Guideline on Interconnection between the In-building Coaxial Cable Distribution Systems

Industry Consultation Paper

3 December 2004

Background

1. The Government concluded on 6 July 2004 the review of Type II interconnection policy. Two documents were issued on that day to announce the policy decisions:

(a) Legislative Council Brief entitled "Review of Type II Interconnection Policy"; and

(b) Statement issued by the Telecommunications Authority ("TA") entitled "Review of Type II Interconnection Policy" ("TA Statement of 6 July 2004").

The two documents can be downloaded from the website of the Office of the Telecommunications Authority ("OFTA"): www.ofta.gov.hk. In relation to interconnection to In-building Coaxial Cable Distribution System ("IBCCDS"), the TA Statement of 6 July 2004 concludes the following,

> *"23. The crucial question for the Government is whether Type II interconnection at the in-building level would best serve the Government's policy objectives. The same consideration applies irrespective of whether the system is an ordinary blockwiring system or an IBCCDS. We do not agree with claims ... that there are no bottlenecks for the installation of IBCCDS in buildings... There are bound to be constraints in the installation of the horizontal drop cables leading into individual premises. At present, in many cases, the horizontal drop cables are simply disconnected from one IBCCDS and reconnected to the other. This has caused confusion to and complaints from consumers.*

24. As competition develops in the telecommunications and broadcasting markets, the number of IBCCDS provided would invariably be less than the number of telecommunications and broadcasting operators who wish to gain access to the residents in buildings through the IBCCDS. Economic and technical constraints may not allow operators to install their individual IBCCDS in the buildings. To require each operator to install the IBCCDS before gaining access to the residents would also be a wasteful duplication of resources, as this would not increase capacity available to the residents because the overall bandwidth is restricted by the bandwidth over the horizontal drop cable. It is generally difficult to duplicate the horizontal drop cable without causing undue disturbance to the decoration and finishing of premises and common areas.

25. We consider that competition among telecommunications and broadcasting operators should be on the basis of price, quality, innovation and attractiveness of their programmes, rather than control of the IBCCDS. It is Government's policy to promote effective competition in the provision of telecommunications and television programme services. To achieve this policy objective, residents in a multi-storey building should have access to telecommunications and broadcasting services of their choice without undue restriction. The continuation of the interconnection would best serve the Government's policy objectives, and as such, IBCCDS being a form of in-building systems, should continue to be subject to mandatory interconnection. We are not convinced that without mandating Type II interconnection at Point C, problems with access to IBCCDS can always be resolved on a commercial basis. Like interconnection to in-building blockwiring systems, the powers of the TA will be a reserve one, to be exercised only when operators cannot reach commercial agreements.

26. HKCTV, RSS and Galaxy also raised technical and costing issues such as how interconnection to IBCCDS should be effected (tap-to-tap method or otherwise), and the charging model to be applied. We would emphasise that the overriding principle is that, consistent with the principle that applies to interconnection to in-building blockwiring systems ..., interconnection to IBCCDS can be made at any point that is technically feasible. As for the details on the actual implementation of the interconnection, the issues involved are somehow different from interconnection to blockwiring systems. The TA will separately study the issues peculiar to IBCCDS and issue codes of practice or guidelines as appropriate.

27. To sum up, our decision is that mandatory Type II interconnection to copper wires of in-building systems (including blockwiring systems and IBCCDS) will be maintained.

2. Under section 6D of the Telecommunications Ordinance (the "Ordinance") (Cap 106), the TA may, for the purpose of providing practical guidance in respect of any provisions of the Ordinance, issue such guidelines as in his opinion are suitable for that purpose. In accordance with section 6D(4)(b), the TA shall, before issuing any guidelines setting out principles governing the criteria for any determination under section 36A(1) and the matters to be considered for the purposes of sections 36A(3) and (3B) in the application of sections 36A(3) and (3B) to any such determination, carry out such consultation with the telecommunications industry as is reasonable in all the circumstances of the case.

3. The purpose of this consultation paper is to invite views and comments on a guideline (the "Guideline") proposed to be issued by the TA for setting out principles and matters to be considered by the TA in making a determination under section 36A on the terms and conditions of, or issuing a direction under section 36B to secure, an interconnection between, or to, IBCCDS in a building or buildings within the same property development (hereinafter referred to as "IBCCDS interconnection"). Preliminary views expressed by the TA in this consultation paper are for the purpose of discussion and consultation with the industry only. Nothing in this consultation paper represents or constitutes a determination, direction or decision made by the TA and the consultation contemplated by this paper is without prejudice to the exercise of his power under section 36A to make determination and under section 36B to issue a direction to secure interconnection where individual cases may so warrant irrespective of whether this consultation is still in progress.

The Problem

4. An IBCCDS is an in-building wiring system for the conveyance of telecommunications and broadcasting services and some amenities or security services for the building. It consists of one vertical coaxial

cable ("vertical cable") running from the top to the bottom of the building, a number of horizontal coaxial drop cables ("drop cables") and ancillary equipment (including broadband amplifiers, distribution boxes and combiners). Each individual premises will be connected to the vertical cable with one drop cable. Although some buildings may have more than one (usually two) IBCCDS, these IBCCDS will need to use the same drop cable for connection to each individual premises. A typical configuration of IBCCDS is depicted in Figure 1.

5. In the 1980's, there was usually one IBCCDS in a building which was owned/managed by the Building Management Office/Incorporated Owners ("BMO/IO") for delivering free-to-air terrestrial television, closed circuit television and FM broadcasting services ("common services") to the residents in the building. In a building without BMO/IO, the IBCCDS was collectively owned/managed by all the premises owners of the buildings. Satellite television reception was gaining popularity at that time and the Government issued Satellite Master Antenna Television ("SMATV") licence to operators for reception and distribution of free satellite television programme services in buildings. To enable the residents in a building to receive satellite programme services, the BMO/IO appointed an SMATV operator who installed a satellite dish and receiving equipment on the rooftop of the building. The SMATV operator also upgraded the IBCCDS which would then be used to deliver both the common services and SMATV service (hereinafter collectively called the "original services") to the residents. Usually the SMATV operators would reuse the existing drop cables installed/owned by the BMO/IO in their upgraded IBCCDS as there were difficulties to replace the drop cables.

6. In 1993, HKCTV started to provide pay television service via its hybrid fibre coaxial ("HFC") network. As part of the HFC network, HKCTV also needed to make use of the IBCCDS for delivering its service to individual premises. As the delivery of pay television service would require two-way interactive capability, HKCTV could not use the IBCCDS upgraded by the SMATV operators because most of these upgraded IBCCDS did not support bi-directional communications. HKCTV therefore installed a new IBCCDS in the buildings. For connection to the individual households, HKCTV also made use of the BMO/IO's drop cables.

7. As both SMATV operator and HKCTV used the same drop cables, interconnection between two IBCCDS was necessary in order to enable HKCTV's subscribers to enjoy concurrently pay television service and the original services. In 1995, there had been a dispute between HKCTV and an SMATV operator concerning the technical configuration of interconnection in a building. HKCTV requested the TA to make a determination. The determination of TA, among others, was that the SMATV operator should provide a feed, which contained the original services, from its system to the headend of HKCTV's IBCCDS so that the SMATV signals were also distributed by the HKCTV's IBCCDS. HKCTV could disconnect, from the SMATV operator's IBCCDS, the drop cables of the customers subscribing to HKCTV's service and connect them to HKCTV's IBCCDS and the subscribers would receive the pay television service and the SMATV service concurrently. Residents who did not join HKCTV's service would continue to be connected to the SMATV operator's IBCCDS. This interconnection configuration is known as "headend" interconnection. Similar determinations were made by the TA between HKCTV and other SMATV operators in 1996 and 1997.

8. Since some time in 2002, HKCTV changed the interconnection practice in buildings. Currently, HKCTV disconnects the drop cable from the SMATV's IBCCDS and connects the customers' drop cables to its IBCCDS without making headend interconnection between the two IBCCDS. Due to the disconnection of drop cables from the SMATV operator's IBCCDS and lack of interconnection between the two IBCCDS at the headend, HKCTV's customers lose the original services after joining HKCTV's pay television service or broadband Internet service. (From 2000, HKCTV also conveys broadband Internet service of its affiliated Internet Service Provider, i-CABLE, over the HFC network.) If the customer decides to cease subscription to HKCTV with a view to receiving the original services, HKCTV will require the customer to pay a re-connection fee of $350 to re-connect the customer's drop cable to the SMATV's IBCCDS. The right to charge the customers fee for restoration of the drop cables is given in Condition 66 of HKCTV's Renewed Subscription Television Broadcasting Licence. If HKCTV's customers wish to receive both the original services and HKCTV's service, HKCTV will add a combiner at the customer's drop

cable at a charge of $600. The charge has recently been reduced to $100 in some cases. The combiner combines the signals carried in the two IBCCDS before delivery to the customer's premises. This interconnection configuration is known as "tap-to-tap" interconnection.

9. Since HKCTV changed its practice of not interconnecting with SMATV system at the headend and "tap-to-tap" interconnection is only arranged at the customer's request on a customer by customer basis, OFTA has received numerous complaints from the public concerning the loss of the original services after joining HKCTV's pay television service or broadband Internet service.

10. The existing practices of HKCTV have given rise to the following problems:

(a) If the resident decides to subscribe to HKCTV's service and opts not to have the interconnection with SMATV service, he would not have access to all services on the SMATV system, including sometimes the common services. This arrangement is not conducive to the achievement of the Government's policy objective that the residents should have unimpeded access to the full range of broadcasting and telecommunications services which are made available at their premises in the two IBCCDS.

(b) Suppose the resident who decided not to interconnect with the SMATV system subsequently wishes to receive satellite television programme services, either in addition to the HKCTV services, or as a replacement, the resident would have to make arrangements to reconfigure the drop cable, either adding a combiner or switching the drop cable back to SMATV system. This work has to be carried out either by HKCTV, or the SMATV operator in coordination with HKCTV. The cumbersome procedure and lead time to add the combiner would cause inconvenience to customers when they wish to switch from one service to another.

(c) A resident who decided not to have interconnection at the time of subscribing to the HKCTV system might move out of the

premises. The incoming resident might not be aware that the drop cable had been disconnected from the SMATV system and the arrangement for receiving satellite television programme services.

For the above reasons, the existing practices gave rise to misunderstanding, confusion (residents not aware that subscribing to HKCTV service could lose satellite television), complaints and possible abuse in the past.

Government's Policy

11. Under section 36A(10) of the Ordinance, the TA shall in making a determination give regard to, inter alia, the Government's policy objectives for the telecommunications industry and consumer interests. It is the Government's policy that all consumers in Hong Kong should have access to a full range of telecommunications and broadcasting services of their choice without undue restriction.

12. The TA notices that the loss of the original services after joining HKCTV's services arises only in buildings where there are two IBCCDS in place. To facilitate the concerned parties to arrange for IBCCDS interconnection, the TA intends to issue a Guideline under section 6D of the Ordinance to provide practical guidance in respect of the technical configurations and charging arrangements to be considered for the purpose of a determination under section 36A.

Alternatives of Technical Configurations for IBCCDS Interconnection

13. There are essentially three possible technical configurations for IBCCDS interconnection as follows:

Configuration 1

HKCTV provides the feed to the headend of the SMATV system. The configuration is illustrated in Figure 2. This is one form of

headend interconnection.

Configuration 2

The SMATV operator provides the feed to the headend of HKCTV's network. The configuration is illustrated in Figure 3. This is another form of headend interconnection.

Configuration 3

For each customer to HKCTV's service, the SMATV signals and HKCTV's signals are combined at the customer drop cable. The configuration is illustrated in Figure 4. This is tap-to-tap interconnection. The difference between Configuration 3 and the existing practices of HKCTV is that in Configuration 3, the combiner should be installed as part of the standard installation work while under existing practices of HKCTV, HKCTV may not carry out the installation of the combiner if not requested by the subscriber.

Comparison of Technical Configurations

14. The advantages and disadvantages of the above interconnection configurations are given below:

Configuration 1

The advantage of this approach is that once the feed has been installed, connection of a new customer to HKCTV's service is relatively straightforward and quick.

However, as the SMATV system is designed for the one-way transmission of signals mainly in the UHF band while the HKCTV's services operate mostly in the VHF band with a two-way interactive requirement, substantial upgrading is required on the SMATV system before it is suitable for the transmission of HKCTV's services. Such upgrading costs more than the other two configurations and would take time to complete. There would also

be practical difficulties in determining the ownership and maintenance responsibility of the upgraded system.

Configuration 2

The feed from the SMATV system to HKCTV's network would need to be properly engineered, but compared with Configuration 3 this engineering would need to be carried out only once. After the feed has been installed, connection of a new customer to HKCTV's services would be relatively straightforward and quick. Subscribers connected to HKCTV's IBCCDS can also receive the original services, including SMATV service.

Configuration 3

The combining at the customer drop cable would need to be properly engineered to suppress any spurious output from the SMATV system and/or external radio signals picked up by the SMATV system in the operating band of HKCTV's services. Additional equipment and engineering would also be required for the provision of the return path for HKCTV's two-way services. Such engineering would need to be repeated for every flat that joins HKCTV's services.

TA's Considerations

15. For Configuration 1, unless the SMATV operator is willing to upgrade the system to enable the transmission of two-way interactive services, this option is not recommended as it costs more than the other two configurations and would take longer time to complete.

16. While both Configuration 2 and Configuration 3 enable the original services and HKCTV's services to be accessed by the customers, the repetition of engineering work for implementing Configuration 3 would be wasteful of resources. Thus, in terms of provision cost, the cost for Configuration 3 is much higher than that for Configuration 2. Such cost will ultimately be passed on to consumers. Furthermore, the lead time for the provision of HKCTV's service to each premises would inevitably be lengthened. Wall space would have to be found for the

individual combiners and filters. For Configuration 2, the feed at the headend would also need to be properly engineered, but compared with Configuration 3 this engineering work would need to be carried out only once. After the feed has been installed, connection of a new customer to the HKCTV's service would be relatively simple straightforward and quick.

17. In Configuration 2, the two IBCCDS are fully interconnected and the common services and SMATV service are available to all residents connected to the HKCTV's IBCCDS. There will not be an additional requirement for ex-HKCTV subscribers, after termination of HKCTV's service, to reconfigure the drop cables leading to their premises. This meets the Government objectives of ensuring that all consumers in Hong Kong should have access to a full range of telecommunications and broadcasting services of their choice without undue restriction.

18. In Configuration 3, the services in two IBCCDS are combined through the combiners in the drop cables. The common services, SMATV service and HKCTV service are available concurrently only at the residents' premises served by the drop cables with the combiners. The premises served by drop cables connected to only one IBCCDS will not receive services carried by the other IBCCDS. This configuration however has the advantage of not involving interconnection agreement between HKCTV and the SMATV operator and can therefore be implemented within a shorter period of time than Configuration 2.

Arrangement for IBCCDS Interconnection in Buildings

19. The TA proposes that either Configuration 2 or Configuration 3 is acceptable. SMATV operator and HKCTV could negotiate the configuration to be adopted in a particular building.

20. At present, there are a number of buildings where HKCTV has already provided tap-to-tap interconnection in order to enable its customers to concurrently receive both the original services and HKCTV's services. If headend interconnection is now made between the IBCCDS of the SMATV operator and that of HKCTV in these

buildings, the signals in both IBCCDS delivered to these customers will interfere with each other. It is therefore necessary to add additional filters in the HKCTV leg to remove the SMATV signals before the combiner or remove the combiners at the customers' drop cables to ensure normal operation of the networks. However, the removal of the combiners will incur costs.

21. Thus, for buildings where tap-to-tap interconnection has already been provided before the issue of the Guideline, if there is a request from the resident in the building for concurrent reception of HKCTV's services and the original services, HKCTV should discuss with the SMATV operator and the BMO/IO on whether the tap-to-tap interconnection arrangement should be retained or the interconnection configuration should be changed to Configuration 2.

Charging Principles

22. The principles for the determination of interconnection charges have been set out in paragraph 11 of the "Guidelines on the Principles for the Determination of Terms and Conditions for Interconnection between Subscription Television Network and Satellite Antenna/Communal Aerial Broadcast Distribution Systems" issued by the TA on 17 May 1994 under section 36A(8) of the then existing Ordinance as follows:

> *"The [interconnection] charge will be based on the recovery of all relevant costs attributable to the interconnection and the conveyance of signals by the user access system. It should be noted that 'all relevant costs' may include both direct both direct and indirect costs plus a reasonable cost of capital. Interconnection charge will be determined based on the principle that any party supplying facilities and services to another party should be fairly compensated for the relevant costs incurred for the supply of the facilities and services."*

23. In Configuration 2, if the IBCCDS carrying the SMATV service is already a fully established system capable of conveying the original services to the residents in the building, the interconnection at the headend is just to restore the original services interrupted because the resident's drop cable is connected to HKCTV's IBCCDS. Therefore it is

not reasonable for a periodic interconnection charge to be paid by the SMATV operator to HKCTV, or *vice versa*. The cost of installing and maintaining the interconnection should in principle be borne by the party requesting the interconnection, generally the latecomer. These principles have been adopted in a number of interconnection determinations made by the TA in 1995 - 1997, for example, the determination on 30 June 1995 between HKCTV and Wo Kee Hong Limited. However, these principles should *not* apply to cases where the SMATV operator has not installed an IBCCDS capable of conveying the original services to the residents in the building. These principles should also *not* apply to the delivery of subscription television programme services over the interconnection.

24. In Configuration 3, neither the SMATV operator nor HKCTV provides a conveyance service for the other operator and thus no periodic interconnection charge to be paid by the SMATV operator to HKCTV, or vice versa.

25. In Configuration 3, the installation and maintenance costs of the combiner and making the interconnection should in principle be borne by the latecomer. When the final drop cable to the resident's premises is connected to the IBCCDS carrying the SMATV service, as part of the standard installation work of HKCTV, the combiner interconnecting the final drop cable with both IBCCDS should be installed by HKCTV. The cost for providing this interconnection should be borne by HKCTV, though it is a commercial decision of HKCTV to recover the cost from the subscriber in accordance with its tariff. Conversely, if the final drop cable to the resident's premises is connected to the IBCCDS carrying HKCTV's service, when a SMATV system is subsequently set up, as part of the installation work of the SMATV system, the combiner interconnecting the final drop cable with both IBCCDS should be installed by the SMATV operator. The cost for providing this interconnection should be covered by the project cost of the SMATV system. It is the commercial decision of the SMATV operator to set the project charge to cover this cost.

Disputes

26. IBCCDS operators including HKCTV, SMATV operator and in-building class licensees are required to arrange for interconnection in the manner as set out in the Guideline. All concerned parties should negotiate the terms and conditions on a commercial basis. If no commercial agreement can be reached between the concerned parties, they may request the TA to make a determination. In case of any disputes, they may seek assistance from the OFTA for dispute resolution. If one operator or both operators consider that determinations by TA are required, it or they may make such request to the TA under section 36A of the Ordinance.

Invitation to Comment

27. Views and comments on this consultation paper should reach OFTA on or before 28 January 2005. Any person who submits views and comments should be aware that that TA may publish all or any part of the views and comments received and disclose the identity of the source in such manner as the TA sees fit. Any part of the submission which is considered commercially confidential should be marked, together with the reasons for such claims. The TA will take such markings into account in making his decision as to whether or not to disclose such information. Submissions should be addressed to:

Office of the Telecommunications Authority
29/F Wu Chung House
213 Queen's Road East
Wanchai
Hong Kong
Attention: Mr C K Cheng
Senior Telecommunications Engineer
(Advisory & Support)

Submissions should be sent by e-mail to the following address:

ckcheng@ofta.gov.hk

Office of the Telecommunications Authority
3 December 2004

Figure 1: Typical Configuration of IBCCDS

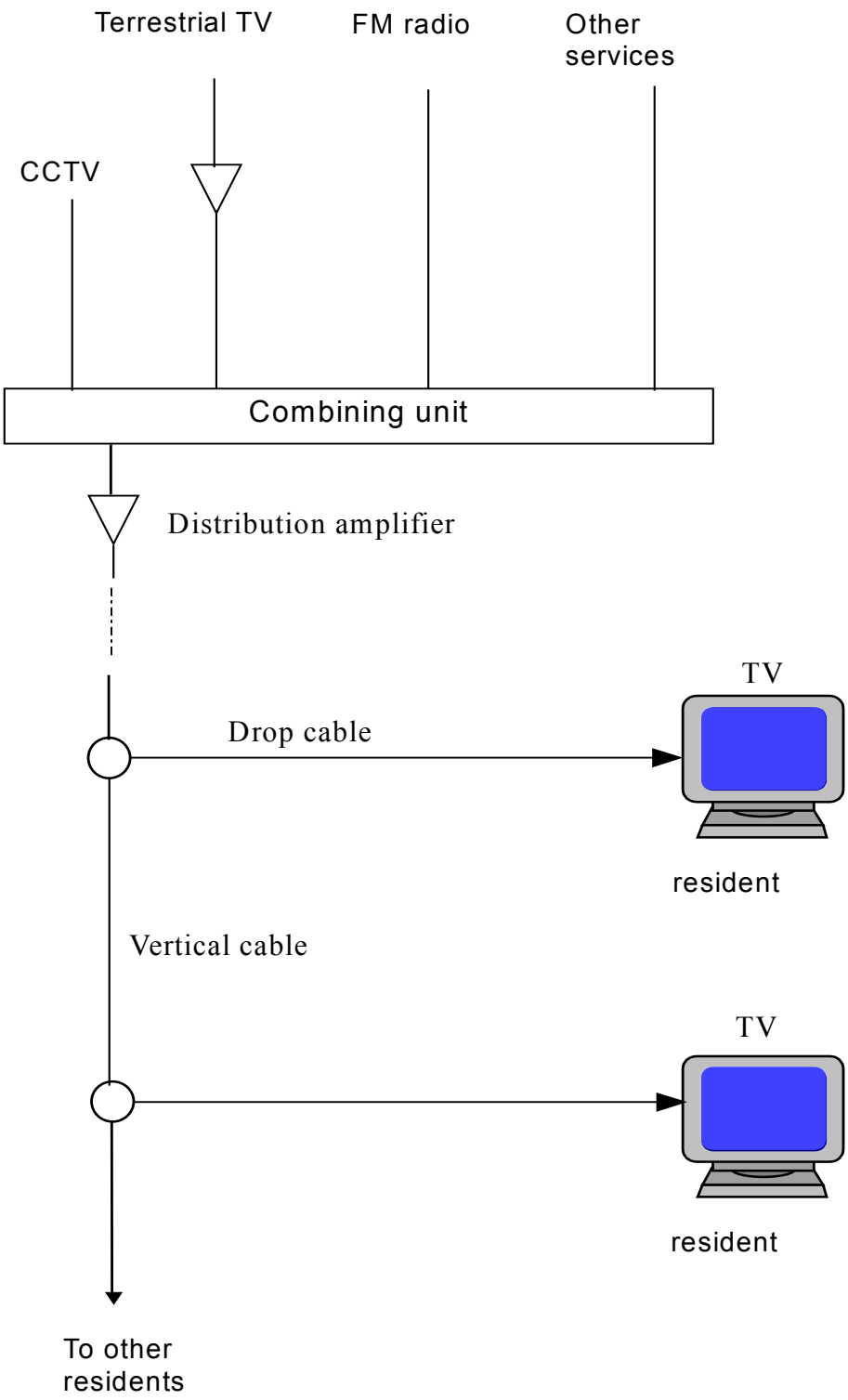

Figure 2: Headend Interconnection with HKCTV Feeding its Signals to the Headend of the IBCCDS of the SMATV Operator

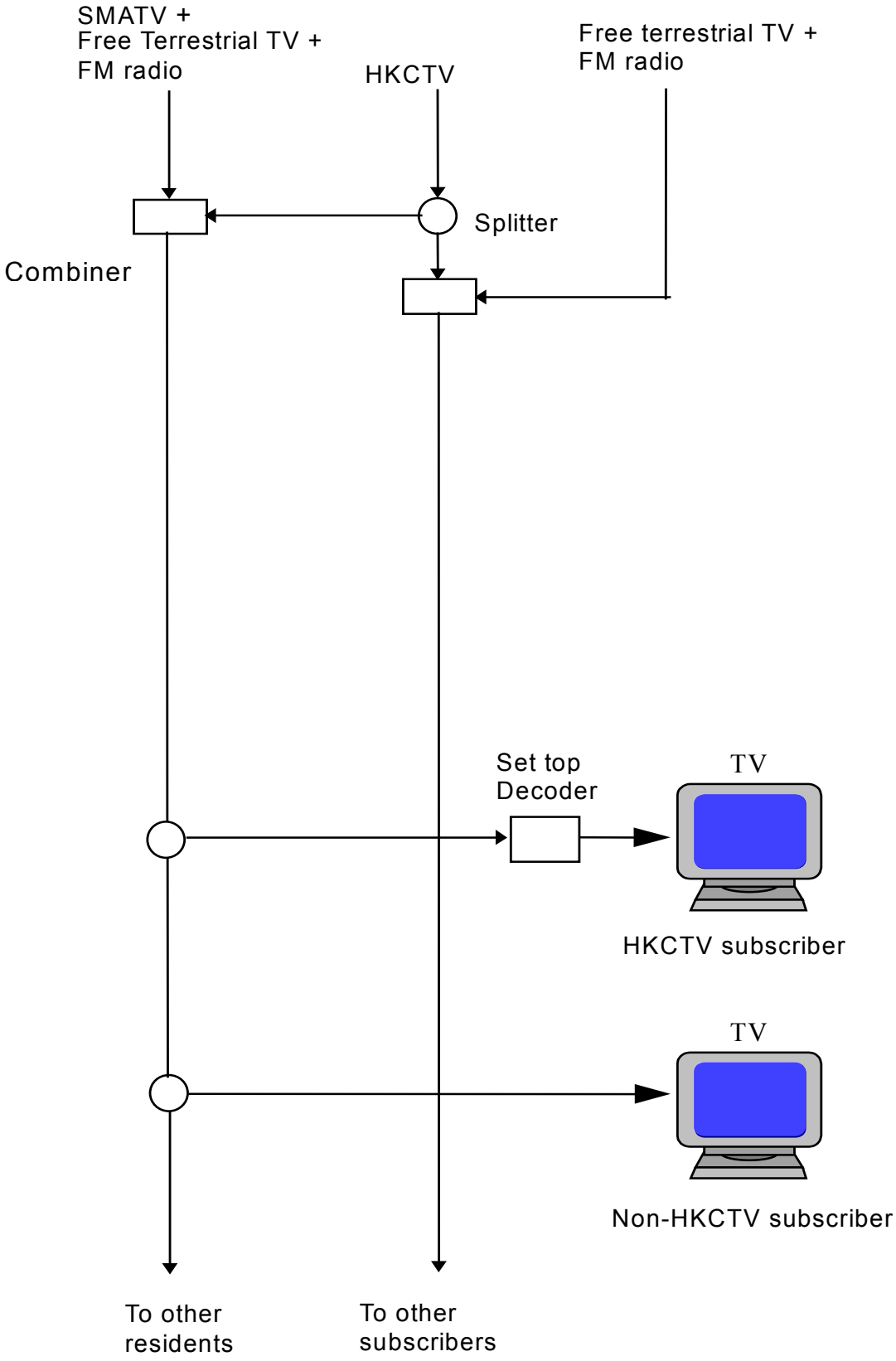

Figure 3: Headend Interconnection with the SMATV Operator Feeding its Signals to the Headend of HKCTV's IBCCDS

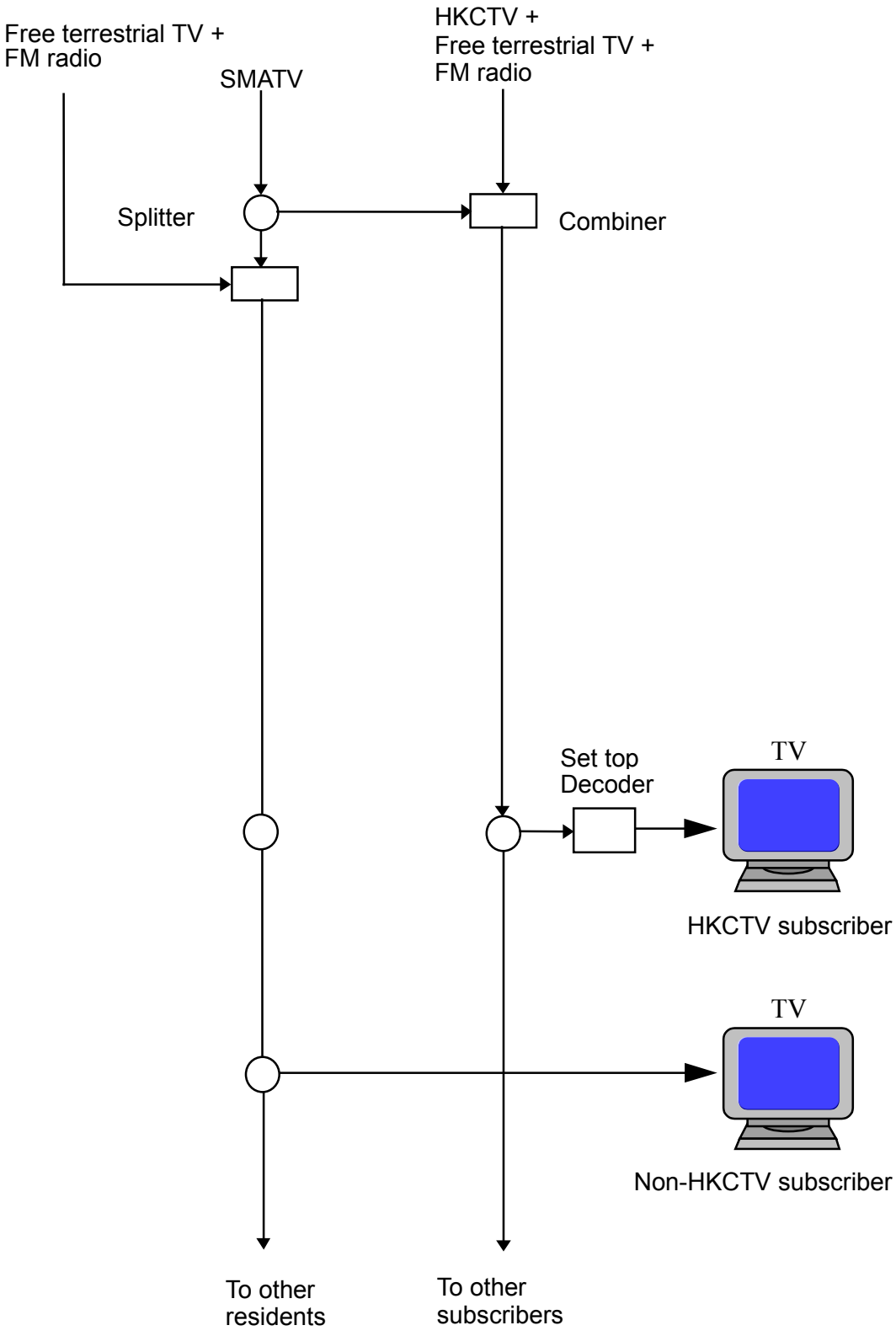

Figure 4: Tap-to-tap Interconnection - Signals of SMATV and HKCTV are combined at the Horizontal Drop Cable