



Great Asby Cinema AV Equipment

Testing the Village Hall's Projection and Sound Systems.

Introduction

This report is the result of some testing of the audio-visual equipment available in Asby Village Hall for cinema screenings. The purpose was to get the audience's reaction to using this equipment rather than that from Eden Arts, and to evaluate the necessarily different seating arrangements.

1 Equipment Set –up

The only Eden Arts kit used for these tests was the 'big back box'. This contains two Blu-Ray players and the necessary audio-visual processing units (video scaler/switcher, audio mixer, and power amplifier).

The hall's ceiling mounted projector and screen were used, along with its sound system.

So, the only connections required for this setup were as follows:

- a) An HDMI cable from the output of the 'big black box' to the wall mounted face plate of the projector.
- b) Two speaker cables from the 'big black box' to the "Disco Deck" inputs on the wall plate of the village hall sound system.

2 The Cinema Screening

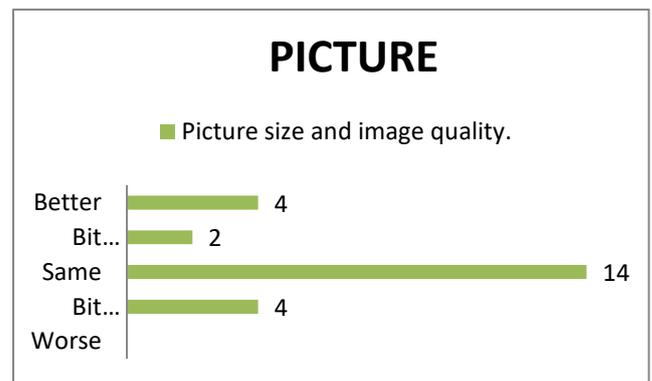
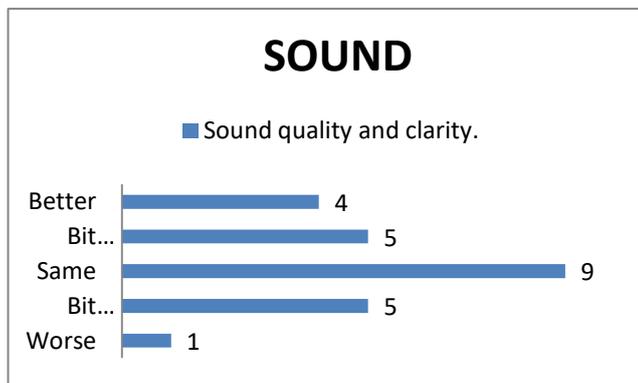
A cinema evening was run using this set-up on 5 January 2019. The feature was "Lad: a Yorkshire Story", together with the usual trailer and Tom & Jerry introduction. At the end of the evening the audience was encouraged to complete a short questionnaire. Four basic aspects of the arrangement were covered:.

- Q1: Sound quality and clarity.
- Q2: Picture size and image quality
- Q3: Seating arrangement & ability to view the screen.
- Q4: Overall experience of the cinema.

Respondents were asked to rate their experience, compared with previous cinema evenings, as either worse, a bit worse, the same, a bit better, or better. Free text comments could also be made.

3 Test Results

We received 27 completed questionnaires, including 3 from people who were attending for the first time. Their responses are summarized in Appendix A. On average all four aspects of the new arrangement were considered slightly better than the old. However, all four showed a fair degree of variability in the scores awarded, with sound quality being the most variable.



3.1 Sound quality and clarity

Surprisingly, two thirds of people thought the sound was the same or even better than normal. As many people thought the sound was improved as thought it to be the same. This is surprising as, on paper, the sound system in the Eden Arts kit is superior.¹

One possible reason for this is the presence of speakers all around the hall (albeit that we are still just using a simple 2.0 stereo configuration).

Note: This test set up required careful balancing of pre-amp and power amplifier levels on both the 'black box' and the hall's PA system.

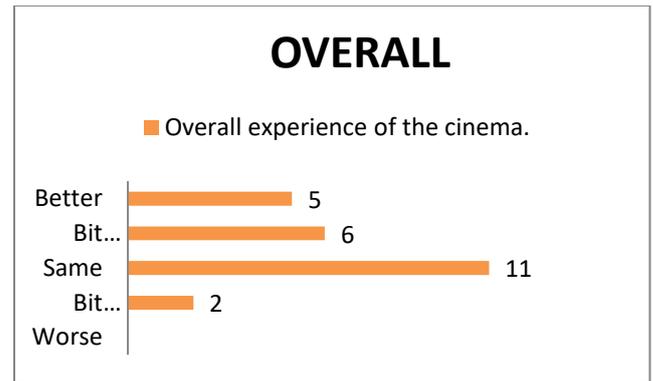
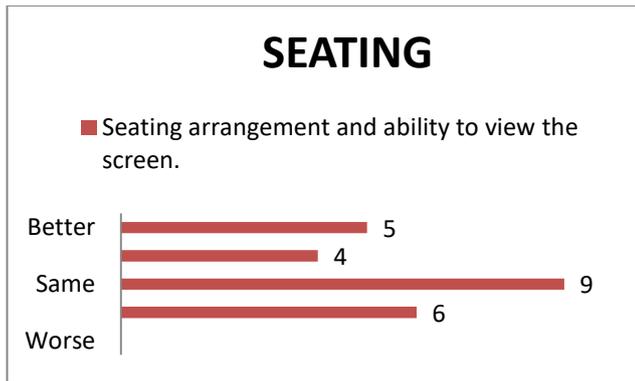
3.2 Picture size and image quality

The vast majority of the audience perceived no difference in image quality. This is not surprising, as both projectors are of a similar specification.²

A few people commented on the relative sizes of the screens being used – 10 feet wide in the case of the village hall compared with the normal 12 feet. However nobody thought the smaller screen size detracted from their enjoyment of the film..

¹ The author's view is that the Eden Arts kit is superior in terms of sound quality.

² The author, and at least one audience member commented upon the high noise level from the projector compared with our normal kit.



3.3 Seating arrangement & ability to view the screen

Again, two thirds of respondents felt the new seating arrangement was as good as or better than previously.

One issue did arise: the height of the screen. Compared with the normal Eden Arts configuration the village hall's screen is set lower down (due the depth of the stage's proscenium). Several people commented that the bottom of the screen was masked by the heads of those in front.³ For most films this probably isn't too serious but it would almost certainly prevent the showing of any film with sub-titles.

It had been thought that the bar and entrance door might prove a distraction. In the event, all lighting in these areas was switched off, and nobody noted it as being a problem. However, the reinstatement of a black curtain between the wall and left hand edge of the stage would be an improvement. (It would also allow, if needed, some activity in the bar and supper room areas to take place without detracting from the screening.)

3.4 Overall experience

In terms of the overall cinema experience only 2 out of 24 respondents felt it wasn't as good as normal. (To some extent this may have been down to the quality of the film, which was clearly enjoyed by everyone.)

³ This was noted as a potential issue back in March when some earlier testing was carried out.

3.5 Comments from first time attendees

There were 3 first-timers, leaving these comments:

- Lovely experience. Views of screen and sound just fine!
- Sound clear, good size screen, overall very good.
- Excellent picture and sound. Liked the tables & informal seating.

4 Conclusions

- **Viability** - The village hall projection and sound systems form a viable alternative to using Eden Arts' equipment.
- **Eden Arts Kit** - Currently some Eden Arts' equipment would still need to be employed – just as in this test.
- **Development** - To become self-sufficient in equipment would require the acquisition of:

a) Blu-Ray players – at least one, preferably two.

b) An AV Receiver. This would need to be chosen with care.

A model with pre-amp line outputs could be linked to the 'Aux' (line) inputs on the sound system's wall plate. It is possible that, depending on the level of pre-amplification provided by the receiver, this may not result in a decent level of volume from the hall's speakers.

Any model without this 'pre-amp out' functionality would need its speaker outputs linked to the 'Disco Decks' sockets on the sound system's wall plate. This arrangement (as was the case for our testing) would require careful balancing of level controls on both the AV Receiver and PA system.

c) Cabling for the above.

d) Ideally a small video monitor (not essential).

- **Further Testing** - It may be possible to borrow an AV Receiver and Blu-Ray player for further testing.
- **Improved sound** - Consideration could be given to improving sound reproduction by the addition of a sub-woofer.
With the acquisition of more speakers it might also be possible to implement surround sound.
- **Modifications** - The reinstatement of a black curtain between the wall (just left of the serving hatch) and the stage would be an advantage.
- **Screening Foreign Films** - This would no longer be viable due to the height of the screen and the associated masking of sub-titles for parts of the audience.
- **Storage** - If more AV equipment were to be acquired by the cinema/village hall consideration would need to be given to its storage. It might be possible to utilise space in the 'Comms Room' at the back of the hall.

5 Further Testing, including the use of a Sony AV Receiver

5.1 Projector re-syncing HDMI connection

Under different circumstances the projector, although always using the HDMI1 input, will attempt to re-establish its link with whatever device is feeding it. The results in a brief 'blue screen' followed by a black screen with egg timer, before connection is re-established. This process lasts for around 10 seconds before video output is restored. (NB During this time, if you are playing a video, the sound continues to be output to the hall's sound system.)

Situations where this occurs

- a) When moving from a DVD/Blu-ray disc menu to disc content. (Especially on home-authored discs.)
- b) When switching inputs on the Kramer Switcher/Scaler, or indeed on the Sony AV Receiver.

Cause?

Unknown.

Suggestion from Optoma

The most likely explanation is that the menu of the DVD is a different resolution to the actual content causing the projector to re-sync.

The same could be said for the scaler. Have they set a constant EDID on the scaler so that the projector is always seeing a constant resolution and refresh rate?

Conclusions

1. On home-authored discs, try to ensure that there is consistency between the AV parameters of disc menu and content. The [EDID](#) is meta data that contains all manner of 'stuff'. Suggest we at least try to have consistency of the video resolution, frame rate, and ideally bit rate.
2. In terms of switching inputs, this is probably something we just have to live with. So, we will just have to allow for a 10 second pause to allow re-syncing to occur.

Practicalities

- a) Trailer discs

Ensure there is 10 seconds between the start of the disc content and the initial video image ("Coming Soon...")

- b) Re-starting a Film after the interval

Switch inputs (on the AV Receiver) and wait for sync to be re-established before pressing 'Play' on the Blu-ray player.

5.2 Sound Quality

Further testing with the Sony AV Receiver and several discs suggested that the main PA speakers were having difficulty handling low frequency sounds when being driven at a reasonably high level.

Conclusions

1. Audio Settings

- a) Sony AV Receiver volume set around -3.0 dB.
- b) Volume control on wall plate set at 3 o'clock position.
- c) Yamaha Stagepas:
 - i) Master volume set to second black mark.
 - ii) Aux input level knob set to the mark.
 - iii) Set High tone knob to normal, and Low tone knob to 11 o'clock
- d) Slave amplifier: set to one notch above the marked position.

2. Future Development

An active sub-woofer should improve the handling of low frequencies, and allow the PA speakers to have a better overall performance once divested of this load.

The chosen speaker should have RCA line inputs, a variable crossover control, and RCA line outputs of the mid/high frequencies only.

Possibilities:

- a) [Mission MS-400](#) – 215w amplifier output.
- b) [Wharfedale Diamond SW150](#)

5.3 Playing Music before the Film / in the Interval

The AV Receiver has a suitable input (CD) to connect a music player (e.g. iPad or phone). However I can find no way of selecting this input for sound whilst also sending an image (e.g. of our 'Welcome' screen) through the HDMI Out port.

Conclusion

Probably need to make use of a small 2 channel mixer, ideally with smooth fader-over control.

e.g. the [Gemini MM1 Mixer](#).

APPENDIX A: Audience Questionnaire - Raw Data

NOTE: 1 = Worse, 2=Bit Worse, 3=Same, 4=Bit Better, 5=Better

Person #	Sound	Picture	Seating	Overall	Comments
1	2	3	3	3	
2	3	3	5	3	Sound excellent, seating excellent (sitting at front). Excellent experience, as ever.
3	3	3	4	4	
4	2	2	3	2	Sound not as clear. Hum from projector. Overall still enjoyable.
5	4	2	3	3	Sound better with more speakers. Screen smaller & lower. Feels like there's more room without the projector in middle of room. "Overall the same fantastic experience."
6	3	3	4	5	Sound OK, sometime clarity suffered. Screen smaller but still OK. Felt as if there was more space. Better seeing film this way round.
7	5	5	5	5	Thoroughly enjoyed it, will try to come more often.
8	2	3	4	3	Inconsistent sound clarity. Seating arrangement better for WC access. Would support this set up
9	5	5	5	5	
10	4	4	5	5	
11	3	3	2	3	Bottom of screen masked by folks' heads.
12	3	4	3	4	Actually thought screen was larger! (Suspect this was because it was a 16:9 format film, so image filled the screen.)
13	1	2	3	2	But "Lad" was terrific!!!
14	2	3	3	3	
15	3	3	4	4	
16	5	5	3	3	No real preference on seating arrangement. "Love it - thank you."
17	4	3	2	3	Sound excellent. Could some tables/chairs be moved further forward?
18	5	5	5	5	
19	4	3	2	3	Sound very good. Screen lower, so heads in the way! Still great though.
20	3	3	2	4	Screen lower, so slightly obscured my view.
21	3	3	2	3	Colder this way round - but may be something to do with heating!!
22	3	2	3	3	Lower screen means those at back see heads covering bottom of screen.
23	4	3	2	4	Seating: further from radiator and door (<i>smiley face</i>)
24	2	3	3	4	Sound seemed muffled. Good picture. Very good choice of film.

Mean	3.25	3.25	3.33	3.58
Std.Dev	1.11	0.94	1.09	0.93

APPENDIX B : Equipment Configuration

NOTES:

1. We are using two power amplifiers: one in the 'black box' and another in the Yamaha mixer. Careful balancing of the two will be necessary.
2. Projector has a habit of re-establishing connection to HDMI1 when moving from a Blu-Ray disc menu to a video, or when switching inputs on the video mixer/scaler. This behaviour has been noted on both commercial and self-authored discs. It was also experienced when using the village hall laptop to play a commercial DVD.

The following procedure was devised (though issue 2 can sometimes still surface!)

SETUP – BLACK BOX

- a) Set black box power amp controls to 10 o'clock.
- b) Set black box master volume to 12 o'clock.
- c) Set Blu-ray TOP volume to 9 o'clock.
- d) Set Blu-ray BOTTOM volume to 1 o'clock.

SETUP – PA SYSTEM

Set all controls as normal, except for the 'Disco Deck' input level, which should be at the 12 o'clock position.