

SCHEDULE 3A
LICENSING OF LOCAL LOOP/SUB-LOOP

CONTENTS

1.	SCOPE	1
2.	AVAILABILITY OF LOCAL LOOP OR SUB LOOP	2
3.	SINGTEL LOCAL LOOP RELATED INFORMATION	4
4.	ORDERING AND PROVISIONING PROCEDURE	5
5.	RESPONSE TIME	6
6.	DELIVERY	9
7.	ACCESS TO DP	9
8.	UNAUTHORISED ACCESS TO LOCAL LOOP OR SUB LOOP	11
9.	STANDARD TERMS AND CONDITIONS	13
10.	ACCESS AND APPROVALS REQUIRED	15
11.	FAULT REPORTING AND CLEARING	15
12.	PROTECTION AND SAFETY	18
13.	TERM OF LICENCE	18
14.	SUSPENSION	20
15.	TERMINATION OF LICENCE	20
16.	SUB-LICENSING	22
	ANNEX 3A.1	
	ANNEX 3A.2	
	ANNEX 3A.3	
	ANNEX 3A.4	
	ANNEX 3A.5	
	ANNEX 3A.6	
	ANNEX 3A.7	
	ANNEX 3A.8	
	ANNEX 3A.9	
	ANNEX 3A.10	

ANNEX 3A.11

ANNEX 3A.12

ANNEX 3A.13

ANNEX 3A.14

ANNEX 3A.15

ANNEX 3A.16

ANNEX 3A.17

ANNEX 3A.18

ANNEX 3A.19

SCHEDULE 3A

LICENSING OF LOCAL LOOP/SUB-LOOP

1. SCOPE

- 1.1 This Schedule 3A sets out the terms and conditions under which SingTel will provide the Requesting Licensee with a licence to use SingTel's Local Loop or Sub Loop for the sole purpose of the Requesting Licensee providing telecommunication services to the Requesting Licensee's Customers. For the avoidance of doubt, this Schedule 3A is not to be used by the Requesting Licensee for the purpose of providing telecommunications services to itself.
- 1.2 The Requesting Licensee may seek a licence with respect to available Local Loop or Sub Loop owned by SingTel subject to:
- (a) the use by the Requesting Licensee of Local Loop or Sub Loop for the purpose of the Requesting Licensee providing telecommunication services to the Requesting Licensee's Customer; and
 - (b) the terms and conditions of this Schedule.
- 1.3 This Schedule only applies to Requesting Licensees who are FBOs.
- 1.4 The timeframes in this Schedule relating to pre-provisioning work to be undertaken by SingTel under clause 5.3 (such as the completion of project studies and the assessment of applications) are subject to delays caused by events outside SingTel's reasonable control, in which case SingTel may extend these timeframes for a period equal to the period of such delays.

SingTel Comments: Clause 1.4(a)

Consequential amendment only. Please refer to SingTel's comments in relation to clause 6.

- 1.5 For the avoidance of doubt, a failure to meet these timeframes caused by events outside SingTel's reasonable control does not constitute a breach of this Schedule or this RIO Agreement.
- 1.6 (a) If SingTel fails to meet any timeframes in this Schedule relating to provisioning work to be undertaken by SingTel under clause 5.1 and the failure to meet the timeframe is solely caused by SingTel, SingTel will provide a remedy to the Requesting Licensee.
- (b) Such remedy will be in the form of a credit to the Requesting Licensee of the recurring Charges payable for the delayed services over a period equal to the period of the delay.
- (c) The Requesting Licensee acknowledges that this remedy is a genuine pre-estimate of the Requesting Licensee's loss and will be the sole and exclusive remedy available to the Requesting Licensee for such failure to meet provisioning timeframes and shall be SingTel's sole and exclusive liability to the Requesting Licensee for such failure.

2. AVAILABILITY OF LOCAL LOOP OR SUB LOOP

- 2.1 SingTel will provide a licence to Local Loops or Sub Loops to the Requesting Licensee in individual pairs, however the Requesting Licensee may apply for multiple licences for multiple pairs at the same address per application.
- 2.2 For the purposes of this Schedule, SingTel may have regard to the following when assessing the availability of any Local Loop or Sub Loop:
- (a) SingTel's reasonably anticipated requirements in the next one (1) year for Local Loop or Sub Loop for the provision to itself and its Customers;
- (b) SingTel's reasonably anticipated requirements in the next one (1) year for Local Loop or Sub Loop for operations and maintenance purposes;

SingTel Comments: Clause 2.2(a) and (b)

SingTel has reduced the reservation period for Local Loops and Sub Loops from 2 years to 1 year in accordance with the requirements set out in the IDA's letter to SingTel dated 21 February 2005 (page 4).

- (c) the Requesting Licensee's and other Licensees' requirements (including for operations and maintenance purposes) which have been ordered but not yet delivered or which have been provided;
- (d) security and confidentiality requirements or restrictions imposed on SingTel by Governmental Agencies or Customers;

SingTel Comments: Clause 2.2(d)

SingTel notes that some Customers, such as foreign embassies, may impose certain restrictions on the availability and use of Local Loops and Sub Loops in order to prevent or minimise the possibility of any security breach in respect of telecommunication services that are provided to that Customer through the relevant Local Loop or Sub Loop. Clause 2.2(d) has been amended on this basis.

- (e) whether SingTel has plans or otherwise proposes to decommission the Local Loop, Sub Loop or POA; and

SingTel Comment: New clause 2.2(e)

SingTel should have the right to refuse an application to licence access to a Local Loop or Sub Loop where SingTel where the relevant SingTel Exchange is "earmarked" for decommissioning.

SingTel cannot guarantee or maintain the quality of Services following the commencement of and during decommissioning at an Exchange.

Furthermore, the provision of a licence to a Requesting Licensee to access the Local Loop or Sub Loop during the process of decommissioning would only delay and hinder the decommissioning process.

- (f) security and confidentiality requirements imposed on SingTel by the building owner and the Requesting Licensee has not obtained the necessary permission, wayleave or access approval;
- (g) reasonable requirements or restrictions imposed by SingTel in relation to access to SingTel buildings.

3. SINGTEL LOCAL LOOP RELATED INFORMATION

- 3.1 The Requesting Licensee may request that SingTel provide the Requesting Licensee with the SingTel Local Loop Related Information by submitting its request in the form set out in Annexure 3A.11, 3A.12, 3A.13, 3A.14, 3A.15, 3A.16, 3A.17 or 3A.18.
- 3.2 SingTel will process all requests for the SingTel Local Loop Related Information on a non-discriminatory “first come first serve” basis.
- 3.3 SingTel must provide the SingTel Local Loop Related Information within fifteen (15) Business Days of the date of receipt of the request. SingTel may provide the Requesting Licensee with the SingTel Local Loop Related Information on a progressive basis during the fifteen (15) Business Days period.
- 3.4 The Requesting Licensee must pay all Charges in relation to a request for the SingTel Local Loop Related Information in accordance with Schedule 9 of the RIO Agreement.
- 3.5 The Requesting Licensee acknowledges that the SingTel Local Loop Related Information is the Confidential Information of SingTel and that the Requesting Licensee must comply with clause 23 of the main body of the RIO Agreement in relation to such information. The Requesting Licensee must only use the SingTel Local Loop Related Information for the sole and exclusive purpose of acquiring Local and Sub Loop under this Schedule 3A.
- 3.6 SingTel warrants that the SingTel Local Loop Related Information is accurate as at the date of providing the information to the Requesting Licensee. The Requesting Licensee acknowledges that the details of the SingTel Local Loop Related Information may change from time to time without notice to the Requesting Licensee.

3.7 Subject to SingTel's obligation in clause 3.6, the Requesting Licensee acknowledges that:

- (a) it will use the SingTel Local Loop Related Information at its own risk; and
- (b) SingTel is not liable for any loss or damage incurred by the Requesting Licensee in relation to the use of the SingTel Local Loop Related Information.

SingTel Comment: New Clause 3

SingTel has introduced a new clause 3 in response to the IDA's requirement for SingTel to ensure that Requesting Licensee's obtain sufficient information for the purpose of applying for a licence for Local Loops and Sub Loops (IDA Letter to SingTel, 21 February 2005, page 4) (Letter).

Please also refer to the new definition of "SingTel Local Loop Related Information" in Schedule 12

SingTel notes that some of the information required by the IDA on page 4 of its Letter is already provided to SingTel under clause 2A of Schedule 8B (SingTel Exchange Related Information). As a Requesting Licensee must obtain Co-Location Space at the Co-Location Site under Schedule 8B prior to obtaining a licence under Schedule 3A for Local Loops or Sub Loops, there is no need for SingTel to reproduce such information when it provides SingTel Local Loop Related Information to the Requesting Licensee under this Schedule.

Such information will already be available to Requesting Licensees when they seek Co-Location pursuant to Schedule 8B. In fact, there is no point in providing Requesting Licensees with information such as maps of the location of SingTel Exchanges, as the Requesting Licensee would already be aware of the location of these Exchanges for the purposes of Co-Location.

4. ORDERING AND PROVISIONING PROCEDURE

4.1 SingTel shall allocate Local Loops and Sub Loops to the Requesting Licensee using the same allocation criteria that it uses to allocate Local Loops and Sub Loops to itself.

4.2 The Requesting Licensee shall submit its Request for Local Loop or Sub Loop to SingTel in the form of Annexes 3A.8, 3A.9 & 3A.10 on a Business Day (**Request Date**) containing the following information:

- (a) Customer's name and premises address;
- (b) the Building MDF room name and address;
- (c) in the case of a Request for Loop Feeder, the name and address of the Building MDF or Outdoor Cabinet;
- (d) in the case of a Request for Loop Distribution, the name and address of the Building MDF or Outdoor Cabinet and the Distribution Point;
- (e) the number of Local Loops or Sub Loops requested ;
- (f) the name and location of the POA;
- (g) the POA Subscriber Tie Cable pair allocated for connection in relation to the Request for Local Loop or Loop Feeder;
- (h) the Building MDF room or Outdoor Cabinet Tie Cable/Tie Termination Pair allocated for connection in relation to the Request for Sub Loop;

SingTel Comment: Clause 4.2

Requesting Licensee must provide the necessary detail in order for SingTel to jumper the licensed local loop to the Requesting Licensee's network.

- (i) the Requesting Licensee's contact details.

5. RESPONSE TIME

5.1 SingTel shall process all Requests for Local Loop or Sub Loop on a 'first come, first served' basis up to the maximum amount specified in clause 5.2.

5.2 SingTel shall process a combined total of no more than 30 applications for Local Loop, Sub Loop and Line Sharing under Schedules 3A and 3B from all Licensees by 5.00 pm each Business Day and subsequent Requests shall overflow to the next Business Day.

SingTel Comments: Clause 5.2

SingTel has committed resources to process 200 wire pairs for 3 years since the IDA's last audit. The level of resources made available by the IDA in accordance with the requirements set out in Schedule 3 are disproportionate to the level of demand for Local Loops, Sub Loops and Line Sharing.

SingTel has amended clause 5.2 to reflect actual demand by Requesting Licensee's for Local Loops, Sub Loops and Line Sharing. It also ensures an efficient allocation of resources by SingTel, as SingTel's allocation of resources will be based on actual demand for Local Loops, Sub Loops and Line Sharing.

5.3 If SingTel approves an application for Local Loop or Sub Loop, SingTel shall provide the Requesting Licensee notice of its approval within four (4) Business Days of the Request Date together with the following information for the licensing of Local Loop or Sub Loop:

- (a) the DP or Building MDF room number;
- (b) the DP vertical strip number, and termination pair number assigned; and
- (c) corresponding Circuit Reference number.

SingTel Comments: Former clause 4.2 and clause 5.3

SingTel has deleted former clause 4.2 and amended clause 5.3 (including deleting paragraph (c) to further streamline the ordering and provisioning process in relation to the licensing of Local Loops and Sub Loops as required by the IDA (IDA Letter to SingTel, 21 February 2005, page 1).

5.4 SingTel may reject a Request for Local Loop or Sub Loop within four (4) Business Days of the Request Date if:

- (a) the Requesting Licensee is not a FBO;
- (b) the Request for Local Loop or Sub Loop is not in the prescribed form;
- (c) the Request for Local Loop or Sub Loop does not contain all the required information;
- (d) the Local Loop or Sub Loop is not available as determined under clause 2;
- (e) SingTel has not installed any Local Loop or Sub Loop in the area where the licence of Local Loop or Sub Loop is requested;
- (f) the information in the Request is incorrect or inaccurate;
- (g) the Requesting Licensee has not obtained and installed the necessary Subscriber Tie Cable and Termination Block under Schedule 3D or 3E; or
- (h) the Requesting Licensee has not obtained the necessary permits, consents, waivers, authorisations or other rights required for SingTel to provide the licence for the Local Loop or Sub Loop; or
- (i) the Requesting Licensee has not obtained a licence to the necessary Co-Location Space under Schedule 8B and has not installed Co-Location Equipment at Co-Location Space in accordance with clause 1 of Attachment A of Schedule 8 (Attachments).

SingTel Comments: Clause 5.4(i)

SingTel cannot provide access to Local Loops or Sub Loops without the installation of Co-Location Equipment at Co-Location Space by the Requesting Licensee. Clause 5.4(I) makes it clear that Co-Location under Schedule 8 is required before SingTel can grant a licence for Local Loop or Sub Loop.

- (j) the Requesting Licensee has not obtained all necessary permissions or rights of access from the Customer or owner of the premises.

5.5 The Requesting Licensee shall pay to SingTel the application fee regardless of whether its Request for Local Loop or Sub Loop is successful or not.

6. DELIVERY

6.1 SingTel shall provide the Local Loop or Sub Loop by the end of six (6) Business Days from the Request Date . If it cannot meet this date, SingTel shall notify the Requesting Licensee of the delay in installation.

SingTel Comments: Clause 6.1 and former clause 5.2

SingTel has amended clause 6.1 and deleted former clause 5.2 to streamline the ordering and provisioning process in relation to the licensing of Local Loops and Sub Loops as required by the IDA (IDA Letter to SingTel, 21 February 2005, page 1)

6.2 Unless otherwise stated, SingTel shall retain the responsibility for working at the SingTel Exchange MDF and Building MDF, including jumpering works at the SingTel Exchange Building, SingTel Outdoor Cabinet and Building MDF. The Requesting Licensee shall bear the Charges for such work carried out by SingTel.

6.3 SingTel will only use Jumper Wires conforming to CW6000 series with a nominal gauge of 0.5mm and use the proper tools for installing Jumper Wires at the Requesting Licensee's Termination Block.

6.4 The Jumper Wires shall be installed horizontally either left or right out from its starting Termination Block and then across the jumper field and vertically up or down to the destination Termination Block. Jumper Wires shall not be installed with any slack nor will they be left dangling to cause obstruction to the jumper field.

6.5 SingTel shall first verify any jumpering points assigned before recovering any unused Jumper Wire for the running of the new Jumper Wire for the connection of licensed Local Loop or Sub Loop.

SingTel Comments: Former clause 6

SingTel has deleted clause 6, as it is no longer required to construct additional local loops if none are available (IDA Letter to SingTel, 21 February 2005, page 5).

7. ACCESS TO DP

7.1 Any licence granted in respect of Local Loop or Loop Distribution under this Schedule includes a licence to access SingTel's DP that is associated with that Local Loop or Loop Distribution. For the avoidance of doubt, the grant of a licence in respect of Loop Feeder does not provide the Requesting Licensee with a licence to

access SingTel's Distribution Point, Building MDF or Outdoor Cabinet that is associated with that Loop Feeder.

SingTel Comment: Clause 7.1

SingTel has amended clause 7.1 to make it clear that the Requesting Licensee must obtain licences to access SingTel's Distribution Point, Building MDF or Outdoor Cabinet under other applicable Schedules of the RIO Agreement.

- 7.2 The Requesting Licensee shall only physically access the SingTel DP in accordance with Annex 3A.1 and the Distribution Frame Vertical in accordance with Schedule 3D and the Requesting Licensee must not, at any time, physically access the SingTel MDF, Outdoor Cabinet Termination Block, MDF Termination Block, Termination Pin or Jumper Wires at the Building MDF room, Outdoor Cabinet or Exchange MDF.
- 7.3 The Requesting Licensee shall comply with and ensure that its employees, agents and contractors comply with the terms and conditions for physically accessing SingTel's DP in Annex 3A.1.
- 7.4 The Requesting Licensee shall only physically access the SingTel DP for the sole purpose of accessing the Local Loop or Sub Loop licensed from SingTel. When accessing the SingTel DP, the Requesting Licensee must use its best endeavours to prevent any interruption or disruption to existing SingTel's services. The Requesting Licensee shall at all times, use proper termination tools and shall not make any modification or cause damage to the SingTel DP while accessing the SingTel DP.
- 7.5 The Requesting Licensee must ensure that SingTel's DP termination is protected from unauthorised access, use, or modification. The Requesting Licensee must use its best endeavours to ensure that any of its employees, agents or representatives only have access to SingTel's DP for the sole purpose of accessing the Local Loops or Sub Loops licensed to the Requesting Licensee.
- 7.6 In the case of a licence of a Sub Loop comprising of a Loop Feeder, the Requesting Licensee shall access the Loop Feeder at its Subscriber Tie Cable Termination Pin in the Building MDF room. SingTel shall perform the jumpering work from the SingTel exchange side Termination Pin to the Requesting Licensee's Subscriber Tie Cable Termination Pin at the Building MDF or the Requesting Licensee's Termination Pin in the Outdoor Cabinet, and from the SingTel line side Termination Pin to the Requesting Licensee's Subscriber Tie Cable Termination Pin at the Exchange MDF.

- 7.7 In the case of a licence of a Sub Loop comprised of a Loop Distribution, the Requesting Licensee shall access the Loop Distribution at the SingTel DP Termination Pin. SingTel shall perform the jumpering work from SingTel line side Termination Pin to the Requesting Licensee's Subscriber Tie Cable Termination Pin at the Building MDF or the Requesting Licensee's Termination Pin in the Outdoor Cabinet.
- 7.8 The Requesting Licensee may, under an agreement with another person (**Contractor**), allow the Contractor to access the DP of SingTel on the Requesting Licensee's behalf, provided that the Requesting Licensee first:
- (a) notifies SingTel of the name and contact details of the Contractor; and
 - (b) procures that the Contractor complies with the provisions of this Schedule.
- 7.9 If the Requesting Licensee becomes aware of any activities which are in contravention of this Schedule by its employees, agents or Contractors, the Requesting Licensee must:
- (a) immediately notify SingTel of the contravention;
 - (b) take immediate action to prevent or discourage continuation of the contravention.

SingTel Comments: Clause 7.9

SingTel has amended clause 7.9 to ensure that the Requesting Licensee informs SingTel of a contravention immediately and takes immediate action to prevent or discourage a contravention

8. UNAUTHORISED ACCESS TO LOCAL LOOP OR SUB LOOP

- 8.1 Without prejudice to any other rights SingTel may have (whether under contract, at law, or in equity), where SingTel identifies that the Requesting Licensee has accessed Local Loop or Sub Loop without having obtained a licence in accordance with this Schedule 3A, SingTel may do any one or more of the following:
- (a) notify the Authority that a material breach of this Schedule 3A has occurred and request that the Authority issue an order under clause 12.2 or 13.2 of the RIO Agreement (as the case may be) for SingTel to suspend or terminate this Schedule 3A;

- (b) direct the Requesting Licensee to, within five (5) Business Days of the notice, remove its equipment from the Local Loop or Sub Loop; and/or
- (c) direct the Requesting Licensee to, within two (2) Business Days of the notice, submit a Request for Local Loop or Sub Loop in accordance with clause 4.

SingTel Comment: New clause 8.1(a) and (b)

SingTel notes that a failure by the Requesting Licensee to obtain a licence for access to the Local Loop or Sub Loop is a very serious matter. SingTel considers that such a failure to constitutes a material breach of Schedule 3A and therefore justifies suspension or termination following the receipt of approval from the IDA.

Clause 8.1(b) permits SingTel to direct the Requesting Licensee to remove its equipment from the Local Loop or Sub Loop on 5 Business Days notice by SingTel. SingTel already has this right under clause 8.5 (formerly 8.3) where SingTel rejects a Request for Local Loop or Sub Loop. Clause 8(b) permits SingTel to exercise this right upon discovery that the Requesting Licensee has access the Local Loop or Sub Loop without a licence.

8.2 The Requesting Licensee must pay SingTel's reasonable costs incurred in investigating the unauthorised use.

8.3 If the Requesting Licensee does not remove its equipment within five (5) Business Days of the notice under clause 8.1(b), SingTel may remove the equipment and the Requesting Licensee shall be liable for any reasonable costs associated with its removal.

SingTel Comments: Clause 8.3

Consequential amendment only. New clause 8.3 is based on former clause 8.5.

8.4 If the Requesting Licensee is directed to submit a Request for Local Loop or Sub Loop under clause 8.1(c), the Requesting Licensee must provide documentary evidence of the date of installation as part of the Request for Local Loop or Sub Loop. If the Requesting Licensee is unable to provide credible documentary evidence substantiating the date of installation, the date of access shall be deemed to be the Effective Date of this RIO Agreement. The Requesting Licensee must pay the Charges in arrears calculated from the date of access in accordance with Schedule 9.

SingTel Comments: Clause 8.3

Consequential amendment only. New clause 8.3 is based on former clause 8.1.

- 8.5 If the Requesting Licensee fails to pay the arrears after five (5) Business Days from the date of approval, the Requesting Licensee must discontinue use and remove its equipment from the Local Loop or Sub Loop within five (5) Business Days.
- 8.6 If SingTel rejects the Request for Local Loop or Sub Loop under clause 8.1(c), the Requesting Licensee must pay, within five (5) Business Days from the date of rejection, SingTel's reasonable costs incurred in investigating the unauthorised use and the Charges in arrears calculated from the date of access in accordance with clause 8.4 and the Requesting Licensee must discontinue use and remove its equipment from the Local Loop or Sub Loop within ten (10) Business Days.

SingTel Comment: Former clause 8.5

Consequential deletion only. Please refer to clause 8.3.

9. STANDARD TERMS AND CONDITIONS

- 9.1 SingTel will be responsible for the maintenance and administration of the Local Loop or Sub Loop under this Schedule.
- 9.2 Subject to SingTel's obligations to the Authority under the Code, SingTel does not guarantee that the loop length, attenuation, noise level or loss would remain the same throughout the licence period. The loop length, attenuation, noise level or loss may change during routine maintenance or cable diversion, or due to wear and tear,.

SingTel Comment: Clause 9.2

Clarifying amendment only.

- 9.3 SingTel licenses Local Loop and Sub Loop on an "as-is-where-is" basis in the same condition that it would provide to itself for an equivalent service. The Requesting Licensee is responsible for costs incurred due to its use of the Local Loop or Sub Loop for the purpose of providing services.

SingTel Comment: Clause 9.3

SingTel has amended clause 9.3 to ensure that the condition of Local Loops and Sub Loops that SingTel provides to a Requesting Licensee are equivalent to what it provides itself (IDA letter to SingTel, 21 February 2005, page 5).

9.4 Except to the extent strictly necessary to accurately describe the service to actual or potential Customers, the Requesting Licensee shall not use SingTel's name, any SingTel's trademarks or the fact that any service is supplied using SingTel's Network in promoting the Requesting Licensee's service.

SingTel Comment: New Clause 9.4

This clause currently exists in Schedule 3B. SingTel has introduced it into Schedule 3A for consistency with Schedule 3B.

9.5 The Parties shall in good faith co-operate with each other and take reasonable measures to ensure that there is no interference with or deterioration to SingTel's existing services or those of a Third Party as a result of the Requesting Licensee's use of the Local Loop and Sub Loop.

9.6 The Requesting Licensee shall be responsible for the installation and connection of a Tie Termination Block to access the licensed Local Loop or Sub Loop. The Requesting Licensee may request to licence SingTel's Distribution Frame Mounting subject to availability. For the avoidance of doubt, licensing of Distribution Frame Mounting is not covered under this Schedule and is covered in Schedule 3D.

9.7 The Requesting Licensee acknowledges that if SingTel's and the Requesting Licensee's plant is damaged by a Third Party at the same location, SingTel has priority over the Requesting Licensee to work in SingTel's Building MDF, SingTel's Outdoor Cabinet, DP or damaged site.

9.8 The Parties acknowledge that licences in respect of :

- (a) SingTel's Distribution Frame Mounting is governed by Schedule 3D;
- (b) Cabinet Distribution Frame Mounting is governed by Schedule 3E; and
- (c) Co-Location for POA is governed by Schedule 8B.

SingTel Comment: Clause 9.8

Consequential and clarifying amendment only.

- 9.9 Subject to clause 15.10, nothing in this Schedule vests in the Requesting Licensee any right, title or proprietary interest in the Local Loop, Sub Loop or Jumper Wire.
- 9.10 The Requesting Licensee must comply with any Spectral Compatibility of xDSL Systems Plan developed by SingTel from time to time and as approved by the Authority.

SingTel Comment: New clause 9.10

As the use of Local Loops and Sub Loops by the Requesting Licensee for xDSL purposes may interfere with SingTel existing lines, it is necessary for SingTel to develop and for Requesting Licensees to comply with a Spectral Compatibility of xDSL Systems Plan approved by the Authority.

As SingTel currently only deploys Asymmetric Digital Subscriber Line (ADSL) technology, the annex 3B.19 focus exclusively on the ADSL loop transmission system.

10. ACCESS AND APPROVALS REQUIRED

- 10.1 The Parties shall comply with clause 16.5 of the main body of this RIO Agreement in relation to the obtaining of all licences, permits, consents, waivers, authorisations and intellectual property or other rights required for the provision of the licensed Local Loop or Sub Loop.

11. FAULT REPORTING AND CLEARING

- 11.1 The Requesting Licensee must take all reasonable measures to ensure that its Customers report faults and/or complain to the Requesting Licensee.
- 11.2 Each Party must have or establish a Fault Control Centre (**FCC**) to act as a single point of contact for the reporting and management for fault reporting and clearing. The FCC must be available twenty-four (24) hours a day, seven (7) days a week.

- 11.3 Subject to clauses 11.4 and 11.5, each Party (**Reporting Party**) shall report to the other Party's (**Responding Party's**) FCC any fault in Local Loop or Sub Loop licensed to the Requesting Licensee under this Schedule.
- 11.4 The Reporting Party must perform fault analysis and localisation to determine the source of the fault and ensure that the fault does not lie within its Network before reporting the fault to the Responding Party. The Responding Party may impose Charges on the Reporting Party if the fault is found to be within the Reporting Party's Network.
- 11.5 When the Reporting Party reasonably believes that the source of a fault is within the Network of the Responding Party, the Reporting Party shall report the fault to the Responding Party and provide the following information to the Responding Party via fax and/or electronic means when reporting faults to the Responding Party's FCC:
- (a) Fault Identification Number;
 - (b) Circuit Reference;
 - (c) Customer's name (where necessary);
 - (d) Customer's contact telephone number (where necessary);
 - (e) a description of the fault and symptoms;
 - (f) results of any tests undertaken by the Reporting Party; and
 - (g) such other information that is reasonably required by the Responding Party.
- 11.6 The Responding Party shall respond to the fault (**First Appointment**) to effect fault analysis within three (3) Business Days after the Responding Party receives the Reporting Party's fault report issued under clause 11.5. This response time is not inclusive of any delay caused by any failure of the Responding Party's personnel to:
- (a) gain access to the Customer's premises to carry out any inspection and/or work required; or

- (b) to make any appointment at a time selected by the Responding Party with the Customer or the Reporting Party for the visit referred to in clause 11.6(a).
- 11.7 Where requested, the Reporting Party shall inject a dial tone or continuous 1 kHz tone or other tone acceptable to both Parties, from its Network to enable the Responding Party to trace the reported fault in the Responding Party's Network.
- 11.8 The Responding Party's response to the fault will be complete when it provides the date and time of fault rectification to the Reporting Party.
- 11.9 If either Party submits a fault report to the other Party's FCC on a Local Loop or Sub Loop in accordance with this clause 11, and the processes in clauses 11.6, 11.7 and 11.8 are followed on two (2) separate occasions with the same nature of complaint in the space of five (5) Business Days, upon the reporting of the second occasion, either Party may initiate a joint investigation to identify the source of interference.
- 11.10 Each Party shall co-operate in a reasonable manner with the other Party in relation to any such joint investigation. Upon conclusion of the joint investigation, the Party identified as the interfering Party shall take action as soon as practicable after such identification to remove and correct the source of interference.
- 11.11 If the interfering Party is the Requesting Licensee, and the Requesting Licensee does not take action to remove and correct the source of the interference, SingTel may take such action as is reasonably necessary to remove the interference including suspension or termination of the Local Loop or Sub Loop licence.
- 11.12 The Reporting Party is responsible to keep its Customer informed of the progress of the fault rectification until the fault is rectified.
- 11.13 Each Party shall maintain and store its own records of faults and repairs.
- 11.14 If it is necessary to carry out any planned repair or upgrade to any equipment or facility forming part of the SingTel Local Loop or Sub Loop and SingTel reasonably considers that the planned repair or upgrade would result or be likely to result in the interruption of the Requesting Licensee's service for more than three (3) hours, SingTel shall, where reasonably practicable, provide the Requesting Licensee with reasonable notice of such repairs or upgrades. SingTel shall not be liable for any loss caused by such repair or upgrading.

SingTel Comments: Clause 11.14

SingTel has amended clause 11.14 to eliminate the requirement for SingTel to notify the Requesting Licensee of planned repairs or upgrades in circumstances where the repair or upgrade would not or would not be likely to result in a disruption, or where the disruption is for a very limited time (i.e. less than 3 hours). The current requirement to notify a Requesting Licensee in all instances where there will be a repair or upgrade is overly burdensome on SingTel and does provide any benefit to the Requesting Licensee where there will be no disruption or such a disruption is for a very limited or only a very limited time.

12. PROTECTION AND SAFETY

12.1 Each Party is responsible for the safe operation of its Network and in particular the safe operation of equipment within its Network on its side of the connection at the Subscriber Tie Cable Termination Pin or DP Termination Pin.

12.2 Each Party shall, so far as reasonably practicable, take all necessary steps to ensure that the licence of the Local Loop or Sub Loop, its operations and its implementation of this Schedule:

(a) do not endanger the safety or health of any person, including the employees and contractors of the Parties; and

(b) do not damage, interfere with or cause any deterioration in the operation of the other Party's Network, provided that SingTel's POTS and existing services shall take precedence and be retained if the interference is not otherwise resolvable.

12.3 The Requesting Licensee shall not deploy any hazardous power feed onto the Local Loop or Sub Loop licensed to it under this Schedule.

13. TERM OF LICENCE

13.1 Subject to clause 13.2, the term of the Local Loop or Sub Loop licence shall commence on the date that SingTel approves the Request for Local Loop or Sub Loop under clause 5.3 and continues for a period of two (2) years from the Request Date .

SingTel Comments: Clause 13.1

SingTel has removed the reference to “newly constructed Local Loop or Sub Loop”, as SingTel is no longer required to construct additional local loops if none are available (IDA Letter to SingTel, 21 February 2005, page 5).

13.2 The term of the Local Loop or Sub Loop licence under clauses 13.1 shall be automatically extended for six (6) month periods until:

- (a) the Local Loop or Sub Loop licence is terminated in accordance with this Schedule;
- (b) the SingTel RIO is revoked by the Authority under clause 13.8 of the RIO Agreement; or
- (c) until the Authority removes the requirement for SingTel to supply Local Loops or Sub Loops under the SingTel RIO or exempts SingTel from supplying Local Loops or Sub Loops under clause 13.9 of the RIO Agreement.

SingTel Comment: Clause 13.2

Clarifying amendment only. SingTel has inserted new paragraphs (b) and (c) to ensure consistency of language with the main body of the RIO Agreement.

13.3 The Requesting Licensee may terminate the licence of the Local Loop or Sub Loop after the expiry of the original term set out in clause 13.1 by giving SingTel no less than six (6) months written notice. Such termination will take effect from the date of expiry of this notice.

SingTel Comment: Clause 13.3

SingTel has amended clause 13.3 to prevent Requesting Licensees from obtaining a licence to access the Local Loop or Sub Loop for only a brief period of time before terminating the licence. Clause 13.3, as amended, provides SingTel with greater certainty in respect of network planning and removes any incentive for Requesting Licensees to make frivolous or vexatious requests for access to the Local Loop or Sub Loop.

13.4 SingTel may terminate the licence of the Local Loop or Sub Loop with effect on or after the expiry of the original term under clause 13.1 by giving the Requesting Licensee no less than six (6) months written notice.

14. SUSPENSION

14.1 SingTel may suspend the Requesting Licensee's licence to the Local Loop or Sub Loop at any time until further notice to the Requesting Licensee if the licence of the Local Loop or Sub Loop causes or is likely to cause physical or technical harm to any telecommunications network, system or services (whether of SingTel or any other person) including but not limited to causing damage, interfering with or causing deterioration in the operation of SingTel's Network.

14.2 Without limiting the exclusions or limitations of liability in this RIO Agreement, SingTel shall not be liable to the Requesting Licensee for any Loss resulting from, or in connection with, suspension of access to Local Loop or Sub Loop under this clause 14.

15. TERMINATION OF LICENCE

15.1 SingTel may immediately terminate a licence of Local Loop or Sub Loop if:

- (a) the Requesting Licensee is no longer an FBO;
- (b) in SingTel's reasonable opinion, the Requesting Licensee is using the Local Loop or Sub Loop in contravention of an applicable law, licence, code, regulation or direction and SingTel has the necessary confirmation from the relevant Governmental Agencies that the Requesting Licensee is in contravention of the applicable law, licence, code, regulation or direction;
- (c) the Local Loop or Sub Loop is used for a purpose other than for the purpose of the Requesting Licensee providing telecommunication services to the Requesting Licensee's Customer;
- (d) the licence in respect of Co-Location Space to which the Local Loop or Sub Loop is connected is terminated or expires;
- (e) the Requesting Licensee abandons the Local Loop or Sub Loop;

- (f) the Local Loop or Sub Loop has become unsafe or unsuitable for its purpose;
- (g) SingTel's right to own, maintain or operate the Local Loop or Sub Loop is revoked or terminates or expires; or
- (h) the use of the Local Loop or Sub Loop causes or is likely to cause physical or technical harm to any telecommunications network, system or services (whether of SingTel or any other person) including but not limited to causing damage, interfering with or causing deterioration in the operation of SingTel's Network.

15.2 Either Party (**Terminating Party**) may terminate a licence of a Local Loop or Sub Loop if the other Party is in breach of this Schedule and such breach remains unremedied for a period of five (5) Business Days after receiving notice from the Terminating Party to do so.

15.3 If during the term of a Local Loop or Sub Loop licence, any Local Loop or Sub Loop licensed to the Requesting Licensee is:

- (a) no longer suitable for use in SingTel's reasonable opinion; or
- (b) no longer available to be licensed as determined by SingTel,

SingTel may terminate the licence of the Local Loop or Sub Loop by giving six (6) months notice to the Requesting Licensee.

15.4 SingTel may give the Requesting Licensee no less than six (6) months notice at any time during the term of a Local Loop or Sub Loop licence that the licence of the Local Loop or Sub Loop is to be terminated because of the closure of a POA or Building MDF room or Outdoor Cabinet. The Requesting Licensee shall bear its own cost associated with the closure of the POA or Building MDF room or Outdoor Cabinet and the termination of the Local Loop or Sub Loop licence, and the Requesting Licensee shall be solely responsible for making such alternative arrangements as are necessary to continue to provide its Customers with the services it provided to them using the licensed Local Loops or Sub Loops. In the event that the Requesting Licensee requests assistance from SingTel within thirty (30) Business Days after receiving a notice under this clause to provide an alternative solution to the Co-Location Space which is being terminated, SingTel shall use its reasonable endeavours to assist the Requesting Licensee in finding suitable alternatives to the

Local Loop or Sub Loop that is the subject of termination provided that nothing in this clause shall restrict SingTel's right to terminate under this clause 15 and that the ultimate responsibility to find an alternative lies with the Requesting Licensee.

15.5 Upon expiry or termination of the licence of Local Loop or Sub Loop:

(a) the Requesting Licensee must discontinue the use of the Local Loop or Sub Loop;
and

(b) must disconnect all equipment connected to the Local Loop or Sub Loop,

within ten (10) Business Days after the expiry of the Requesting Licensee's licence or from the date of termination of the licence, whichever is the earlier.

15.6 If the Requesting Licensee fails to disconnect its equipment from the Local Loop or Sub Loop under clause 15.5, SingTel shall remove the Requesting Licensee's equipment. The Requesting Licensee shall pay to SingTel all reasonable costs associated with the work undertaken by SingTel including the disposal of the Requesting Licensee's equipment. In such event, the Requesting Licensee shall have no claim whatsoever against SingTel.

SingTel Comments: Clause 14.7 - 14.10

SingTel has removed the reference to "newly constructed Local Loop or Sub Loop", as SingTel is no longer required to construct additional local loops if none are available (IDA Letter to SingTel, 21 February 2005, page 5).

16. SUB-LICENSING

16.1 The Requesting Licensee must not assign the licence in respect of or sub-let the Local Loop or Sub Loop. For the avoidance of doubt, nothing in this clause places any restriction on the end users to whom the Requesting Licensee may resell services provided using the Local Loop or Sub Loop.

ANNEX 3A.1: GUIDELINE FOR ACCESS TO DP, INTERNAL WIRING AND DISTRIBUTION FRAME VERTICAL/MOUNTING

1. GENERAL

1.1 This Guideline is applicable for access to all SingTel's DP, Internal Wiring and Distribution Frame Vertical/Mounting.

1.2 The Requesting Licensee shall provide to SingTel a master list of persons nominated by it to have physical access to DP, Internal Wiring and Distribution Frame Vertical/Mounting. The master list shall contain, without limitation, for each person, the following details:

- (a) Full name;
- (b) Contractor/company name;
- (c) IDA Licence number;
- (d) NRIC/Passport no.;
- (e) contact no.; and
- (f) fax no.

1.3 The master list provided under clause 1.2 shall be maintained and updated by the Requesting Licensee with a new master list provided to SingTel whenever any amendments are made to the master list.

1.4 No person will be permitted physical access to SingTel DP, Internal Wiring or Distribution Frame Vertical/Mounting without being nominated on the master list under clause 1.2.

2. GENERAL CONDITIONS OF PHYSICAL ACCESS

2.1 Where both SingTel and the Requesting Licensee require physical access to the DP, Internal Wiring and Distribution Frame Vertical/Mounting, SingTel has priority.

2.2 SingTel may refuse any person physical access to, or require that person to be removed from the site where:

- (a) SingTel has previously notified the Requesting Licensee of problems with that person (e.g. the person has breached safety requirements or Best Practice); or
- (b) the person has been barred under clause 2.7.

2.3 The Requesting Licensee must not do or omit to do anything in connection with gaining physical access to SingTel's DP, Internal Wiring and Distribution Frame Vertical/Mounting which may:

- (a) threaten the safety of SingTel's employees, customers or third persons; or
- (b) interfere physically or electrically with the delivery of telecommunication services supplied or to be supplied by SingTel; or
- (c) jeopardise the integrity or confidentiality of communications within SingTel's Network; or
- (d) threaten the security of SingTel's DP, Internal Wiring and Distribution Frame Vertical/Mounting; or
- (e) cause damage to SingTel's DP, Internal Wiring and Distribution Frame Vertical/Mounting.

2.4 The Requesting Licensee must ensure the following:

- (a) the Best Practice for Working on DP under clause 3 and any written instructions (relating to particular circumstances not covered by the Best Practice) is followed;
- (b) abide by the SOP for the use of Internal Wiring;
- (c) the DP or Internal Wiring is left in a safe and tidy condition; and
- (d) adherence to the Annex 3A.2.

2.5 Where, for whatever reason, the Requesting Licensee decides that a person nominated by it under clause 1 should no longer be permitted physical access it must immediately notify SingTel and provide an updated master list.

2.6 SingTel may terminate physical access where:

(a) the physical access causes or is likely to cause physical or technical harm to any telecommunications network, system or services including but not limited to causing damage, interfering with or causing deterioration in the operation of SingTel's Network or Facilities or creates a security risk;

(b) the area is unsafe; or

(c) the Requesting Licensee is in breach of clause 2.3 or clause 2.4.

2.7 Without prejudice to any other rights SingTel may have (whether under contract, at law, or in equity), where the Requesting Licensee or their agents:

(a) gains entry to any DP, Internal Wiring and Distribution Frame Vertical/Mounting or part thereof; or

(b) uses, or attempts to use physical access for any purpose other than the purpose for which notice was provided,

physical access may be immediately terminated and the person(s) will henceforth be barred from entering any Facilities of SingTel.

2.8 The Requesting Licensee must not grant a third person physical access to the DP, Internal Wiring and Distribution Frame Vertical/Mounting to which the Requesting Licensee has been granted physical access under this Schedule.

2.9 In addition to the indemnities provided under the RIO Agreement or Schedules, the Requesting Licensee shall indemnify SingTel against all loss or damage suffered or incurred in connection with or as a result of any unnotified access to SingTel's facilities, whether by the Requesting Licensee's employees or agents or third persons.

3. BEST PRACTICE FOR WORKING ON SINGTEL'S DP

3.1 General

- (a) The Requesting Licensee shall ensure that the person authorised to work on the DP uses proper tools when working on the DP.
- (b) Upon expiry or termination of the licence of Local Loop or Sub Loop, the Requesting Licensee shall disconnect Internal Wiring from the DP pair within three (3) Business Days.
- (c) The Requesting Licensee shall not tamper with nor disconnect any SingTel's Internal Wiring in the course of its work at the DP.

3.2 Procedures When Working At The DP

- (a) The Requesting Licensee shall comply with the Procedure of Security of DPs using this method.
- (b) The Requesting Licensee shall verify the allocated licensed Local Loop or Sub Loop assigned by the SingTel before proceeding to remove any Internal Wiring for the purpose of terminating its Internal Wiring.
- (c) When the Requesting Licensee installs a new cable for service provision, the cable sheath shall be removed up to the cable entry in the DP box. Do not strip, cut or join the Internal Wiring too close to the terminals. The Internal Wiring shall be led through the designated holes and not run across the face of the terminals of the DP box. The Internal Wiring shall not be too long in the DP box and shall be terminated with 20 to 30 mm slack to avoid straining. Spare Internal Wiring shall be coiled around the cable sheath.
- (d) The Requesting Licensee shall keep the DP box safe and tidy and close the DP box after accessing it. The Requesting Licensee shall report immediately if there are any defects found at the DP.

ANNEX 3A.2: PROCEDURE ON SECURITY OF DPS USING THE SERIALISED SECURITY LABEL METHOD

1. GENERAL

- 1.1 This procedure highlights the method of providing security to DPS using the serialised security label and Subscriber Tie Cable.
- 1.2 This procedure is not applicable to DPS which are installed in security areas (such as in landed properties, private housing estates with security measures, risers duct and IDF which are locked, etc) and DPS already provided with locking devices.

2. MATERIALS REQUIRED

- 2.1 The following materials will be required:
 - 2.1.1 Security label with serial numbers and company logo clearly displayed.
 - 2.1.2 Warning labels:
 - (a) Big size — 85mm x 25mm for discases and metal DP boxes,
 - (b) Small size — 55mm x 18mm for block terminals
 - 2.1.3 Cable ties with tags for security labels.

3. IMPLEMENTATION – INITIAL INSTALLATION OF WARNING LABELS AND SECURITY LABELS

- 3.1 The Requesting Licensee will keep records of serialised security labels issued to each staff using the recording form as per Form 1 in Annex 3A.5.
- 3.2 Serialised security labels and warning labels are to be tagged to the DPS which are installed in public areas and not provided with locking devices.
- 3.3 Each DP will be installed with a warning label (two sizes – big one for discases and metal DP box, small one for block terminals) at the top right corner and a serialised security label using the cable tie with tag as shown in the attached photograph.

3.4 The Requesting Licensee's staff or contractor is to record the usage of security labels using the form as shown in Form 2 in Annex 3A.6. The form will be kept by the respective Requesting Licensee. The Requesting Licensee shall keep the usage record in their own database system for traceability.

4. USE OF SECURITY LABEL IN ROUTINE OPERATION

4.1 Re-access to DPs already installed with security labels and warning labels

4.1.1 Re-access to DPs already installed with security label (SingTel or the Requesting Licensee's security label) requires the cutting away of the existing cable tie with security label.

4.1.2 Upon completion of the required work at DPs, a new security label has to be installed using a new cable tie. The serial number of the new security label used has to be recorded in accordance with the process captured in clause 3.3 above.

4.2 Reporting of DPs with damaged security labels

4.2.1 The Requesting Licensee is to record DPs which are installed with warning label but missing security labels in the same form use for recording use of security labels in clause 3.3. The forms are to be kept for future verification.

Annex 3A.4 - Sample Report on Summary of DPs Provided with Security Labels

SUMMARY OF DPs WHICH ARE PROVIDED WITH SECURITY LABELS					
EXCHANGE	TOTAL NO. OF DPs IN EXCHANGE	NO. OF DP WHICH ARE PROVIDED WITH SECURITY LABELS			TOTAL NO. OF DP PROVIDE WITH SECURITY LABELS
		BT	DISCASE	OTHERS	
AM					
BD					
CG					
ES					
GL					
HG					
KT					
NT					
PL					
PR					
SB					
TP					
YC					
Sub.Total					
AR					
BP					
BT					
CS					
CT					
CY					
JE					
JR					
JW					
OC					
QT					
TB					
TS					
WL					
Sub. Total					
Grand Total					

ANNEX 3A.5 FORM 1 - RECORD OF SECURITY LABELS ISSUED TO FIELD STAFF

S/N	SERIAL NO		DATE ISSUED	RECEIVED BY	SIGNATURE
	STARTING	ENDING			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

ANNEX 3A.7 - PHOTOGRAPHS



ORDER FOR LOCAL LOOP

The Requesting Operator

Date of Application : _____ Application Reference Number : _____
 Address of POA : _____
 POA Tie Termination Assigned : _____ [Vertical/Pair No]
 (submit in spread sheet if exceeding 1 pair per address)
 Customer Name : _____
 Customer Address : _____
 _____ Singapore : _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____
 Name : _____
 Designation : _____
 Department : _____
 Contact Number : _____ Company Stamp : _____
 Fax Number : _____

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible
 Not Approved Reason for Rejection : _____

Approved

Circuit Identification Number : _____
 POA Vertical and Pair Number : _____
 Building MDF Vertical and Pair Number : _____
 Distribution Point Number and Pair allocated: _____
 Estimated Provision Date : _____
 SingTel Approval Code : _____
 (*provide in spread sheet if exceeding 1 pair per address)

On Behalf of SingTel

Sign : _____ Contact Number : _____
 Name : _____ Fax Number : _____
 Date : _____

Processing Status

Received Date : _____ Queue Status : _____ Processed Date : _____

ORDER FOR SUB LOOP (FEEDER)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____
 Address of POA : _____
 POA Tie Termination Assigned : _____ [Vertical/Pair No]
 Building MDF Number : _____
 Building MDF Tie Termination Assigned : _____ [Vertical/Pair No]
 (*submit in spread sheet if exceeding 1 pair per address)

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____
 Name : _____
 Designation : _____
 Department : _____
 Contact Number : _____ Company Stamp : _____
 Fax Number : _____

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible
 Not Approved Reason for Rejection : _____

Approved
 Circuit Identification Number : _____
 POA Vertical and Pair Number : _____
 Building MDF Vertical and Pair Number : _____
 Estimated Provision Date : _____
 SingTel Approval Code : _____
 (*provide in spread sheet if exceeding 1 pair per address)

On Behalf of SingTel

Sign : _____ Contact Number : _____
 Name : _____ Fax Number : _____
 Date : _____

Processing Status

Received Date : _____ Queue Status : _____ Processed Date : _____

ANNEX 3A.10

ORDER FOR SUB LOOP (DISTRIBUTION)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____
 Building MDF Number : _____
 Building MDF Tie Termination Assigned : _____ [Vertical/Pair No]
 Customer Name : _____
 Customer Address : _____
 _____ Singapore : _____
 (*submit in spread sheet if exceeding 1 pair per address)

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____
 Name : _____
 Designation : _____
 Department : _____
 Contact Number : _____ Company Stamp : _____
 Fax Number : _____

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible
 Not Approved Reason for Rejection : _____

Approved

Circuit Identification Number : _____
 Building MDF Vertical and Pair Number : _____
 Distribution Point Number and Pair allocated: _____
 Estimated Provision Date : _____
 SingTel Approval Code : _____
 (*provide in spread sheet if exceeding 1 pair per address)

On Behalf of SingTel

Sign : _____ Contact Number : _____
 Name : _____ Fax Number : _____
 Date : _____

Processing Status

Received Date : _____ Queue Status : _____ Processed Date : _____

REQUEST FOR NETWORK INFORMATION (LOOP FEEDER AT LOCAL EXCHANGE)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Percentage of Loop Feeders at a Local Exchange.

Name of Local Exchange : _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____

Name : _____ [Company Name]

Designation : _____

Department : _____

Contact Number : _____ Company Stamp : _____

Fax Number : _____

We agree that:

- (a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and
- (b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

Overall Percentage of available Copper Loop Feeders : _____

On Behalf of SingTel

Sign : _____ Contact Number : _____

Name : _____ Fax Number : _____

Date : _____

REQUEST FOR NETWORK INFORMATION (BUILDING MDF LOOP FEEDER)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Percentage of Available Copper Loop Feeders at a Building MDF.
List the Building MDF (MDF Address and MDF Number) :

(1) _____

(2) _____

(3) _____

(4) _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____

Name : _____ [Company Name]

Designation : _____

Department : _____

Contact Number : _____ Company Stamp : _____

Fax Number : _____

We agree that:

(a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and

(b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

Percentage of available Loop Feeders for item (1) : _____

Percentage of available Loop Feeders for item (2) : _____

Percentage of available Loop Feeders for item (3) : _____

Percentage of available Loop Feeders for item (4) : _____

On Behalf of SingTel

Sign : _____ Contact Number : _____

Name : _____ Fax Number : _____

Date : _____

ANNEX 3A. 13

REQUEST FOR NETWORK INFORMATION (BUILDING MDF LOOP DISTRIBUTION)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Percentage of Available Copper Loop Distribution at a Building MDF.
List the Building MDF (MDF Address and MDF Number) :

(1) _____

(2) _____

(3) _____

(4) _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____

Name : _____ [Company Name]

Designation : _____

Department : _____

Contact Number : _____ Company Stamp : _____

Fax Number : _____

We agree that:

(a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and

(b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

Percentage of available Loop Distribution for item (1) : _____

Percentage of available Loop Distribution for item (2) : _____

Percentage of available Loop Distribution for item (3) : _____

Percentage of available Loop Distribution for item (4) : _____

On Behalf of SingTel

Sign : _____ Contact Number : _____

Name : _____ Fax Number : _____

Date : _____

REQUEST FOR NETWORK INFORMATION (OUTDOOR CABINET LOOP FEEDER)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Percentage of Available Copper Loop Feeders at a Outdoor Cabinet.
 List the Outdoor Cabinet Address and Cabinet Number :

(1) _____

(2) _____

(3) _____

(4) _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____
 Name : _____ [Company Name]
 Designation : _____
 Department : _____
 Contact Number : _____ Company Stamp : _____
 Fax Number : _____

We agree that:

(a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and
 (b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

Percentage of available Loop Feeders for item (1) : _____

Percentage of available Loop Feeders for item (2) : _____

Percentage of available Loop Feeders for item (3) : _____

Percentage of available Loop Feeders for item (4) : _____

On Behalf of SingTel

Sign : _____ Contact Number : _____
 Name : _____ Fax Number : _____
 Date : _____

ANNEX 3A.15

REQUEST FOR NETWORK INFORMATION (OUTDOOR CABINET LOOP DISTRIBUTION)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Percentage of Available Copper Loop Distribution at a Outdoor Cabinet.

List the Outdoor Cabinet Address and Cabinet Number :

(1) _____

(2) _____

(3) _____

(4) _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____

Name : _____ [Company Name]

Designation : _____

Department : _____

Contact Number : _____ Company Stamp : _____

Fax Number : _____

We agree that:

- (a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and
- (b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

Percentage of available Loop Distribution for item (1) : _____

Percentage of available Loop Distribution for item (2) : _____

Percentage of available Loop Distribution for item (3) : _____

Percentage of available Loop Distribution for item (4) : _____

On Behalf of SingTel

Sign : _____ Contact Number : _____

Name : _____ Fax Number : _____

Date : _____

ANNEX 3A.16

REQUEST FOR NETWORK INFORMATION (DP LOOP DISTRIBUTION)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Percentage of Copper Loop Distribution available at Distribution Points.

List the Distribution Points Number (Building Name /Address and Distribution Point Number) :

- (1) _____
- (2) _____
- (3) _____
- (4) _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____

Name : _____ [Company Name]

Designation : _____

Department : _____

Contact Number : _____ Company Stamp : _____

Fax Number : _____

We agree that:

- (a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and
- (b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

Percentage of available Loop Distribution for item (1) : _____

Percentage of available Loop Distribution for item (2) : _____

Percentage of available Loop Distribution for item (3) : _____

Percentage of available Loop Distribution for item (4) : _____

On Behalf of SingTel

Sign : _____ Contact Number : _____

Name : _____ Fax Number : _____

Date : _____

ANNEX 3A.17

REQUEST FOR NETWORK INFORMATION (ADDRESS OF BUILDING MDF)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Address of each Building MDF at a Local Exchange.

Name of Local Exchange : _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____
Name : _____ [Company Name]
Designation : _____
Department : _____
Contact Number : _____ Company Stamp : _____
Fax Number : _____

We agree that:

- (a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and
- (b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

On Behalf of SingTel

Sign : _____ Contact Number : _____
Name : _____ Fax Number : _____
Date : _____

ANNEX 3A.18

REQUEST FOR NETWORK INFORMATION (ADDRESS OF OUTDOOR CABINET)

The Requesting Operator

Date of Application : _____ Application Reference Number : _____

Address of each Outdoor Cabinet at a Local Exchange.

Name of Local Exchange : _____

On Behalf of the Requesting licensee

Sign : _____ Name of Requesting Licensee: _____

Name : _____ [Company Name]

Designation : _____

Department : _____

Contact Number : _____ Company Stamp : _____

Fax Number : _____

We agree that:

- (a) We are liable for all Charges that may arise in relation to a request for SingTel Exchange Related Information; and
- (b) SingTel Exchange Related Information constitutes Confidential Information and will be treated as such in accordance with clause 23 of the main body of the RIO Agreement.

SingTel's Reply to the Requesting Operator

Application returned - incomplete/illegible

Not Approved Reason for Rejection : _____

Approved

On Behalf of SingTel

Sign : _____ Contact Number : _____

Name : _____ Fax Number : _____

Date : _____

ANNEX 3A.19 SPECTRAL COMPATIBILITY OF xDSL SYSTEMS PLAN

1. Scope

- 1.1 This Annex (the “Spectral Compatibility of xDSL Systems Plan”) forms part of Schedule 3A of SingTel’s Reference Interconnection Offer (RIO), which specifies the terms and conditions with which Requesting Licensee must comply for SingTel to provide them with Line Sharing.
- 1.2 As the only currently available xDSL loop transmission technology which allows Line Sharing is Asymmetric Digital Subscriber Line (ADSL) technology, this Annex focuses exclusively on the ADSL loop transmission system. This Annex does not address other DSL technologies including ISDN, HDSL or VDSL. SingTel will review this Annex periodically to determine whether further DSL technologies can be used for Line Sharing as well as ADSL, and to amend the plan to provide for such other technologies.
- 1.3 This Annex covers the technical requirements for Requesting Licensee Equipment and Customer Premise Equipment (CPE) for Line Sharing purposes, and the relevant test requirements.
- 1.4 The Annex is intended to minimize the risk of possible Cross-talk interference with existing loop transmission systems and services located in other cable pairs within the same cable sheath as the line being shared. Such undesirable Cross-talk interference could cause unacceptable degradation of performance of the existing loop transmission system and/or services in the SingTel network.
- 1.5 This Annex does not guarantee system performance for any Requesting Licensee’s deployed system.
- 1.6 Spectrum management and spectrum compatibility is a new area which many telecommunications authorities have been studying and working in to develop industry standards. This Annex is therefore subject to periodic review by SingTel, taking these considerations into account.

2. Line Sharing Network Reference Configurations

2.1 There are two possible Line Sharing configurations.

2.2 Figure 1 depicts Configuration 1 in which the Requesting Licensee uses SingTel's local loop between the local exchange and the customer.

2.3 Figure 2 depicts Configuration 2 in which the Requesting Licensee uses SingTel's local loop between the local MDF room and the customer.

ADSL Line Sharing - Network Configuration 1

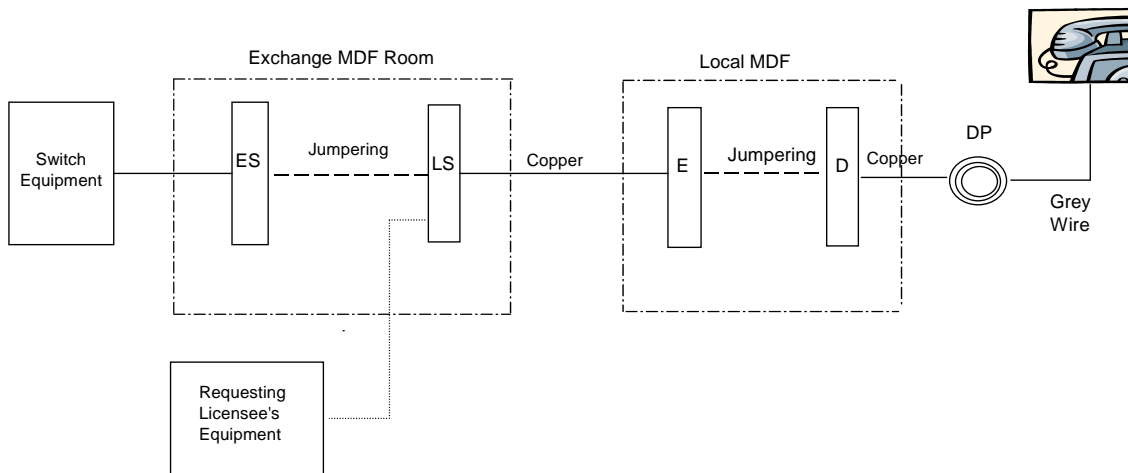
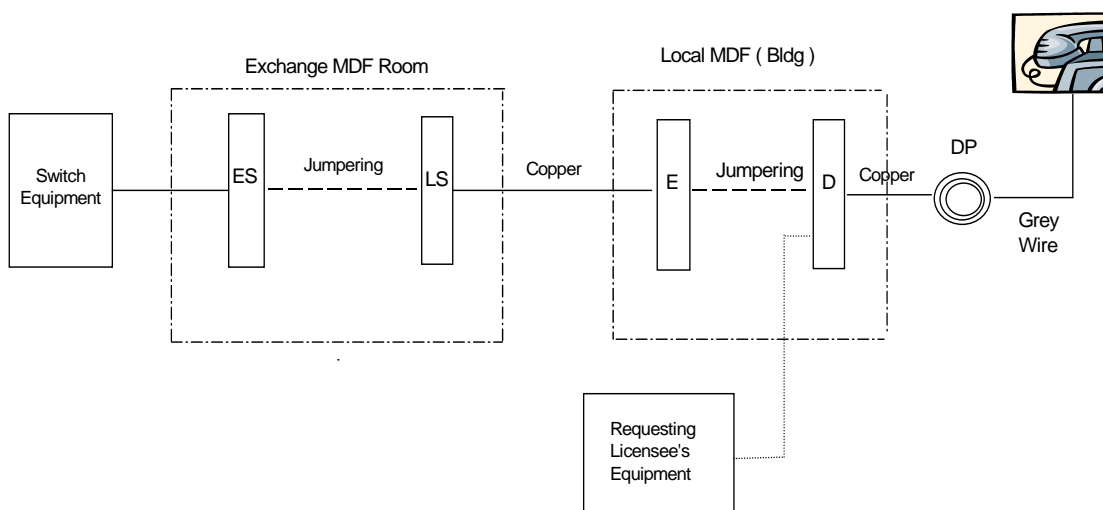


Figure 1

ADSL Line Sharing - Network Configuration 2



Note: POTS could also be provided through fibre-based DLC system which is located in local MDF

Figure 2

3. Cross-Talk information (extract from ANSI T1E1.4/2000, Spectrum Management Draft Standard)

- 3.1 The electromagnetic energy that couples into a metallic cable pair from services and transmission system technologies in use on other pairs in the same cable unit is unwanted energy, and is called “Cross-talk noise” (“**Cross-talk**”).
- 3.2 Cross-talk is sensitive to frequency, signal strength, and exposure. High frequency energy couples into other pairs more easily than low frequency energy because as the signal frequency increases, the Cross-talk coupling loss between the pairs of a cable decreases. Hence, for two signals of equal strength, the higher the frequency, the greater the Cross-talk noise which is produced.
- 3.3 A strong signal will therefore transfer more power into other pairs than a weaker signal will. The amount of Cross-talk noise is directly proportional to the power of the disturbing signal. The stronger the signal, the greater the Cross-talk noise.
- 3.4 Exposure is a measure of the proximity of metallic pairs at various points along a cable and the length over which pairs are in close proximity. The greater the exposure, the greater the total Cross-talk noise.

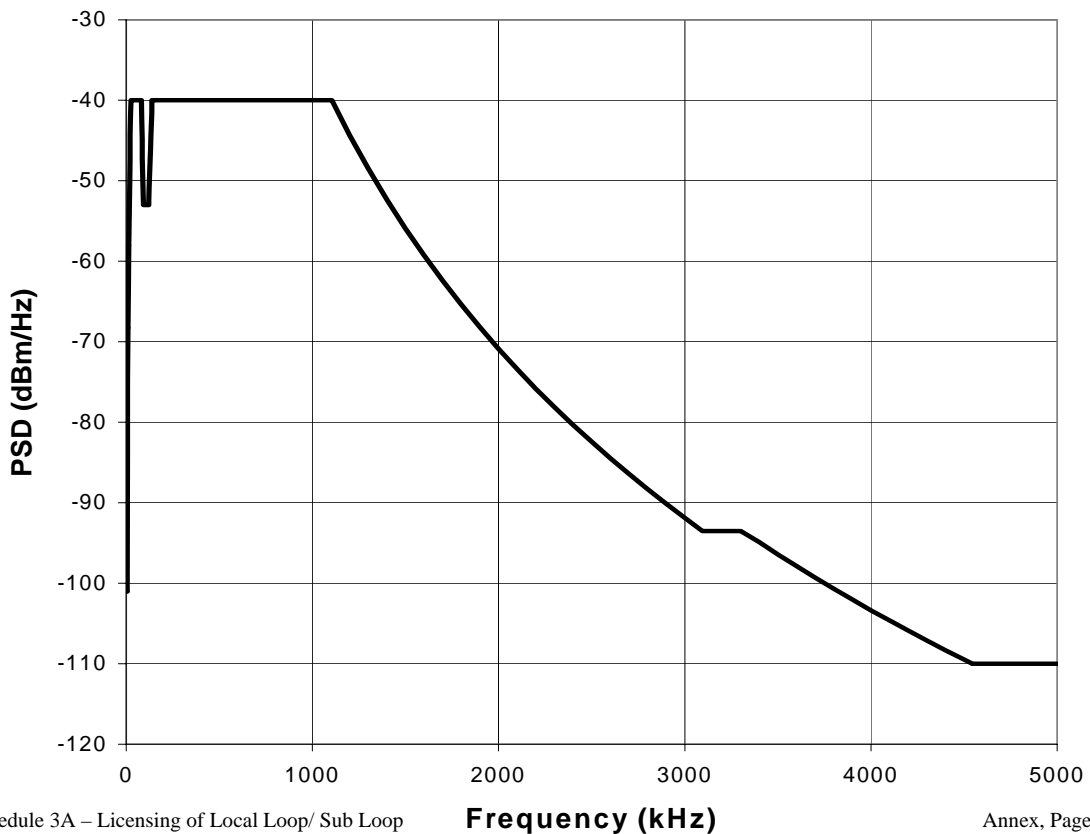
4. Performance Requirement For Requesting Licensee's Equipment For Line Sharing

- 4.1 As strong signals create more Cross-talk noise than weaker signals, the most effective and widely used method of controlling Cross-talk interference is through the use of Signal Power Limitation. Signal Power Limitations specify the amplitude, frequency distribution, and total power of electrical signals at the point where the signal enters the subscriber loop cable.
- 4.2 To minimize and control the Cross-talk interference introduced by Requesting Licensee's Equipment into the existing loop transmission systems and services, the performance requirements in this clause specify power limits in terms of:
- Transmitted Power Spectral Density (PSD); and
 - Total Average Transmit Power.
- 4.3 The Signal Power Limitations apply to signals transmitted by ADSL transceiver units located in local exchanges (ATU-C) or a remote terminal location (ATU-R) that is usually at the customer premises. This Annex specifies both PSD and total average power for both upstream (the signal travelling away from the customer) and downstream (the signal travelling toward the customer) signals.
- 4.4 The characterization of a transmitted signal by power level and frequency content is called the power spectral density (PSD) of the signal. The primary signal power requirements in this plan are specified through the use of PSD masks and templates. The PSD mask shows the maximum power boundary or limit, in dBm per Hz, for the transmitted signal.
- 4.5 The Requesting Licensee's equipment must not transmit a signal above the PSD Mask or which exceeds the total average power for both upstream and downstream signals.
- 4.6 The PSD masks and templates are drawn from the ANSI T1 E1.4 Spectrum Management Class 5 which is intended for DSL transmission systems that use ATU-C equipment and operate in the frequency spectrum from approximately 25 kHz to approximately 1104 kHz and ATU-R equipment that operates in the frequency spectrum from approximately 25 kHz to approximately 138 kHz.

4.7 PSD template (Downstream)

PSD template definition for downstream transmission

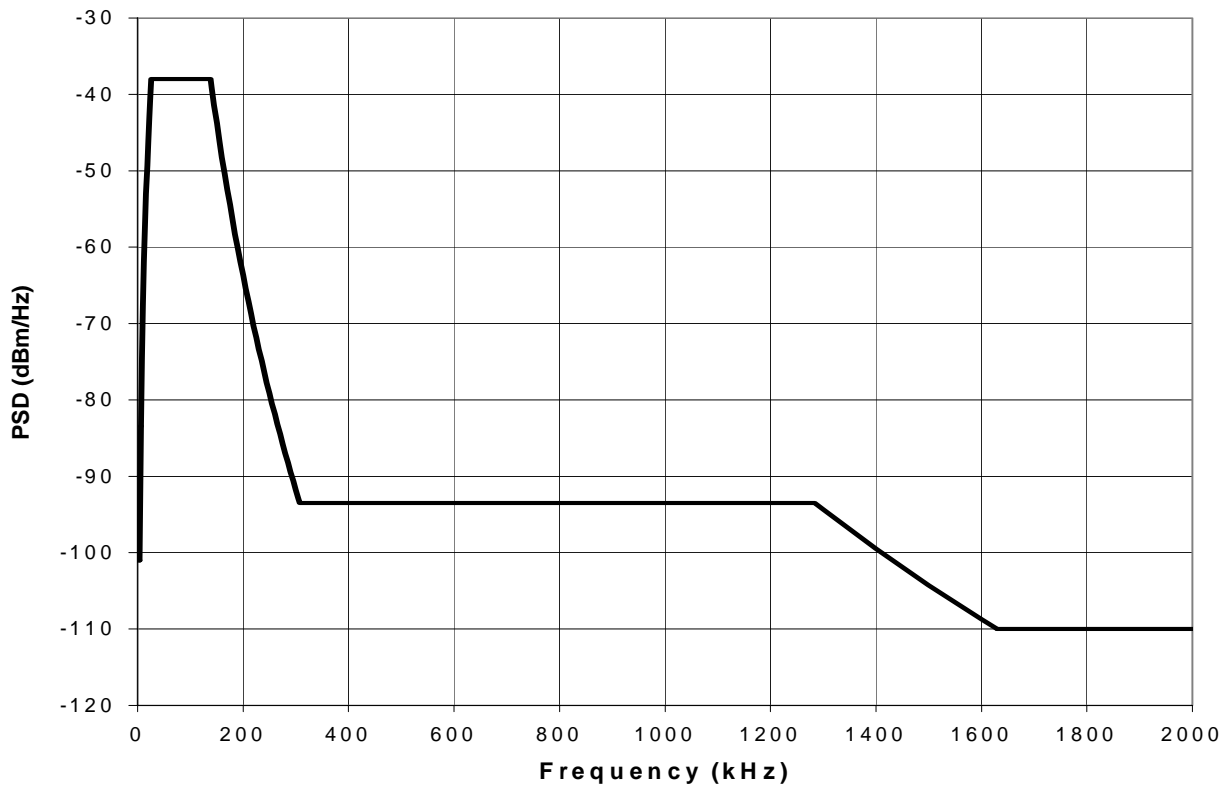
Frequency Band (kHz)	PSD (dBm/Hz)
$0 < f \leq 4$	-101, with max power in the in 0-4 kHz band of +15 dBm
$4 < f \leq 25.875$	$-96 + 21 \times \log_2(f/4)$
$25.875 < f \leq 81$	-40
$81 < f \leq 92.1$	$-40 - 70 \times \log_2(f/81)$
$92.1 < f \leq 121.4$	-53
$121.4 < f \leq 138$	$-53 + 70 \times \log_2(f/121.4)$
$138 < f \leq 1104$	-40
$1104 < f \leq 3093$	$-40 - 36 \times \log_2(f/1104)$
$3093 < f \leq 4545$	$\text{Min}(-36.5 - 36 \times \log_2(f/1104), -93.5)$
$4545 < f \leq 11040$	- 110



4.8 PSD template (Upstream)

PSD template definition for upstream transmission

Frequency Band (kHz)	PSD (dBm/Hz)
$0 < f < 4$	-101, with max power in the in 0-4 kHz band of +15 dBm
$4 < f < 25.875$	$-96 + 21.5 \times \log_2(f/4)$
$25.875 < f < 138$	-38
$138 < f < 307$	$-38 - 48 \times \log_2(f/138)$
$307 < f < 1221$	-93.5
$1221 < f < 1630$	$\min(-90 - 48 \times \log_2(f/1221), -93.5)$
$1630 < f < 11040$	-110



4.9 Total average power (Downstream)

Total average downstream power between 25 kHz and 1104 kHz that is transmitted by the ATU-C shall not exceed 20.9 dBm.

4.10 The total average power (Upstream)

The total average upstream power below 138 kHz that is transmitted by the ATU-R shall not exceed 13 dBm.

4.11 There is a higher potential for Cross-talk in Configuration 2 since the Requesting Licensee's equipment is deployed nearer to the customer than under Configuration 1. To reduce such risk, the Requesting Licensee equipment must have Power Cutback feature as specified in ITU standard G992.1 and G992.2.

4.12 Reverse Mode ADSL operation

4.12.1 Reverse Mode ADSL Operation occurs when the ATU-C equipment as defined in the relevant Recommendation ITU G992.1 and G992.2 is used to transmit in the reverse direction, that is away from the customer.

4.12.2 Such Reverse Mode ADSL Operation will cause unacceptable Cross-talk interference and performance degradation and is not allowed under this Annex.

5. Test and Measurement Methods

5.1 Measurement setup for PSD and total average power measurement is shown in Figure 3 below.

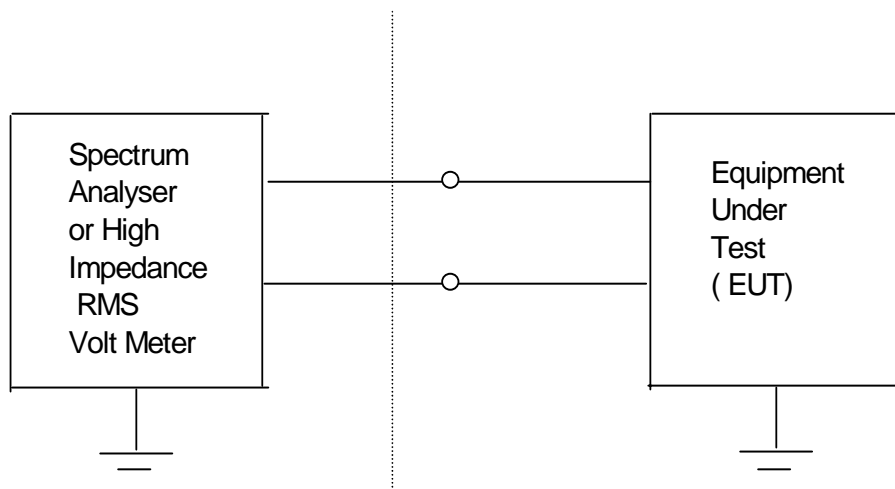


Figure 3 PSD and Total Average Power measurement set up.

5.2 Total average power measurement

5.2.1 The total average power shall be measured and averaged over a time span of at least 10 seconds.

5.3 Power spectral density (PSD) measurement

5.3.1 The PSD is measured by averaging the observed output power of the EUT on each of a number of contiguous, regularly spaced, small frequency bands, with each frequency band having a defined resolution bandwidth as shown in the Table below:

Resolution bandwidth for measuring an EUT PSD

Frequency Band	Resolution Bandwidth
$f \leq 10 \text{ kHz}$	100 Hz
$10 \text{ kHz} < f \leq 25.875 \text{ kHz}$	1 kHz
$25.875 \text{ kHz} < f \leq 3.1 \text{ MHz}$	10 kHz

3.1 MHz < f ≤ 30 MHz	100 kHz
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- 5.3.2 Each frequency point of a PSD (corresponding to a measurement in a single resolution bandwidth) shall be measured by averaging the power in the resolution bandwidth of that frequency point for a time period of at least 2.0 seconds. This requirement is equivalent to setting the sweep time for a single sweep of a spectrum analyzer for a duration equal to at least 2.0 seconds per frequency point.
- 5.3.3 The EUT shall be tested while it transmits maximum power and maximum PSD levels at all frequencies over which it can transmit data when deployed. The EUT shall not have any power cutback enabled during testing
- 5.3.4 The EUT input shall consist of a pseudo-random uniformly distributed data sequence, and the EUT output shall be a fully modulated transmitted signal with all overhead, framing, coding, scrambling, modulation, filtering and all other operations performed on the data stream that the modem would normally perform while transmitting data.

6 Definitions

The following definitions apply to this Annex 3A.19

“**ADSL**” means Asymmetric Digital Subscriber Line.

“**Cross Talk**” means the unwanted electromagnetic energy that couples into a metallic cable pair from services and transmission system technologies in use on other pairs in the same cable unit.

“**Downstream**” means signals sent using xDSL technology from the network towards the customer.

[“**DSL**” means Digital Subscriber Line technology.]

[“**EUT**” means Equipment Under Test.]

[“**HDSL**” means High bit-rate Digital Subscriber Line technology.]

[“**ISDN**” means Integrated Services Digital Network technology.]

“Signal Power Limitation” means the specific amplitude, frequency distribution, and total power of electrical signals at the point where the signal enters the subscriber loop cable as specified in Annex 3A.19.

“Upstream” means signals sent using xDSL technology from the customer towards the network.

[**“VDSL”** means Very High bit-rate Digital Subscriber Line technology.]