

Appendix 2 - Cisco SX20 - Detailed Video Tests

It was not possible to force either the video or audio protocols in the SX20 CODECs hence we were only able to carry out detailed tests on H.264 video coding.

For the following tests using the DVI input and with the PC input set to Motion and the PC selected to the main channel the following video resolutions were negotiated:

Connection Bandwidth	Resolution and Frame Rate	Audio Protocol
384 kbit/s	768 x 448 30fps	AAC-LD 64K
768 kbit/s	1280 x 720 30fps	AAC-LD 64K
2 Mbit/s	1280 x 720 60fps	AAC-LD 128K
4 Mbit/s	1920 x 1080 60fps	AAC-LD 128K
6 Mbit/s	1920 x 1080 60fps	AAC-LD 128K

Objective Video Tests: Signal measurements

1. 75% EBU bars
2. Grey scale

Subjective Video Impairments Tested:

Lip synchronisation

LS

Block distortion (tiling)

BLK

Blurring (reduced edge sharpness and spatial detail) **BLR**

Colour errors **CLR**

Jerkiness (distortion of smooth motion) **JRK**

Object persistence
(lagging images from previous frames as faded or outline images) **OP**

Scene cut response (i.e. time to build up the new image) **SCR**

Scale of impairments:

Imperceptible	1
Perceptible	2
Slightly annoying	3
Annoying	4
Very annoying	5

MII Test Tape:

<u>Signals recorded</u>	<u>Time on tape</u>
1. EBU colour bars	1min 30secs
2. Grey scale	1.40 - 2.40
3. Blue field	2.50 - 3.50
4. Medium close up female face, still	4.00 - 5.00
5. Medium close up female face, talking	5.10 - 6.10
6. Close up face, nodding	6.20 - 7.20
7. Close up face, shaking head side to side	7.30 - 8.30
8. Zoom out slowly to wide angle three people	8.40 - 9.40
9. Zoom in quickly to close up of centre person	9.50 - 10.50
10. Turntable speeds: 1,2,3 and 4	11.00 - 15.30
11. Football sequence	15.40 - 16.40
12. Zoom in and out of "A to Z" map	16.50 - 17.50
13. Text legibility, font sizes 20 to 12 pt	20.30 - 20.50
14. Cut tests, scenes various with camera movements	21.00 - 22.00
15. Man teaching at whiteboard	22.10 - 23.23

(Insert 75% EBU bars at local site, measure at remote site)

Test 1 (H264): Colour bar test

(Insert 75% EBU bars at local site, measure at remote site)

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	1	1	1	1	1
BLR	1	1	1	1	1
CLR	1	1	1	1	1

Test 2 (H.264): Grey scale

(Insert grey scale at local site, measure at remote site)

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	1	1	1	1	1
BLR	1	1	1	1	1
CLR	1	1	1	1	1

Test 3 (H.264): Blue screen

(Insert blue screen at local site, measure at remote site)

Subjective

Impairments H.323

384 kbit/s

768 kbit/s

2 Mbit/s

4 Mbit/s

6 Mbit/s

BLK	1	1	1	1	1
CLR	1	1	1	1	1

Test 4 (H.264): Medium close up female (still)

<u>Subjective</u>					
<u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	1	1	1	1	1
BLR	2	2	1	1	1
CLR	1	1	1	1	1

Test 5 (H.264): Medium close up female (talking)

<u>Subjective</u>					
<u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
LS	1	1	1	1	1
BLK	2	1	1	1	1
BLR	3	2	1	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 6 (H.264): Close up head (nodding)

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	2	1	1	1	1
BLR	2	2	1	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 7 (H.264): Close up head (shaking side to side)

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	3	3	2	1	1
BLR	3	3	2	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 8 (H.264): Medium close up, slow zoom out to three shot

Subjective

Impairments H.323

384 kbit/s

768 kbit/s

2 Mbit/s

4 Mbit/s

6 Mbit/s

BLK	2	1	1	1	1
BLR	2	1	1	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 9 (H.264): Three shot, quick zoom in to medium close up centre person

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	2	1	1	1	1
BLR	2	2	1	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 10a (H.264): Turntable speed 1

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	2	1	1	1	1
BLR	1	1	1	1	1

CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 10b (H.264): Turntable speed 2

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	2	1	1	1	1
BLR	2	1	1	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 10c (H.264): Turntable speed 3

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	2	1	1	1	1
BLR	3	2	2	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 10d (H.264): Turntable speed 4

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	2	2	1	1	1
BLR	3	3	2	2	2
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 11 (H.264): Football sequence

<u>Subjective</u> <u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	3	2	1	1	1
BLR	4	3	2	2	1
CLR	2	2	2	2	2
JRK	1	1	1	1	1

Test 12 (H.264): Zoom in and zoom out of 'A to Z' map

Subjective

Impairments H.323

384 kbit/s

768 kbit/s

2 Mbit/s

4 Mbit/s

6 Mbit/s

BLK	4	3	2	2	1
BLR	4	3	2	1	1
CLR	1	1	1	1	1
JRK	2	2	1	1	1

Test 13 (H.264): Text legibility (% of screen height) at viewing distance approx.

5x screen diagonal

Legibility <u>H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
20 pt (3.5%)	Yes	Yes	Yes	Yes	Yes
16 pt (3%)	Yes	Yes	Yes	Yes	Yes
14 pt (2.5%)	Yes	Yes	Yes	Yes	Yes
12 pt (2.3%)	No	No	Yes	Yes	Yes

Test 14 (H.264): Video with several vision cuts

<u>Subjective</u>					
<u>Impairments H.323</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
BLK	3	2	1	1	1
BLR	3	2	2	1	1

CLR	1	1	1	1	1
OP	1	1	1	1	1
SCR	3	2	2	2	2
JRK	2	2	1	1	1

Test 15 (H.264): Man teaching with flip chart

<u>Subjective</u>	<u>384 kbit/s</u>	<u>768 kbit/s</u>	<u>2 Mbit/s</u>	<u>4 Mbit/s</u>	<u>6 Mbit/s</u>
<u>Impairments H.323</u>					
LS	1	1	2	2	1
BLK	2	1	1	1	1
BLR	2	2	1	1	1
CLR	1	1	1	1	1
JRK	1	1	1	1	1

Test 16 Playback from a domestic VHS videotape player

As there is no analogue video input this test could not be carried out.

Source URL: <https://community.jisc.ac.uk/library/advisory-services/appendix-2-cisco-sx20-detailed-video-tests>