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**Code of Practice
for
the Installation and Maintenance of
In-Building Telecommunications Systems and
In-building Access by
Telecommunications Network Operators**

**Communications Authority
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Foreword

The Communications Authority (“CA”) has granted authorization to the local wireline fixed telecommunications network services (“FTNS”) licensees, local wireless FTNS licensees, Fixed Carrier licensees and Unified Carrier licensees (collectively called the “Network Operators”) under section 14 of the Telecommunications Ordinance (Cap 106) to enable these licensees to have legal rights to install and provide in-building telecommunications systems (“IBTS”), which include telecommunications equipment, cables and relevant facilities in, over or upon any common parts¹ of a building for the conveyance of telecommunications and broadcasting services to the occupiers of the building. The common parts include the Telecommunications and Broadcasting Equipment (“TBE”) Room, Secondary Telecommunications and Broadcasting Equipment (“STBE”) Room, telecommunications closets, rooftops, risers, ducts, conduits, etc.

This Code of Practice states the requirements and practice that the Network Operators should comply with and adopt for the access to buildings and the installation works as well as the maintenance of IBTS.

This Code of Practice is subject to amendments by the CA in part or in whole from time to time after consultation with the Network Operators.

¹ The definition of “common parts” of a building refers to the one set out in section 2 of the Building Management Ordinance (Cap.344).

1 General requirements

- 1.1 This Code of Practice applies to the Network Operators who have been granted with authorization by the CA to access buildings under section 14 of the Telecommunications Ordinance.
- 1.2 In addition to the requirements as stated in this document, the Network Operators should observe and, as far as possible, comply with the latest editions of the following standards, regulations and codes of practice:
- (a) IEC65 - Safety requirements for mains operated electronic and related apparatus for household and similar general use;
 - (b) Telecommunications (Control of Interference) Regulations (Cap. 106 sub. leg.B) - Hong Kong;
 - (c) Telecommunications Ordinance - Laws of Hong Kong;
 - (d) Relevant Customer Technical Guides or equivalents of FTNS operators;
 - (e) Electricity (Wiring) Regulations issued by Electrical and Mechanical Services Department; and
 - (f) All related regulations, rules and codes of practices issued by CA, government departments and public utilities, including but not limited to the following:
 - i. Buildings Department
 - ii. Electrical and Mechanical Services Department
 - iii. Fire Services Department
 - iv. Labour Department
 - v. Lands Department
 - vi. Trade and Industry Department
 - vii. Highways Department
 - viii. Planning Department
- 1.3 Save as provided under the Telecommunications Ordinance, no Network Operator is required to pay any money or offer an advantage to any landowner, his agent or lawful representative (such as Building Manager (BM), Incorporated Owners (IO), Owners' Committee (OC), managing agency, consultant, nominated contractor etc. as the case may be, hereafter collectively referred to as the "IO/BM", either directly or indirectly in payment of any security deposit, fee whatsoever or as an inducement to allow the installation of the IBTS.

- 1.4 The Network Operators shall obtain approval from the owner or occupier of a single-owned residential property for placing any telecommunications line, apparatus, ducts or connection box in, over or upon the said property or private land or outside walls of the said property for provision of service to any person, including the owner or occupier of the said property.
- 1.5 The Network Operators shall prior to the commencement of any installation enter into arrangements for the provision of adequate insurance against the risk of losses and damages that are attributable to the installation of the IBTS or other activities that are associated with or incidental to the installation provided that nothing herein shall prejudice sections 14(2)(b)(i) and 15 of the Telecommunications Ordinance.
- 1.6 All installation works for the IBTS should be carried out by a contractor(s) or staff appointed by the Network Operators. The Network Operators should ensure that they can exercise direct control and supervision over the work of their appointed contractor(s) and that their appointed contractor(s) shall comply with this Code of Practice.
- 1.7 The Network Operator, when appointed as the sole blockwiring provider of a new building, should use its reasonable endeavour to provide sufficient capacities of the IBTS. The provided capacities should meet the requirements of other Network Operators who intend to provide telecommunications services at the same building in the first 12 months from the issue of the Occupation Permit.

2 Proposal for installation

- 2.1 If the Network Operators wish to install and provide IBTS in a new building, the Network Operators should prepare a proposal (the “Proposal”) outlining the details of installation of equipment and facilities.
- 2.2 The Network Operators should prepare the Proposal if they wish to conduct works as described below in an existing building:
 - (a) to establish a new IBTS;
 - (b) to set up a new antenna, an antenna pole, to expand the TBE/STBE Room, to set up a new TBE/STBE Room or telecommunications closets, to lay underground ducts and cables within the development or to add vertical trunkings, etc.;
 - (c) to install new cable trunkings, pipes and/or trays with cumulative length over 50m;
 - (d) to install vertical blockwiring cables (with size of 100 pairs or over) with cumulative length over 100m;
 - (e) to install additional equipment/accessories or replace an existing equipment/accessories which will require additional floor space or surface space in the TBE/STBE Rooms of 30% larger than the remaining available spare space within the respective TBE/STBE Rooms;
 - (f) to install additional equipment/accessories or replace an existing equipment/accessories in common parts of the building other than the TBE/STBE Rooms, (such as riser duct at each floor) which will occupy all the available spare space; or
 - (g) to install surface wiring along the public areas.
- 2.3 The Network Operators should send a copy of the Proposal to the IO/BM of the building for reference. Upon the request of the Office of Communications Authority (“OFCA”), the Network Operators should also submit a copy of the Proposal to OFCA.
- 2.4 The Network Operators should carry out the installation works in accordance with the Proposal.
- 2.5 The installation work and arrangement as stated in the Proposal shall comply with this Code of Practice.

3 Information of equipment and facilities set-up

- 3.1 Upon request, the Network Operators should provide OFCA with details of the specification and installation manual of the equipment as recommended by the suppliers/manufacturers. The information should at least include the following:
 - (a) Physical design with dimensions and weight of the equipment; and
 - (b) Structural drawing(s) showing the standard mounting methods of the equipment.
- 3.2 The equipment as stated above includes all the network termination accessories, local distribution accessories, interfaces for network interconnection, backup battery, cabinets, wall-mounted and floor-mounted equipment racks and main distribution frames (“MDF”), cable distribution cases, local distribution hubs, distribution amplifiers, splitters, antenna, headend equipment, etc.
- 3.3 If there are updates of particular equipment and facilities where the information has been requested by OFCA before, the Network Operators should submit a set of updated information to OFCA as soon as possible.
- 3.4 The Network Operators should follow closely the recommended installation manual provided by suppliers/manufacturers.
- 3.5 The Network Operators should provide clear identification on its installations, including equipment, cables, cabinets, racks, distribution frames, distribution cases, trunkings, joint boxes, etc.

4 General practices

- 4.1 The Network Operators should coordinate among themselves their installation works in the building in accordance with the relevant guidelines issued by CA.
- 4.2 During the installation and provision of facilities in a building, the Network Operators should ensure minimum disturbance to the occupiers of the building.
- 4.3 The Network Operators should adopt good engineering practice in installing their IBTS in order to make good use of the facilities and space in common parts of the building.
- 4.4 The Network Operators should make good any affected areas with matched tiles and/or paint with matched colour after the installation and maintenance works. The principle is that the Network Operators should restore the affected areas to their original status as far as possible.
- 4.5 The Network Operators should carry out the installations in accordance with the manual and recommended procedure provided by the supplier/manufacturer.
- 4.6 When there is a need to drill holes on wall or floor for running the cables, the size of holes for the installation of trunkings/pipes should be kept as small as possible. The location of the holes to be drilled should be well selected to minimise the visual impact.

5 Set-up inside TBE/STBE Rooms

- 5.1 The TBE/STBE Rooms should be share-used by all the Network Operators on a non-discriminatory basis. Each Network Operator should install its equipment and associated facilities within the room in accordance with the agreed equipment layout plan and the Proposal.
- 5.2 The facilities, such as cable trunkings/pipes for housing cables, should be share-used without partition by the Network Operators.
- 5.3 The Network Operators should carry out the installations in a coordinated manner in accordance with an implementation plan mutually agreed by the concerned Network Operators.
- 5.4 The Network Operators, having completed laying of external cables into a building through lead-in ducts, shall immediately seal both openings of the lead-in ducts with proper sealing materials. This is to prevent ingress of flooding water or poisonous gas from leaking into the building through the lead-in ducts.

6 Installation of trunkings/pipes

- 6.1 All types of cables including copper cables, optical fibre cables, coaxial cables, earthing cables, etc should be properly installed inside trunkings/pipes, risers, conduits, cable trays, etc, as far as possible.
- 6.2 The trunkings/pipes and conduits should be mounted properly and safely and concealed as far as possible. The trunkings/conduits should be installed along the proper routing so as to minimise the visual impact as well as disturbance to the occupiers of the building.
- 6.3 The mounting methods of different types of trunkings/pipes and cables should follow Code 25 of the Code of Practice for the Electricity (Wiring) Regulations issued by the Electrical and Mechanical Services Department.
- 6.4 Surface mounting exposed in public area should be avoided unless there are no reasonable alternatives. In general, the Network Operators should establish trunkings/pipes at location not easily visible and accessible by the occupiers as far as possible.
- 6.5 The Network Operators should jointly build common trunkings/pipes or share use along common route as far as possible in order to minimise the disturbance to the occupiers and the visual impact.
- 6.6 Subject to agreement, any space available inside the trunkings/pipes/ducts built by a Network Operator should be share-used by other Network Operators.

7 Set-up in riser duct

- 7.1 The cable distribution cases, local distribution hubs, distribution amplifiers, splitters, etc should be mounted properly and installed inside the riser duct of each floor as far as practicable.
- 7.2 The available space and the working space in a riser duct are always limited. The Network Operators should coordinate among themselves the required installations and the work schedule in order to assure that the works would be conducted in manageable manner.
- 7.3 As the riser ducts located at each floor are usually very close to the flat units of the building, the Network Operators should remind their workers/contractors to take particular care, including the tidiness of the working vicinity, noise generated, workers manner towards the occupiers when they carry out the installation works.

8 Set-up outside riser duct

- 8.1 If the cable distribution cases, local distribution hubs, distribution amplifiers, splitters, etc cannot be installed inside a riser duct due to whatever reasons e.g. the riser ducts are too congested or the building does not have such facilities, they could be fixed at locations with minimum visibility and accessibility (such as rear staircases, utility room, etc) by the occupiers.
- 8.2 Telecommunications closet could also be used to accommodate the telecommunications equipment and facilities as specified in 8.1 above if such equipment and facilities could not be installed inside the riser duct.
- 8.3 The requirements of installations of trunkings/pipes as specified in section 6 should be applied to those trunkings/pipes connected to the telecommunications closet.

9 Cabling

- 9.1 Cables should be properly terminated and labelled for identification.
- 9.2 Copper cables should be terminated at appropriate termination blocks mounted on metal/wooden frame (collectively called the “mounting frame”) inside the cable distribution case. Optical fibre cables should be terminated at appropriate/termination patching panel. Coaxial cables should be terminated at the n-way splitter or an amplifier. Cables can also be terminated at junction boxes.
- 9.3 Subject to agreement, any spare cable or wire inside the horizontal ducts/pipes/trunkings leading to the premises of occupiers (i.e. those cables or wires not being used to provide service) should be allowed to be used by other operators.
- 9.4 The distribution case, patching panel, splitter and amplifier should be mounted properly and fixed securely.
- 9.5 Cables should be neatly laid and fixed on wall surface or in vertical and horizontal trunkings or risers by appropriate cable clamping materials where appropriate as tabulated below:

Cable type	Cable size in diameter (mm)	Span for vertical section	Span for horizontal section
Copper cable	Less than 10	Not more than 300mm	Not more than 250mm
	Equal or over 10	Not more than 400mm	Not more than 300mm
Optical fibre cable	Less than 10	Not more than 300mm	Not more than 250mm
	Equal or over 10	Not more than 400mm	Not more than 300mm
Coaxial cable	Less than 10	Not more than 300mm	Not more than 300mm
	Equal or over 10	Not more than 400mm	Not more than 500mm

- 9.6 Copper cables which carry radio frequency signals should be shielded cables and they should be separated with other cables as far as possible in order to prevent radio interference.
- 9.7 No cables should be stepped on or laid on top of each other and cause damage to the existing trunking or cable clamp.

10. Set-up at rooftop of building

- 10.1 The Network Operators should coordinate among themselves on the share use of the rooftop for the establishment of their antenna, poles and/or associated equipment.
- 10.2 The Network Operators should coordinate to use the minimum number of poles for mounting the antennas as far as practically feasible.
- 10.3 All link cables between the antenna and equipment room should be housed properly in the cable trunkings or conduits or pipes, or cable trays.

11 Installations between buildings within the development

11.1 For those cables linking up between buildings within the development, they should be housed properly and securely in places such as cable trunkings or conduits or pipes or underground ducts.

11.2 If underground duct is required to house these cables, the underground duct network should be built according to the standards laid down by the Highways Department. The Network Operators should coordinate with the IO/BM and among themselves (if applicable) to work out the construction and implementation plans so as to minimise disturbance to the occupiers of the buildings and ensure smooth and efficient installation of underground facilities.

12 Working hours

12.1 To ensure minimal disturbance to the occupiers, the Network Operator should carry out all installations within the time frame agreed by and acceptable to the IO/BM or the concerned customers.

13 Routine inspection and maintenance

13.1 The Network Operators should carry out routine inspections and maintenance of their installations in the buildings regularly to ensure that the installations are maintained in good condition.

13.2 Each Network Operator should keep a log book/record of the routine inspection and maintenance of all the installations.

13.3 The Network Operators should submit the log books/records to OFCA upon request.

14 Inspection to be carried out by OFCA

- 14.1 The Network Operators should submit a list of buildings where installation works are in progress to OFCA upon request. The list should include the names and addresses of all the buildings where installation of the IBTS are in progress. Such submissions will be treated as confidential information.
- 14.2 OFCA will conduct sample inspection of the installations from time to time in accordance with the building list provided by the Network Operators as stated in 14.1.
- 14.3 OFCA may request the Network Operators to rectify any works which do not comply with the requirements as described in their proposal or the requirements as stipulated in this Code of Practice.

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