Republic of Yemen

Ministry of Telecommunications & Information Technology

Public Telecommunication Corporation

Technical Specifications for

(DROP WIRE 0.8 mm)

with Schedule of Quantities

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CONTENTS

1. GENERAL:

These specifications cover the construction, electrical and mechanical requirements, testing and packing of 1 pair self supporting drop wire to be installed between distribution points and telephone subscribers premises.

2. ASSOCIATED DOCUMENTS:

(a) Where international standards are not available, standards in accordance with ASTM (American Society for Testing and Materials), IP (Institute of Petroleum) and BS (British Standards Institute) have been specified. The latest issues should be apply and deemed to be integral parts of the specifications.

(b) The following standards are referred to in this specification:

ASTM B1	Conductor, Quality of copper.
ISO R402	Conductor, Tensile Strength and Elongation.
ASTM D 1248	Insulation and Sheath, Quality of polyethylene material.
ASTM D 792	Insulation and Sheath, Density.
ISO R 292	Insulation and Sheath, Melt flow index.
ISO R 527	Insulation and Sheath, Tensile strength and elongation.
ASTM D 1603	Sheath, Carbon Black Content.
MAT-061	Inspection and testing.
MAT-062	Packing and marking.

3. TEMPERATURE AND ENVIRONMENT

3.1 The drop wire should be, without detriment, maintain the physical and electrical characteristics, within specified limits detailed in this specification, over a working temperature range of -10 °C to +80 °C.

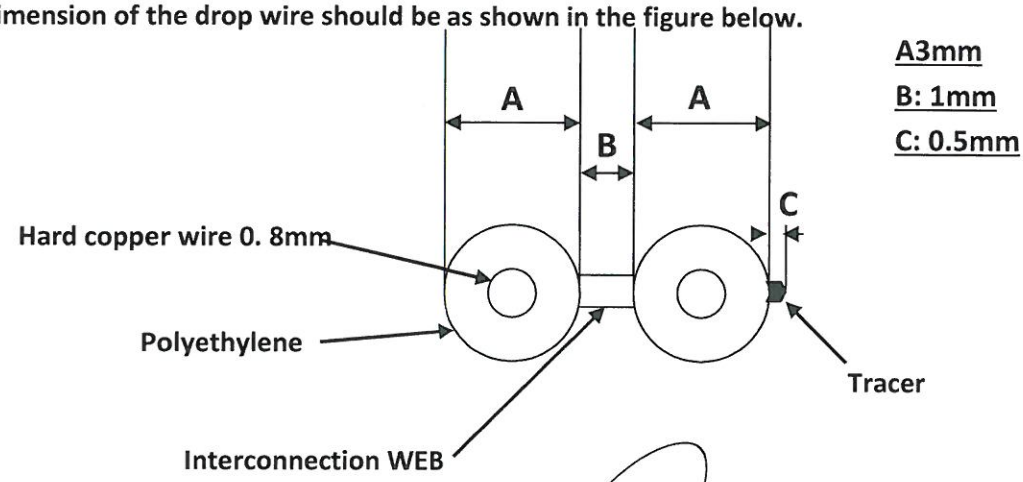
3.2 The drop wire should be suffering no deterioration from sunlight of corrosive elements in the atmosphere.

4. CONSTRUCTION:

4.1 The assembly should be consisting of two conductor lay parallel insulated to form a figure 8 configuration. It should be possible to separate the drop wire into two fully insulated conductors by cutting along the interconnecting web.

4.2 Polarity identification should be provide by a single ridge tracer longitudinally molded along the jacket throughout the intere length the drop wire unaided eye and to the touch.

4.3 The dimension of the drop wire should be as shown in the figure below.



A3mm
B: 1mm
C: 0.5mm

5. PHISICHAL REQUIREMENTS

5.1 Conductors:

Each conductor should be consisting of hard drawn copper wire. The conductor should be meet the requirements of (ASTM B1) have a conductivity of at least 96%. The diameter of conductor should be 0.8mm.

5.2 Insulation:

5.2.1 The insulation should be high density polyethylene (HDPE).

5.2.2 The polyethylene compound should be according to (ASTM D 1248).

5.2.3 The insulation should be contain 2.5% black carbon uniformly distributed along the insulation.

5.2.4 A finished drop wire should not be support combustion fire more than 1 minute after 15 seconds applications of standard test flame to a vertically supported specimen with interval of 15 seconds between successive applications of the flame. The specimen should not be convoy flame either during or after five applications of the test flame.

6. ELECTRICAL REQUIREMENTS AT 20°C

6.1 The maximum conductor resistance should be 36.5 Ω/Km at +20°C.

6.2 The resistance unbalance between two conductors should not be exceeding 2%.

6.3 The insulation resistance at 500VDC must be 5000MΩ/Km for 1minute.

6.4 Dielectric strength should be 4000VAC for 3minutes.

6.5 The mutual capacitance measured in dry air at 800Hz on wire length should not be exceeding 40nF/km.

7. MECHANICAL REQUIREMENTS

All tests should be performed as specified in specification MAT-061.

7.1 Conductor:

7.1.1 The tensile strength should be not less than 200N/mm² for 0.8mm and the permanent elongation should be 2%.

7.2 Insulation (polyethylene):

7.2.1 The maximum melt flow index should be 0.5g/10minutes.

7.2.2 The tensile strength should not be less than 12.5N/mm² and the ultimate elongation should not be less than 400%.

7.2.3 The dielectric constant should not be exceeding 2.4 when measured at 100KHz & 1MHz.

7.3 The drop wire should be passing an immersion test according to (MAT-061) without breakdown.

8. COMPLIANCE

The tenderer should be state their compliance with specification in figures and detailed statements any deviation suggested by manufacture should be fully documented and may be presented the word (comply) is not sufficient for this purpose.

9. SUPPLY EXPERIENCE

The tenderer should be submitting document of supply experience.

10. DELEVERY LENGTH

The drop wire should be delivered in coils of 500 meter in length.

11. SAMPLES

11.1 The samples must be bringing with offer with length not less 100m.

11.2 The sample must be stamp by Manufacture Company.

12. INSPECTION

12.1 Manufacturer should be keep suitable summary records for a period not less than five years of all electrical and physical tests required in such a form that test data.

12.2 Following test results should be supplied with each coil:

12.2.1 Conductor resistance.

12.2.2 Resistance unbalance.

12.2.3 Mutual capacitance.

12.2.4 Insulation resistance.

12.2.5 Dielectric strength.

12.3 PTC should have a right to depute a reprehensive to inspect at factory during the manufacture of the drop wire on the cost of the tenderer.

12.4 The approval to attend two PTC engineers to test the drop wire during the manufacture on the cost of the tenderer.

13. PACKING AND MARKING

(a) Packing / unpacking instructions must be supplied along with each consignment.

(b) The packing material should not be contain any sharp edges or nails which may damage the material.

(c) A distinguishing number and the following information should be plainly marked on the outside of each coil:

i. Manufacture's name and country of origin.
ii. Contract number.
iii. M.T.I.T R.Y P.T.C
iv. Tender number.
v. Year of manufacture.
i. Length in meters.
ii. Net and gross weights.

Information to be submitted with the tender:-

Tenderers should be give details of the construction of drop wire physical, electrical characteristics and mechanical characteristics relating to the concerned tender in the form given in the table below:-

characteristics	Tender Offer	notes
1- CONSTRUCTION:-		
1.1 Conductor material		
1.2 conductor diameter (mm)		
1.3 Insulation material		
1.4 Insulation thickness (A, B, C)		
1.5 Black carbon content %		
1.6 weight of copper per 500m of conductor		
1.7 overall weight of roll (500m) Kg		
1.8 Marking		
1.9 standard length of roll(m)		
2. ELECTRICAL CHARACTERISTICS AT 20°C		
2.1 conductivity of conductor%		
2.2 Max conductor resistance Ω/Km		
2.3 Resistance unbalance /Km		
2.4 Insulation resistance at (500 VDC)		
2.5 Dielectric strength		
2.6 Mutual capacitance at 800KHz		
2.7 Nominal characteristic impedance		
2.8 Maximum insertion loss (dB/Km) at: - 1KHz - 150 KHz - 300 KHz		
3. MECHANICAL CHARACTERISTICS		
3.1 Tensile strength of conductor		
3.2 Elongation of conductor		
3.3 Tensile strength of insulation		
3.4 Elongation of insulation		
3.5 Operating temperature & relative humidity		
4. SAMPLE		
4.1 length of sample		

***** END OF SPECIFICATIONS*****

NOTES:

The Tenderers must reply to the following points:-

1- Respond to and comply with PTC Technical Schedules.
2- Catalogues and documents containing instructions pertaining to the Drop Wire.
3- Samples showing the quality of the product must be attached to the submitted offer and the manufacturing company's name must be printed clearly on the samples.
4- Two PTC engineers must attend the factory inspection.
5- The laboratory response from the manufacturing company on all of PTC's specifications (compliance statement).
6- The manufacturer must submit company supply record.

الملاحظات:

على مقدم العرض الإجابة على الآتي:-

1- الإجابة على والالتزام بالمواصفات الفنية الموضحة في الجداول الفنية.
2- إحضار الكتالوجات والوثائق الخاصة بالدروب واير المطلوبة من قبل الشركة المصنعة.
3- تقديم عينات من الشركة المصنعة تدل على جودة التصنيع على أن يكون مطبوع عليها اسم الشركة المصنعة بشكل واضح.
4- حضور الفحص المصنعي من قبل (2) من مهندسي المؤسسة.
5- الإجابة المعملية من الشركة المصنعة على كل مواصفات المؤسسة (عروض الإستجابة).
6- الخبرة التزويدية للمصنع.

جدول الكميات لاحتياجات مادة الدروب واير

الصنف	الوحدة	الكمية المطلوبة	التكلفة التقديرية للوحدة ($)	اجمالي التكلفة التقديرية ($)
لفات دروب واير أسود 0.8mm- (500 متر لكل لفة)	لفة	10,000		