



ΣταρHub Χαβλε ρισιον Λτδ
(Reg No. 199103398X)
51 Χυππαγε Ροαδ
#07-00 ΣταρHub Χεντρε
Σινγαπορε 229469
Τελ: (65) 6825 5000
Φαξ: (65) 6721 5002

27 April 2005

Mr Andrew Haire
Senior Director (Policy & Competition Development)
Infocomm Development Authority of Singapore
#14-00 Suntec Tower Three
Singapore 038988

Fax: 6211 2116

Dear Mr Haire

REVIEW OF THE CODE OF PRACTICE FOR INFO-COMMUNICATIONS FACILITIES IN BUILDINGS

StarHub Ltd and StarHub Cable Vision Ltd (collectively "StarHub") are pleased to provide our comments on the proposed Code issued by IDA on 4 March 2005. StarHub supports IDA's moves to codify procedures related to info-communications facilities in buildings, and agrees with the objectives of the Codes.

Section One of the attached document sets out StarHub's comments on:

- Code requirements for single-unit landed houses;
- Electricity charges;
- Cable ready certification;
- The duty of developers/owners to maintain their space and facilities; and
- The use of ceiling / wall space for telecommunications facilities.

Section Two provides StarHub's comments on the drafting of the Code. Section Three sets out StarHub's confidential information.

StarHub is grateful for the opportunity to comment on this issue, and would be happy to provide any clarification or elaboration that is required on this matter.

Yours sincerely

Tim Goodchild
Head (Regulatory)



STARHUB SUBMISSION ON THE REVIEW OF THE COPIF

SECTION ONE:

Single-Unit Landed Houses that do not require Telecommunications Services:

Under Sections 3.5.1 and 10.1.5 of the draft Code, it is possible for property owners to elect not to provide space and facilities for Broadband Coaxial Systems ("BCS"). Property owners can also elect not to provide space and facilities for basic telephone services.

StarHub recognises that there will be a small number of property owners who genuinely do not wish to avail themselves of telecommunications and cable services. StarHub has no wish to impose unnecessary costs on these parties. However, we would note that IDA has recently described basic telephone services as *"increasingly seen as indispensable by a large proportion of the general public, and which the public relies heavily upon for their telecommunications needs"* (please see IDA's letter of 11 April 2005).

StarHub is concerned that the provisions of Sections 3.5.1 and 10.1.5 of the Code could be mis-used, and that unscrupulous parties could declare that they do not require cable and telephone services simply to lower their building construction costs. This will create situations in which landed properties are not cabled up; and when the properties (inevitably) change hands, the new owners will find themselves without cable and/or telephone services.

The new owners of those properties will then approach the providers of cable and telephone services seeking service, and the new owners will very frequently have significantly under-estimated the cost of cabling up their properties. StarHub would note that the cost of retrospectively cabling up a property is almost always significantly higher than the cost of cabling up the property at the time of construction.

Section 3.7.1 of the Code states that it is necessary for space and facilities to be integrated into the construction phase of the building, to prevent *"wastage, inconvenience, and delay"*. StarHub is concerned that Sections 3.5.1 and 10.1.5 will simply generate wastage, inconvenience, delay, frustration and higher costs for property owners.

StarHub would also note that Sections 3.5.1 and 10.1.5 are unnecessary. Under Section 1.4.1 of the Code, IDA already has the ability to grant specific exemptions from the Code. If a property owner genuinely does not want telecommunications and cable services, the owner simply has to apply to IDA for an exemption under Section 1.4.1. StarHub would suggest that the number of property owners falling into this category would be very low, and that the number of genuine exemption requests is unlikely to be burdensome. This approach would meet the needs of property owners and service providers, without creating a loophole that unscrupulous parties could misuse.



Should IDA still wish to proceed with the introduction of Sections 3.5.1 and 10.1.5 of the Code, StarHub strongly believes that the language of Annex A.1 needs to be strengthened significantly. In particular, we would proposed that paragraph 4 of the Annex A.1 letter be amended to read:

"I understand that by not providing the space and facilities, I will not be able to obtain infocommunication services expediently if I require them subsequently due to the lack of ready infrastructure for deployment of the services. I am also aware that it will be significantly more costly and inconvenient for me to provide the space and facilities at a later date after construction works are completed. I further understand that my decision not to seek telephone services and/or cable services for my property could impact on the resale value of this property. In the event that I intended to sell this property, I undertake to advise prospective purchasers that the property is not provisioned for telephone and/or cable services."

StarHub believes that these amendments are needed to clearly signal to owners/developers the consequences of failing to cable up their properties.

Electricity Charges:

Section 2.2 of the Code specifies that it is the duty of the developer / owner to provide space and facilities to licensees without charges or rents. However, Section 2.2.2 specifies that the developer/owner does not have to bear any charges for utilities *"required to operate the installation, plant and systems that are installed within the space and facilities by telecommunications system licensees"*.

StarHub is concerned that this arrangement will create unnecessary cost, confusion, and controversy for the parties. It is currently well understood that licensees can use electrical power from the buildings they service. Licensees already have a natural incentive to avoid locating unnecessary equipment in building MDF rooms, given the cost of that equipment. Moving to an arrangement in which developers/owners can recover utility costs from licensees will generate costs and inefficiencies, particularly if more than one licensee is located in the building. StarHub is concerned that allowing developers/owners to recover utility costs from licensees will generate costs and inefficiencies that will outweigh any savings to the developers/owners.

StarHub therefore strongly believes that the status quo should continue in regard to charging for "utilities".

Should IDA still wish to proceed with the introduction of Section 2.2.2 of the Code, StarHub strongly believes that there are a number of issues in regard to utility charges that still need to be resolved. These issues include:



- Section 2.2.2 refers to “any charges for utilities (e.g. electricity)”. To avoid confusion and dispute, StarHub believes that it is necessary for IDA to provide a full list of the “utilities” covered by Section 2.2.2. We strongly believe that the only utility that should be covered by Section 2.2.2 is (at most) electricity.
- Under Section 6.6 of the Code owners/developers are required to provide electricity to run lighting and air-conditioning. The Code is silent as to whether the cost of this electricity can be passed on to licensees, pursuant to Section 2.2.2. As Section 6.6 clearly sets the obligation on building owners and developers to provide electricity to run lighting and air-conditioning, StarHub strongly believes that the cost of electricity for these services cannot be passed on to licensees. Therefore Section 2.2.2 needs to clarify that the cost of the electricity to run lighting and air-conditioning cannot be passed on to licensees.
- It is possible that owners/developers may seek to impose a mark-up on the utility charges they pass through to licensees. StarHub therefore believes that it is necessary for Section 2.2.2 to refer to “*developers or owners may make arrangements with telecommunication system licensees to pass on, without mark-up, such utility charges to them.*”

Removal of Cable Ready Certification (“CRC”) as a Pre-requisite to obtain Certification of Statutory Completion (“CSC”)

Section 2.2 of IDA’s consultation paper correctly notes that developers/owners are required to obtain CRCs issued by SCV as a precondition for the issuance of CSC by the Building and Construction Authority (“BCA”). This is to ensure that buildings comply with the requirements of Broadband Coaxial Cable Systems.

The purpose of the CRC is to ensure that any “defects” in design and/or installation of the cable systems are identified at an early stage, so that rectification can be carried out before the premises is occupied. As cable systems (particularly for cable TV services) are susceptible to interference, early detection becomes even more important, as any interference affects not only the signals of the premises in question but also the services into downstream premises. If “defects” are not detected early, rectification at a later stage can be very costly, or (in the worst case) may even preclude SCV from providing services to the premises and downstream premises.

While StarHub appreciates the reasons for IDA’s proposal to remove CRC as a prerequisite for CSC, we are concerned that the removal of this requirement will lead to additional (and more serious) problems for developers/owners. These problems will impact on end-users, who will be faced with high rectification costs and/or be unable to enjoy cable services.



Further, we would highlight that there is currently no independent body that is able to ensure that cable systems are designed and installed in accordance with SCV's requirements. If SCV has to ultimately be relied upon to ensure that the cable systems installed in buildings meet the required design and technical specifications to enable receipt of cable services, then SCV would propose that the present requirement for CRC be retained. We strongly believe that the benefits of having this pre-requisite far outweigh the disadvantages highlighted in the consultation paper.

Duty to Ensure Continued Provision and Maintenance of Space and Facilities

StarHub welcomes IDA's clarification in Section 2.2.1 of the Code that owners/developers are required to "*maintain the space and facilities in good and serviceable condition.*" We believe that this clarification will help to minimize future confusion and disputes between the parties. However, StarHub would highlight that there is a need for the Code to set timeframes within which developers/owners must carry out maintenance/rectification works on the space and facilities they provide.

IDA will understand that the owner of the building and the occupant of the building receiving services will frequently be different parties. Similarly, given the nature of telecommunications networks, it is frequently the case that damage to pipelines in one building can disrupt services to downstream buildings/customers. Therefore, a building owner/developer might not always be diligent in maintaining and repairing the space and facilities they are required to provide.

To avoid disputes and confusion (as well as disruption of services to customers), StarHub believes that it is necessary for the Code to set out the timeframes within which damage to space/facilities must be rectified by developers/owners. If this is not done, the owners/developers could be tardy in maintaining and restoring the space and facilities they provide, which could impact on the delivery of services to customers.

To avoid this situation, StarHub would propose that the Code specifies that:

- Where there is damage to the space and facilities provided by owners / developers, and that damage disrupts the provision of telecommunications and / or cable services, owners / developers must rectify the damage within three (3) calendar days of notification by a telecom licensee.
- Where there is damage to the space and facilities provided by owners / developers, and that damage does not disrupt the provision of telecommunications and/or cable services, owners / developers must rectify the damage within be thirty (30) calendar days of notification by a telecom licensee.

In addition, any disruptions to services caused by damage to the space and facilities provided by the owners / developers should be excluded from the Quality of Service Obligations set by IDA.

New Requirement - Use of Ceiling/Wall Space

StarHub would note that the current ambit of the Code is limited to lead-in pipes, MDF rooms, TER, risers, Cable Distribution Systems, internal wiring, and associated facilities. However, with the development of new telecommunications technologies, this ambit may no longer be sufficient.

StarHub would therefore propose that IDA allow service providers to install telecom/cable equipment on the ceilings of buildings or on walls near telecom risers. Specifically, StarHub proposes the following specifications/requirements:

- a) Space: Approximately 1 m (L) x 0.7 m (W) x 0.3 m (D) with the capability of accommodating a swing-type door with a door opening radius of 0.7 m.

Space requirements will be either for ceiling or wall mounting of equipment, near the telecom riser.

It is also anticipated that only one (1) of such space will be required every 7 floors.
- b) Power: Service providers must have the ability to tap off power from the nearest electrical power source (230V from 2 different phases).
- c) Cabling: Ability to run Cat 5 cables (approximately 20 pairs) from the above equipment (mounted on ceiling or wall) to the nearest distribution point on the same floor. Further, there must also be an ability to connect fibre from the above equipment to the MDF room.
- d) Use of Riser: There is also a requirement to install equipment in telecom risers. Space requirements are as above.

With advancements in technology, StarHub believes that this will facilitate the rollout of new services that can greatly benefit end-users. It is expected that the equipment to be installed will be unobtrusive, and will therefore not inconvenience owners / developers / occupants.

StarHub would also propose that the Code allow operators to deploy antennae within buildings (generally beside windows) for the provision of wireless services. The ability to tap off power from the nearest electrical power source would also be necessary. Such antennae would not be obtrusive, but a Code amendment of this nature would greatly facilitate the provision of wireless services, and reduce the cost of deploying networks.



SECTION TWO:

STARHUB'S DRAFTING COMMENTS

Section 1.4.1

This Section allows IDA to issue exemptions from the Code. To avoid confusion, StarHub would propose that, where IDA does issue exemptions from the Code, these exemptions are recorded publicly (for example, they could be posted on IDA's website).

Section 2.2.1

StarHub would propose that this clause be amended, to clarify that no rental charges can be levied for Coaxial Distribution Rooms.

Section 3.2.1

Section 3.2.1 states that responsibility for compliance with the Code rests "solely" with the developers or owners. However, Section 2.3.3 and 3.11.2 states that this responsibility can be passed on to subsequent purchasers of the property. StarHub would therefore suggest that Section 3.2.1 be made subject to Sections 2.3.3 and 3.11.2.

Section 3.5

Please see StarHub's comments in Section One.

Section 3.9.6

This section allows plant and systems to be installed in those areas of a building that comply with the Code, even if other areas of the building are in breach of the Code. StarHub would propose that such arrangements be subject to the agreement of the telecommunications system licensees in question.

Section 4.2.2.1

StarHub would note that "Cable Distribution Systems" does not appear to be defined under the Code.

Section 6.1

Section 6.1 states that the MDF room is used by licensees "who provide services to the building". We would note that Section 21(2) of the Telecommunications Act allows space in buildings to be used (in certain circumstances) to serve other buildings. StarHub would suggest that Section 21(2) of the Telecommunications Act be referenced in this section of the text.

Sections 6.7.1 and 7.7.1

These sections detail the number of isolators to be provided in MDF rooms. StarHub would propose that each space/facility be equipped with a minimum of 3 isolators. This can cater to each of the existing Public Telecommunications Licensees ("PTL") assuming that SingTel uses one isolator, StarHub (comprising both StarHub Ltd and StarHub Cable Vision Ltd) shares the other, with the 3rd isolator reserved for another operator.



These 3 isolators should be tapped from separate distribution boards (individual electrical circuit with separate ELCB), to ensure that the equipment of individual service providers are not affected by any faults occurring in the equipment of other service providers (or by electrical and other faults).

Section 8.4.1

This section requires developers and owners to forward the pre-cabling schedule to “telecommunications systems licensees”, who are defined under the Telecommunications Act as persons “licensed under section 5 to operate a telecommunications system.” StarHub does not believe that it is necessary for developers/owners to provide the pre-cabling schedule to all persons licensed under section 5 of the Telecommunications Act. As a practical matter, the pre-cabling schedule would be of greatest value if it was prominently displayed in the MDF room.

Section 10.1.54(a)

We believe that there is a typographical error in this section, and that reference should be to:

“Downstream Bandwidth (54 - 824MHz)”

Section 10.1.5

Please see StarHub’s comments in Section One.

Section 11.1.3

This section requires that the licensee must obtain the consent of the owner or developer before the licensee can use the space and facilities. However, the Code is unclear what happens if the owner/developer refuses to give its consent. As it is currently drafted, Section 11.1.3 could be interpreted as giving the owner/developer the right to veto the legitimate installation of plant and equipment in the space and facilities. Such an outcome would be in breach of Section 21 of the Telecommunications Act, and would result in customers being denied services. StarHub would therefore propose that Section 11.1.3 be amended to state:

“In all cases, a telecommunication system licensee must first use reasonable efforts to obtain the informed consent of the developer or owner in relation to every aspect of its proposed use of the space and facilities before it can proceed to install its installation, plant or system within the same.”

Section 11.2.1

This section states that space and facilities can generally only be used by licensees who provide “fixed telecommunications services”. Given the development of fixed wireless and portable wireless services, StarHub believes that reference to “fixed telecommunications services” could cause confusion, and would suggest that IDA define this term to minimise subsequent disputes.



Section 11.3.3 – Lead-in Pipes and Associated Facilities

StarHub supports IDA’s proposal in Section 11.3.3.2 that telecom system licensees are required to give up and disconnect the unused or inefficiently used lead-in pipe(s) at their own expense, if other telecommunication system licensees require the use of lead-in pipe to provide services to the building. We also support IDA’s proposal that PTLs be allowed to reserve one spare lead-in pipe for operational and maintenance purposes.

Annex C3 (“Commissioning Test Procedures”)

Having carefully considered this matter StarHub believes that changes are needed to Annex C3, to bring it more closely in line with Part 8 of the Guidelines. In particular, the following wording should be included at the end of Section 2 of Annex C3:

“For a multi-storey building, a sample test should be conducted for every storey in the building. This test should involve outlets in at least two units in the same storey. Tests should be completed by making measurements on all vertical cable risers on all storeys. Signals should be measured at the distribution panels. On each storey, signal levels should be measured at two system outlet locations, one representing the longest subscriber feeder and another representing the shortest subscriber feeder. Tests will be for continuity and proper levels. Not less than four visual carriers, spread across the band, should be tested with CW signals at the input port at proper levels.”

Testing is a crucial component in the installation of cable television networks. Cable television signals tend to be less “robust” than telecommunications signals, and so vigorous testing is critical. As noted in Section One of this submission, if testing is not done thoroughly, and “defects” remain uncorrected, this can lead to customers being denied cable services. Taking into account that the cost of retrospectively rectifying defects is usually very high, StarHub believes that the testing outlined above is necessary.

Annex C4 (“Methods of Measurement”):

StarHub also believes that Annex C4 and Part 9 of the Guidelines need to be modified and standardized. StarHub’s proposed wording for Annex C4 and Part 9 is attached.

Attachment One:

STARHUB'S REVISED WORDING FOR ANNEX C4 OF THE CODE AND PART 9 OF THE GUIDELINES

METHODS OF MEASUREMENTS FOR TEST AND COMMISSIONING OF BCS

1. General

1.1 The basic methods of measurements shall be conducted in accordance with the recommendations both IEC 728-1 and National Cable Television Association (NCTA). Any equivalent method that ensures the same accuracy may be used for assessing performance.

1.2 The following measurements are considered:

- (a) Measurement of Hum;
- (b) Measurement of Visual, Aural Carrier Centre Frequency;
- (c) Measurement of Visual Carrier to Noise Ratio;
- (d) Measurement of Signal Leakage.

2. Measurement of Hum

2.1 Modulation distortion at power frequencies ("Hum") is the amplitude distortion of the desired signals caused by the modulation of these signals with components of the power source.

2.2 Equipment required for the test set-up shall be provided and the measurement shall be conducted in accordance with the recommendations of FCC 76.605(a)(10) and NCTA.

2.3 Recommended Practices – Second Edition 1993.

3 Measurement of Visual, Aural Carrier Centre Frequency

3.1 Vision carrier level in a cable television system is the rms voltage of a channel's visual (picture) carrier measured across a termination impedance which match the internal impedance of the cable system. Aural carrier level in a cable television system is the rms voltage of a channel's aural (sound) carrier measured across a termination impedance which match the internal impedance of the cable system, generally expressed with reference to the channel's associated visual carrier level.



3.2 Equipment required for the test set-up shall be provided and the measurement shall be conducted in accordance with the recommendations of FCC 76.605(a)(4) and NCTA Recommended Practices – Second Edition 1993.

4 Measurement of Visual Carrier To Noise Ratio

4.1 Vision carrier to noise ratio is the power in a sinusoidal signal, whose peak is equal to the peak of a visual carrier during the transmission of synchronising pulse, divided by the associated system noise power in the 5 megahertz bandwidth. This ratio is expressed in dB.

4.2 Equipment required for the test set-up shall be provided and the measurement shall be conducted in accordance with the recommendations of FCC 76.605(a)(7) and NCTA Recommended Practices – Second Edition 1993.

5 Measurement of Signal Leakage

5.1 The term “leakage” refers to the undesired emanation of electromagnetic energy from the cable television system.

5.2 Equipment required for the test set-up shall be provided and the measurement shall be conducted in accordance with the recommendations of FCC 76.605(a)(12) and NCTA Recommended Practices – Second Edition 1993.