



Supplementary report prepared for Special Access
undertaking Application by FOXTEL

FOXTEL MANAGEMENT PTY LIMITED
FOXTEL Engineering

Prepared By

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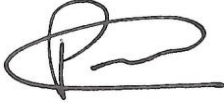
and

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This report supplements our report dated 4 October 2005, which was provided with the FOXTEL Submission. The purpose of the supplementary report is to respond to specific technical issues raised in the Seven Submission and the TWTV Submission.

Document Approval

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(29.03.2006)

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29.03.2006

1. Return Path

In section 7.2 of the Seven Submission, Seven asserts that FOXTEL is not obliged under the DAA to supply carriage services for the modem 'return path' which allows FOXTEL to supply itself with a higher quality return path than access seekers are able to obtain from Telstra.

This assertion demonstrates a misunderstanding of the return path services. Return path connectivity is provided by the modem in the STU. FOXTEL and access seekers can use the same modem (and therefore receive the same quality service). Connectivity into the PSTN is provided by the subscriber's own telephone connection (which again will be used by both FOXTEL and the access seeker). Connectivity from the PSTN to the access seeker's connection point is determined by the phone number provided by the access seeker (the point of presence). The sophistication of the end-processing applied to incoming calls from the PSTN to the access seeker is entirely under the access seeker's control.

In section 7.5(a), Seven also states that FOXTEL is not giving access to its 'own' return path or the cable return path. FOXTEL is not currently using the cable return path as it does not address the significant subscriber population using satellite signals. The cable modem therefore cannot provide a total service and an additional technology would be required for other content delivery systems. Currently, the PSTN provides a common interconnect that can be used on satellite and cable STUs. Any future or alternative return path technology will need to address all delivery systems. This PSTN return path is managed by the access seeker's forward interactive content by providing the appropriate dial-up contact details for the modem bank used by that access seeker.

The return path NTP (**Network Termination Point**) at the STU allows individual access seekers to size and operate the most appropriate modem bank or use third party suppliers of these services. Future return path technologies should be universal across all delivery systems (cable, satellite, etc) and should be agnostic as to the technology chosen. GPRS or DSL are examples of such universal return path technology. If FOXTEL were required to manage the access seeker's processing of their incoming calls, there will be significant additional systems required to keep returned data separated and distribute the return path traffic to the appropriate access seeker.

Seven also states that *"FOXTEL is not obliged under the DAA to amend, develop or upgrade its infrastructure to provide interoperability with the Access seeker's service"*.¹ If this were required of FOXTEL, then when different access seekers have different services with conflicting requirements, platform evolution would be forced to stagnate.

The reference to the *"constant feed" forward path* in section 7.2 of the Seven submission is addressed in Section 2 below.

¹ Seven submission, section 7.2

2. Forward Path

In section 7.3 of the Seven Submission, Seven states that “An access seeker sends its pay TV content to the end-user via the FOXTEL playout centre, which is connected by cable to the end-user’s STU (*the forward path*).” This is incorrect. An access seeker arranges carriage of their pay TV content with Telstra, Optus or a content aggregator for delivery to the end-user via the Telstra Cable and the Optus Satellite. FOXTEL only provides CA/SI and STU services.

In section 7.4 and section 7.5(c) of the Seven Submission, Seven states that access seekers do not have access to a constant feed forward path for their pay television content which limits their ability to offer a truly interactive service and gives, as an example, the need of a wagering operator to constantly update betting odds for subscribers. Again, this demonstrates a lack of understanding of how FOXTEL’s infrastructure works. The implementation of return-path interactivity² on the platform with the standard STU requires the return-path interactive application to be carried in the same 38Mbit bandwidth channel on the cable or satellite as the related channel and is an issue which is described in more detail in section 5 below. This ensures that the standard STU can access the return-path interactive application when it is tuned to the relevant channel. FOXTEL’s return-path interactive services are subject to this same rule and the same service is available to access seekers. The subscriber can see the changes in the wagering operator’s betting odds, in real time, whenever the subscriber is watching the wagering operator’s channel. When the subscriber tunes to a different channel, the return-path interactive application ends – irrespective of whether it is a FOXTEL or access seeker return-path interactive application. While the subscriber is tuned to the channel providing the return-path interactive application, there is a constant feed being decoded by the STU, irrespective of whether it is a FOXTEL or access seeker application. When the subscriber is tuned to a different channel, the constant feed of return-path interactive application data is still being supplied in the whole transport stream, but it is not used by the STU because it is not decoding the relevant channel data. This applies equally to FOXTEL and access seeker applications.

The feed forward for return-path interactive services is provided by the access seeker as part of their content delivery and is in the form of a data carousel. The detail of the interface and protocols are available from FOXTEL. This is a standard product and would usually be available from several equipment vendors. The data carousel system is tailored to implement the specific requirements of the content provider/access seeker. The data from the carousel is carried in a constant forward stream to the subscriber’s STU, but is only viewable when the subscriber is tuned to and decoding the access seeker’s channel. (This same process applies equally to FOXTEL and access seeker return-path interactive applications.)

² We use the phrase “return-path interactivity” in this report to distinguish the type of service we are discussing from other types of interactive or enhanced services which may not use the return path. Return-path interactivity is interactivity which involves the subscriber sending to the provider of content a reaction to that content using a modem and return-path.

3. Flash Memory

In Section 8.1, Seven states that access seekers do not have access to the flash memory which it says can store demand videos. This submission misunderstands the relevant technology. Flash memory is a nonvolatile memory area within the STU for the storage of STU operating system (CORE code) and housekeeping parameters. There is no ability for this memory to store video content and therefore cannot provide the stated advantage to FOXTEL, access seekers or any other users of the STU.

4. Two Way TV Australia Submission

One of the reasons Two Way TV Australia Limited (*TWTV*) opposes the SAU is that TWTV submits that the SAU does not allow a third party to use it in order to provide return-path interactive features which enhance channels already broadcast as part of the FOXTEL service.

This criticism is not a valid one for a number of reasons. First, the provision of return-path interactive features in the way suggested by TWTV would pose significant technical problems for FOXTEL which would result in FOXTEL having to use its own capacity. This may mean that services FOXTEL currently supplies to its subscribers may no longer be able to be supplied or that FOXTEL is constrained in using that capacity for its own service.

This is because when a FOXTEL subscriber selects a particular channel (eg Sky Racing), the subscriber's STU "tunes into" the channel. The standard STUs provided by FOXTEL to its subscribers contain only one tuner. This tuner is capable only of tuning to one multiple program transport stream (*MPTS*) at a time. Diagram 1 below shows how this works.

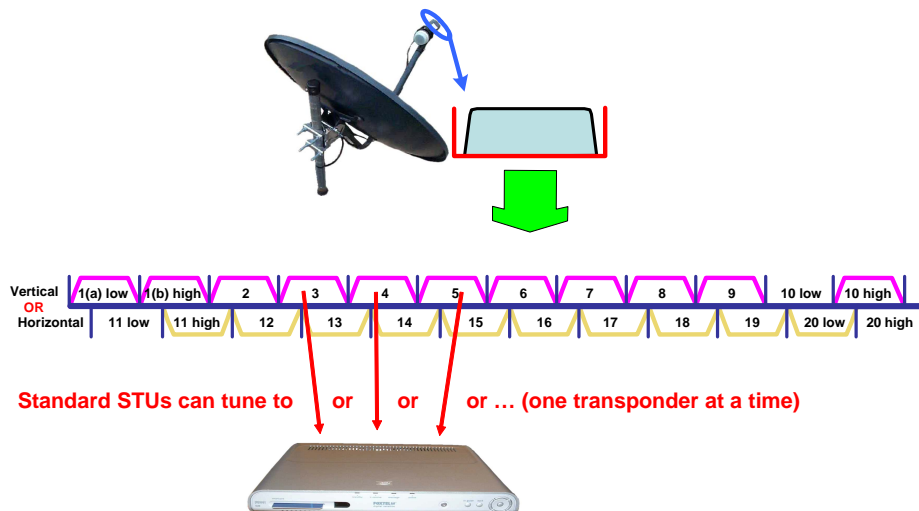
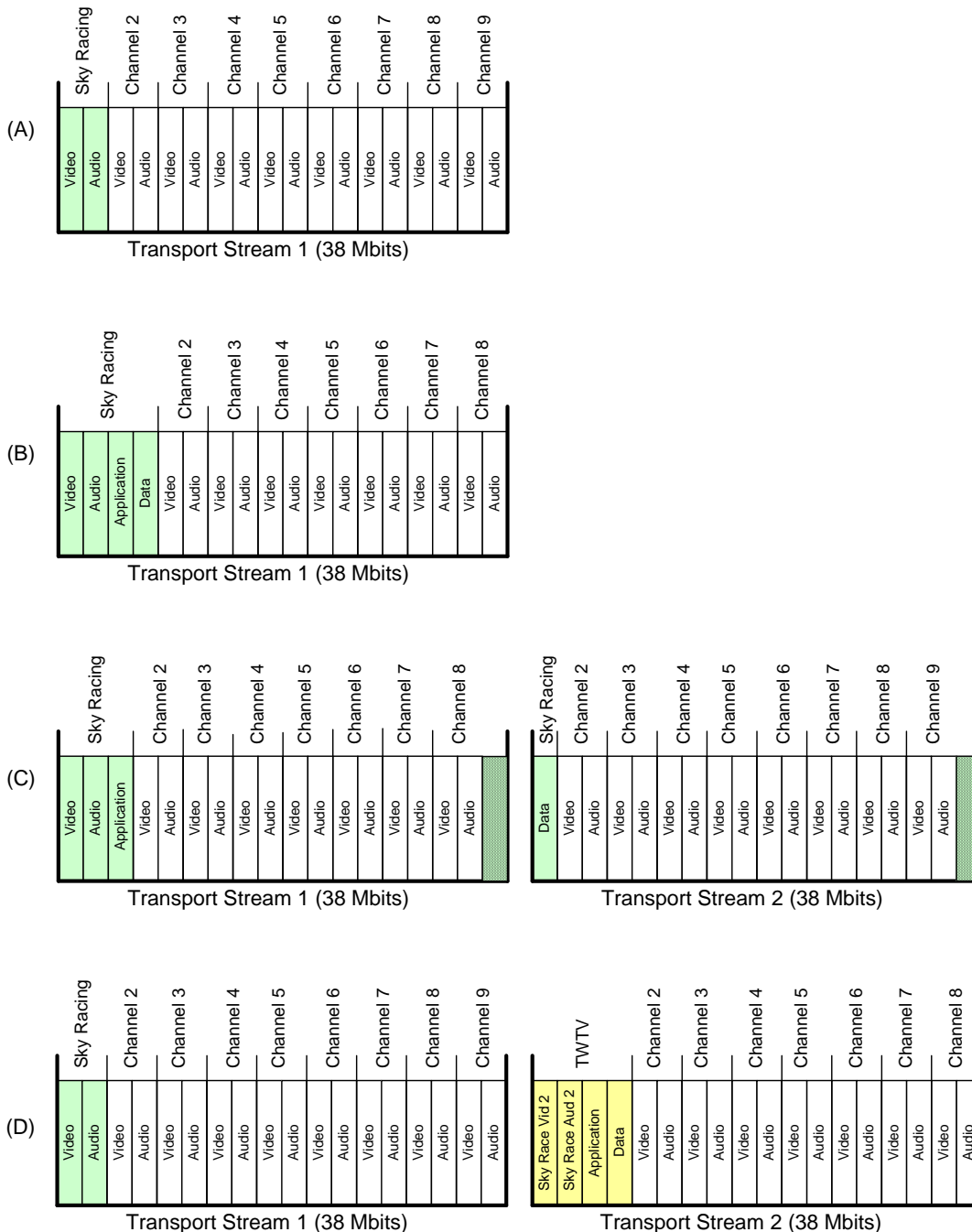


Diagram 1

On cable, a MPTS is equivalent to 8 Mhz of bandwidth (on average 10 digital channels) and, on satellite, it is equivalent to one 36 Mhz transponder (on average 10 digital channels). Both cases are equal to approximately 38 Mbits. In other words, when a FOXTEL STU is "looking" at one section of the broadcast space it cannot "see" any other space at the same time. If a return-path interactive application is to be "overlaid" onto an existing channel, the capacity needed for that

interactive overlay (about 2 Mbps) must be sourced from the same 8 MHz bandwidth or transponder.

Diagram 2 shows a typical layout of a MPTS on the FOXTEL service. The diagram shows the area in which the linear video picture for the channel is broadcast. In order to inform the subscriber that the return-path interactive application is available, an icon is broadcast in the video part of the MPTS, indicated below, which appears on the television screen. If the subscriber wishes to access the application, he or she presses a button on the remote control and the application launches.



- (A): Typical cable or satellite transport stream layout
- (B): Typical layout of an interactive channel
- (C): Layout showing launch icon application with primary video service and data in a different transport stream
- (D): Layout required for a TWTV Sky Racing application

Diagram 2

Most return-path interactive applications are contextual with the channel to which they relate, primarily so that the subscriber still feels as if they are watching the channel to which they tuned into. Diagram 3 shows one of many possible layouts of a return-path interactive application for a channel:



Diagram 3

This diagram shows the return-path interactive application overlaid on the primary video service. In other layout cases the primary video of the channel continues to be broadcast in the top left corner of the TWTV-like application and the interactive application appears around the video on the screen. Either layout would suit the TWTV application, as the subscriber would wish, for example, to be able to view the races broadcast on the Sky Racing channel while he or she is placing bets.

The contextualising of the primary channel means that the interactive application and its related data and audio elements must be broadcast in the same MPTS as the primary channel, so that the STU can "see" the application in that MPTS. The STU must be able to still see the primary channel in order to display it. If the application was located in another MPTS, then when the application was launched, the STU would tune to that MPTS and the primary channel would be lost.

If an access seeker was provided with the ability to provide an interactive application in connection with a channel which was already a part of the FOXTEL service, without being broadcast with that channel, it would result in FOXTEL having to give up a part of its own cable or satellite capacity. FOXTEL's video channels are broadcast by FOXTEL using channels or transponders obtained pursuant to contracts with Telstra (cable) or Optus (satellite). In order to accommodate an access

seeker in the manner sought by TWTV, FOXTEL would have to either re-sell a part of its own capacity to the access seeker (which it is prevented from doing by its contracts with Optus and Telstra) or it would have to return some of its capacity to Optus and Telstra and somehow require Optus or Telstra to agree to supply the returned capacity to the access seeker. It may also mean that some services FOXTEL currently supplies to its subscribers could no longer be supplied or that FOXTEL is constrained in efficiently using that capacity for its own service (as shown in diagram 2).

If the scenario is expanded to the extreme and many access seekers wish to use FOXTEL primary video services, then FOXTEL will be forced to acquire additional capacity on both cable and satellite, implement additional infrastructure (which has a capital cost) and reduce the efficiency of the FOXTEL operation as a result.

In the case of cable, FOXTEL would also need to acquire additional inter-city fibre optic capacity from its playout centre to the various headends of the Telstra broadband network in order to carry the access seeker's service and would become a capacity reseller with respect to the capacity required to be supplied to the access seeker.

While locating the access seeker's return-path interactive application on a separate transponder would be technically possible TWTV would lose the video feed association with the application. Furthermore, it would not solve the bandwidth problem, as TWTV wants FOXTEL to be required to broadcast the invite icon application using FOXTEL's own capacity.

In a scenario that TWTV wanted to provide a return-path interactive application to its customers under access that does not have a primary video service that is carried by FOXTEL, then TWTV would have to pay for capacity on cable and satellite to support the primary video service and the return-path interactive application. In addition TWTV would have to provide a method of delivery of the content to satellite (such as GlobeCast) and Telstra cable headends.

For various technical reasons FOXTEL, from time to time, has had to dual illuminate services in its capacity due to technical delivery issues, (currently FOXTEL has one channel in this situation). It is not uncommon for a broadcaster to do this to circumvent technical delivery problems.