	113	116	113	116	113			
	Harris												video blocking prevents measurement
	IDC		118	111	119	108	116	108	114	109			
	NTT		110	117	112	117	115	117	117	117			
Harris	Adtec		-4	-2	1	1	1	1	-2				
Internal Dolby Encoder Used	Ateme		40	40	40	40	40	35	40				
	Ericsson		58	58	58	58	58	58	58				
TS18	Harris		73	73	69	69	73	73	73				
	IDC		49	66	63	56	57	54	51				
	NTT		58	58	57	58	58	58	58				
IDC	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
NTT	Adtec		10	7	13	13	13	9	13				
External Dolby Encoder Used	Ateme		60	59	59	59	54	58	59				
TS18-live retest oct6	Ericsson		73	77	73	73	73	77	77				
JB lip sync	Harris		93	94	93	94	94	88	88				
	IDC		67	67	68	68	65	65	63	63			
	NTT		77	77	77	77	77	77	77				

Note - File name present in Column A under vendor name - indicates the file used in testing.
De-embed Dolby from decoder SDI, re-embed Dolby Decoder AES3 to SDI for measurement process adds +6m
NTT stream recorded by JB/Telesat October 6th in order to get longer duration Vistek Signal for proper measurements.

Measurement values recorded are for Audio Ch. 1
All audios monitored during measurement process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1
All measurements are with vendor decoder lip sync latency adjustment at 0ms
Grey indicates no support for Dolby-E pass-through on encoder

IDC - Dolby is taken from rear AES output connector not embedded HDSDI output
Note (1) - Adtec advises this issue has been corrected since the test event as of firmware version 1.05.0

Transport Stream 19 - PCM Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 19 420-8 10.3Mbps PCM	Vendor Decoder	Audio Type **PCM**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec												no audio decode
	Ateme (Note 1)		-88 -107	-88 -105	-88 -105	-88 -105	-88 -105						Results vary between successive loops
	Ericsson		-71 -88	-71 -88	-71 -88	-71 -88	-71 -88						of the test pattern; between the two
TS19	Harris		-69 -85	-69 -85	-69 -85	-69 -85	-69 -85						values noted.
	IDC		-79 -95	-80 -96	-80 -97	-80 -97	-81 98						Test of TS9 PCM the varying is not present.
	NTT		-71 -88	-71 -88	-71 -88	-71 -88	-71 -88						
ATEME	Adtec												no audio decode
	Ateme		-13	-13	-13	-13	-13						(Note 1)
	Ericsson		4	4	4	4	4	4					
TS19	Harris		7	7	7	7	7						
	IDC		13	16	2	6	9	12	16	2	6	9	drifting lip sync
TS19-live for NTT 20bit	NTT		14	14	14	14	14	14					
Ericsson	Adtec												no audio decode
	Ateme		-3	-3	-3	-3	-3						(Note 1)
	Ericsson		14	14	14	14	14						
TS19-live-oct6	Harris												blocking video unable to measure
	IDC		19	21	22	23	24	26	11	12	13	14	drifting lip sync
	NTT		14	14	14	14	14						
Harris	Adtec		no audio decode										no audio decode
	Ateme		-3	-3	-3	-3	-3						(Note 1)
	Ericsson		14	14	14	14	14						
ts19 live retest PCM	Harris		17	17	17	17	17						
audio oct5	IDC		19	17	14	12	26	23	21	18	16	13	10 25 drifting lip sync
	NTT		14	14	14	14	14						
IDC	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
NTT	Adtec												no audio decode
	Ateme		-17	-17	-17	-17	-17						(Note 1)
TS19- 420-8-A2ch	Ericsson		0	0	0	0	0						
(20bit audio)	Harris		3	3	3	3	3						
	IDC		-4	-18	-14	-11	-8	-4	-18	-14			drifting lip sync
	NTT		0	0	0	0	0						

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms
Grey indicates no support for PCM audio on encoder.

Note (1) - DR8400 Firmware Version 1.2.0.2 used in testing has an issue that causes a video delay of 1 frame versus the audio under certain conditions.
This has since been corrected in DR8400 Firmware Version 1.3.0.0 as of November 1st, 2011.

Transport Stream 20 - AAC-LC Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 20 420-8 10.3Mbps AAC-LC	Vendor Decoder	Audio Type **AAC-LC**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
ATEME	Adtec												
	Ateme		-3	-3	-3	-3	-3						
TS20-live retest Oct5	Ericsson		36	36	36	36	36						
	Harris		39	39	39	39	39						
	IDC												
	NTT		36	36	36	36	36						
Ericsson	Adtec												
	Ateme		-39	-39	-39	-39	-39						
	Ericsson		0	0	0	0	0						
TS20	Harris		3	3	3	3	3						
	IDC												
	NTT		0	0	0	0	0						
Harris	Adtec												
	Ateme		-27	-27	-27	-27	-27						
TS20	Ericsson		11	11	11	11	11						
	Harris		15	15	14	14	14						
	IDC												
	NTT		11	11	11	11	11						
IDC	Adtec												
	Ateme												
	Ericsson												
	Harris												
	IDC												
	NTT												
NTT	Adtec												
	Ateme		-39	-39	-39	-39	-39						
TS20	Ericsson		0	0	0	0	0						
	Harris		3	3	3	3	3						
	IDC												
	NTT		0	0	0	0	0						

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms
Grey indicates no support for AAC-LC audio encode/decode

Transport Stream 21 - MPEG2 720P/50Hz Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 21 420-8 10.3Mpbs Mpeg2	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec		2	2	2	2	2						
	Ateme		-25	-25	-25	-25	-25						(Note 1)
TS21	Ericsson		-1	-1	-1	-1	-1						
	Harris												Decoder not available for measurements
	IDC		18	18	18	18	18						
	NTT		-1	-1	-1	-1	-1						
ATEME	Adtec		9	9	9	9	9						
	Ateme		-18	-18	-18	-18	-18						(Note 1)
TS21	Ericsson		6	6	6	6	6						
	Harris												Decoder not available for measurements
	IDC		25	25	25	25	25						
	NTT		6	6	6	6	6						
Ericsson	Adtec		3	3	3	3	3						
	Ateme		-24	-24	-24	-24	-24						(Note 1)
TS21	Ericsson		0	0	0	0	0						
	Harris												Decoder not available for measurements
	IDC		16	24	19	24	30	35	21	26	32	19	Drifting lip sync
	NTT		0	0	0	0	0						
Harris	Adtec		12	12	12	12	12						
	Ateme		-16	-15	-15	-15	-15						(Note 1)
TS21	Ericsson		9	9	9	9	9						
	Harris												Decoder not available for measurements
	IDC		25	28	28	27	28						
	NTT		9	9	9	9	9						
IDC	Adtec		-6	-6	-6	-6							
	Ateme		-33	-33	-33	-33	-33						(Note 1)
TS21	Ericsson		-10	-10	-10	-10	-10						
	Harris												Decoder not available for measurements
	IDC		10	10	9	10	9						
	NTT		-9	-9	-9	-9	-9						
NTT	Adtec		3	3	3	3	3						
	Ateme		-24	-24	-24	-24	-24						(Note 1)
TS21	Ericsson		0	0	0	0	0						
	Harris												Decoder not available for measurements
	IDC		19	19	16	12	28	25	21	19	19	19	Drifting lip sync
	NTT		0	0	0	0	0						

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms

Note (1) - DR8400 Firmware Version 1.2.0.2 used in testing has an issue that causes a video delay of 1 frame versus the audio under certain conditions
This has since been corrected in DR8400 Firmware Version 1.3.0.0 as of November 1st, 2011.

Transport Stream 22 - MPEG2 Lowest Latency Audio Lip Sync Measurements

	Encoder Vendor - source transport stream used for test. (Live indicates recorded during event)
	Decoder Vendor
+ value in ms	+ Value number indicates audio lags video by that amount in milliseconds.
- value in ms	- Value number indicates the audio leads the video by that amount in milliseconds
	See tester comments for vendor note
	No measurement

Vendor Transport Stream TS 22 420-8 20Mbps Mpeg2	Vendor Decoder	Audio Type **MPEG2**	Delay measured in milliseconds over maximum 10 loops of a 30 second ASI TS. 1	2	3	4	5	6	7	8	9	10	Tester Comments
Adtec	Adtec		7	7	7	7	7						
	Ateme		-33	-33	-33	-33	-33						(Note 1)
TS22 live retest oct 4	Ericsson		4	4	4	4	4						
	Harris												Decoder not available for measurements
	IDC		Warbling audio, decoder reset does not clear issue							Original TS22 sounds ok, but no reader value produced.			
	NTT		4	4	4	4	4						
ATEME	Adtec		-11	-11	-11	-11	-11						
	Ateme		-51	-51	-51	-51	-51						(Note 1)
TS22 retest live oct4	Ericsson		-14	-14	-14	-14	-14						
	Harris												Decoder not available for measurements
	IDC		5	28	5	29	5	28					
	NTT		-14	-14	-14	-14	-14						
Ericsson	Adtec		7	7	7	7	7						
	Ateme		-34	-34	-34	-34	-34						(Note 1)
TS22 live oct4	Ericsson		3	3	3	3	3						
	Harris												Decoder not available for measurements
	IDC		32	41	16	25	33	31					
	NTT		4	4	4	4	4						
Harris	Adtec												
	Ateme												
Missing TS22 file	Ericsson												
	Harris		Missing file used in live end - end latency test (not recorded) for lip sync measurement.										
	IDC												
	NTT												
IDC	Adtec		14	14	14	14	14						
	Ateme		-27	-27	-27	-27	-27						(Note 1)
TS22 live retest oct 4	Ericsson		10	11	11	10	11						
	Harris												Decoder not available for measurements
	IDC		29	27	29	29	29						
	NTT		11	11	11	11	11						
NTT	Adtec		4	4	4	4	4						
	Ateme		-37	-37	-37	-37	-37						(Note 1)
TS22	Ericsson		1	1	1	1	1						
	Harris												No decode of this GOP structure "P only".
	IDC		11	9	3	7	0	6					minor variation per loop of test pattern
	NTT		1	1	1	1	1						

Note - File name present in Column A under vendor name - indicates the file used in testing.
Measurement values recorded are for Audio Ch. 1
All audios monitored during measuremnt process.
Unless otherwise stated, measurements of other Audio Ch. are within +/- 1ms of Audio Ch. 1

All measurements are with vendor decoder lip sync latency adjustment at 0ms

Note (1) - DR8400 Firmware Version 1.2.0.2 used in testing has an issue that causes a video delay of 1 frame versus the audio under certain conditions.
This has since been corrected in DR8400 Firmware Version 1.3.0.0 as of November 1st, 2011.