



**BIHAR STATE POWER TRANSMISSION COMPANY LIMITED**

**STANDARD MANUFACTURING QUALITY PLAN FOR MULTISTRAND ACSR CONDUCTOR**

<b>Manufacturers Details</b>		<b>Customer</b> BSPTCL	<b>Vendor's Code</b>	<b>Item : Multistrand ACSR Conductor</b>	<b>M.Q.P.No. 045</b>	<b>Valid From : 15.01.2016</b>
					<b>Rev. No. 00</b>	<b>Valid upto : Till Revision</b>
					<b>Date : 07.01.2016</b>	<b>Page</b>
<b>Code 1</b>	<b>Indicates place where testing is planned to be performed i.e. Inspection</b>			<b>Code 2</b>	<b>Indicates who has to perform the tests i.e. Testing Agency</b>	
A	At conductor manufacturer's works			J	The Conductor Manufacturer	
B	At Component manufacturer's works			K	The Component Manufacturer	
C	At authorized distributors place			L	The Third Party	
D	At independent Lab.			M	The Turn key Contractor	
E	At turn key contractor's location					
F	Not Specified					
<b>Code 3</b>	<b>Indicates who shall witness the tests i.e. Witnessing Agency</b>			<b>Code 4</b>	<b>Review of Test Reports/Certificates</b>	
P	Component Manufacturer itself			W	By conductor Manufacturer	
Q	Component Manufacturer and conductor Manufacturer			X	By Contractor during product/process inspection	
R	Component Manufacturer, Conductor Manufacturer and Contractor			Y	By BSPTCL during product/process inspection.	
S	Conductor Manufacturer itself			Z	By Contractor and /or BSPTCL during product/process inspection.	
T	Conductor Manufacturer and Contractor					
U	Conductor Manufacturer, Contractor and BSPTCL					
V	Third Party itself					
<b>Code 5</b>	<b>Whether specific approval of sub-vendor / component make envisaged?</b>			<b>Code 6</b>	<b>Whether test records required to be submitted after final inspection</b>	
E	Envisaged			Y	Yes	
N	Not Envisaged			N	No	
<ol style="list-style-type: none"> <li>Proper co-relation of materials with test certificates from Raw Material stage to finished conductor shall be maintained.</li> <li>The Aluminium Ingots/aluminium wire rods shall be procured from BSPTCL approved sources / LME registered manufacturers. Aluminium ingot to aluminium wire rod conversion from any conversion agent/ conductor manufacturer's own factory to be approved by BSPTCL. records shall be reviewed as per their plant standard by BSPTCL during product inspection/process audits.</li> <li>The conductor manufacturer shall furnish the test certificates of Aluminium ingot/wire rod for review by BSPTCL.</li> <li>Galvanized Steel Wire to be procured from BSPTCL approved sources and the conductor manufacturer shall furnish the following test certificates from steel wire manufacturer for review by BSPTCL. Chemical test certificate of Steel Wire Rod manufacturer Test certificate of Zinc manufacturer Test certificates of the tests carried out by steel wire manufacturer on finished steel wire. The conductor manufacturer shall obtain steel wire manufacturers test certificates for galvanized steel wire atleast 20% of the coils &amp; conductor manufacturer shall carry out tests on 10% of coils on receipt of steel wire.</li> <li>The conductor manufacturer will carry out the acceptance test on aluminium and steel strands on 20% of the drums offered for inspection and will submit the records at the time of BSPTCL inspection.</li> <li>Adequate care shall be taken to avoid damages to galvanising during preforming and post forming operations.</li> <li>Valid calibration certificates of various testing and measuring equipments by NABL accredited agencies and standard resistance for verification of Resistance bridges shall be available at conductor manufacturer works. Conductor manufacturer shall inform BSPTCL office regarding the date of calibration and BSPTCL shall physically present during the calibration of the testing equipments and after calibration the testing equipments shall be sealed properly.</li> <li>The area where conductor is to be manufactured (stranding m/c &amp; rewinding m/c) shall be covered with rubber mat/ coir mat/ Wooden floor, etc.</li> <li>All guides, rollers, pulleys etc. used for manufacturing conductor shall be of Nylon/ Hylum/ Teflon or other soft material instead of steel.</li> <li>Finished conductor shall be checked for length verification and surface finish on separate rewinding machine at variable speed from 8 to 16 mtr/ minute. The rewinding machines shall have appropriate clutch system and shall be free from vibration and jerks etc. with traverse laying facilities. If length is found less than declared length during rewinding, then two drums from the same lot shall be verified for declared length. In case any of these drums is found have less length, the lot will be rejected and if these two drums length matching the declared length whole lot shall be accepted after deducting In case of defects in surface finish, additional two drums shall be taken for rewinding &amp; if same problem is observed the entire lot shall be rejected.</li> </ol>						



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Sr. No.	Components/ Operations & Description of Test	Type of Check	Quantum of Check/ Sampling with basis	Reference document for	Acceptance Norms	Format of Record	Applicable Codes						Remarks
							1	2	3	4	5	6	
	and inside of the flanges of drum. After reeling the conductor, the exposed surface of the outer layer of the conductor shall be wrapped with water proof thick bituminised bamboo paper & then transparent plastic sheet.												
15	The wood used in the drum shall preferably be neutral(non corrosive)with pH (aqueous extract) 5.5 to 7.5 and the wood preservative Copper used compound shall be avoided.												
16	The manufacturer may supply the conductor in non-returnable painted steel drums. After preparation of steel surface according to IS 9954, synthetic enamel paint shall be applied after one coat of primer.												
17	Conductor manufacturer has to ensure marking of Dispatch Clearances /Instructions no on all drums before dispatch and a copy of Dispatch Clearances /Instructions along with the test reports should be sent to the site along with the dispatches.												
18	The Lay ratio of any Aluminium layer shall not be greater than the lay ratio of Aluminium layer immediately beneath it.												
19	The MQP should be read in conjunction with the applicable technical specification against which the conductor is being manufactured.and in case any contradiction between technical specification / Approved drawing and MQP, detailed mentioned in Technical Specification and Approved drawing shall be final.												
20	The conductor manufacturer shall carry out process audits on quarterly basis at galvanized steel wire manufacturer works as per approved MQP of steel wire. The audit report shall be made available for BSPTCL review during product inspection/process audits.												
21	IS-398 Part 2 is for below 400KV line & it is used for manufacturing ACSR Zebra, ACSR panther & ACSR Dog, etc. IS 398 part-5 for 400 kV & above line, it is used for manufacturing ACSR Moose, ACSR Snowbird, ACSR Bersimis, ACSR lapwing, etc..												
22	Standard length & random length of conductor shall be governed as specified in BSPTCL technical specification.												
23	Rejection & retests shall be as per IS 398 part 5. In case of rejection of the offered lot of conductor/earthwire after testing as per MQP/Technical Specification/IS, the rejected material and the samples already tested shall be scrapped and strictly disposed off as follows: a) The rejected lot/tested samples shall be clearly identified and stored separately to avoid any mix up with any in-process/finished lot till the same is disposed off. b) The supplier shall arrange for cutting of the rejected conductor/earthwire lot in bits & pieces which shall be sold as scrap. c) In case supplier intends to dispose off rejected material through any other mode, the same shall be done with approval of BSPTCL. d) Necessary supporting documents in regard to (b) and (c) above, shall be submitted for verification of BSPTCL and record shall be maintained at manufacturer's works.												
24	The manufacturer shall inform site and concerned inspection office for 1 sample per 500 KM sample selection at site for reacceptance test at TPL or at manufacturer's lab. (Refer CI in TS)												
25	The size & acceptance test for different types of conductor shall be carried out as per GTP.												



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							1	2	3	4	5	6	
<b>A. Section: RAW MATERIAL INSPECTION</b>													
1.0	Aluminium Ingot		1 sample per heat of 9 MT or furnace capacity and part thereof	Suppliers TC		Suppliers TC/ BSPTCL Report	B	K	P	W	E	N	
1.1	Chemical Composition	Spectro Analysis	One sample/lot of 100 MT or part thereof per supplier shall be tested	IS 4026 and BSPTCL Spec.	AL 99.5 % (min) Cu 0.04 % (max) Other elements as per GTP		A	J	S	Z		N	
1.2	Aluminium Wire Rod		1 sample per heat of 9 MT or furnace capacity and part thereof	Suppliers TC		Suppliers TC/ BSPTCL Report/TPL	B	K	P	W	E	N	
1.2.1	Chemical Composition	Spectro Analysis	One sample/lot of 100 MT or part thereof per supplier shall be tested	IS 4026 and BSPTCL Spec.	AL 99.5% (min) Cu 0.04 % (max) Other elements as per GTP		A/D	J/L	S/V	Z		N	
1.2.2	Diameter	Dimensional	1 sample from each coil.	IS 5484 and BSPTCL Spec.	Min. 9.00 mm, Nom. 9.50mm Max. 10.00 mm	Supplier TC & BSPTCL Report	A/B	J/K	S/P	Z	-	N	
1.2.3	Tensile Strength	Mechanical	1 sample from each coil.	IS 5484 and BSPTCL Spec.	Min. 10.50 to 12 Kg/mm <sup>2</sup> for aluminium strands dia less than 4	Supplier TC & BSPTCL Report	A/B	J/K	S/P	Z	-	N	
1.2.4	Elongation at break	Mechanical	1 sample from each coil.	IS 5484, IEC 888 and BSPTCL Spec.	Min. 8 % at 250 mm gauge length	Supplier TC & BSPTCL Report	A/B	J/K	S/P	Z	-	N	
1.2.5	Resistivity and Conductivity	Electrical	1 sample from each coil.	IS 5484, IEC 8898 and BSPTCL Spec.	Maximum resistivity 0.028264 ohm mm <sup>2</sup> / metre at 20°C Min	Supplier TC & BSPTCL Report	A/B	J/K	S/P	Z	-	N	
1.2.6	Cleanliness and surface smoothness	Visual	100% on each coil	BSPTCL Spec..	The wire rod shall be free from pipes,laps,cracks,twists,	Supplier TC & BSPTCL Report	A/B	J/K	S/P	Z	-	N	



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2.0 2.1.0	High Tensile Galvanized Chemical Analysis	Chemical	One sample/lot of 100 MT or part thereof per supplier to be tested on receipt by conductor manufacturer	BSPTCL Spec.	C 0.50 to 0.85 % Mn 0.50 to 1.10 % Si 0.10 to 0.35 % P 0.035 % (max) S 0.045 % (max)	Supplier TC TPL report	B D	K L	P V	W Z	E -	N N	
2.1.2	Diameter	Dimensional	20 % Coils per lot 10% Coils per lot	IS 398 Pt.-2,Pt- 5 , IEC 888 & BSPTCL Spec.	As per Approved	Suppliers TC BSPTCL Report	B A	K J	P S	Z Z	- -	N N	
2.1.3	Tensile Strength/ Breaking Load	Mechanical	20 % Coils per lot 10% Coils per lot	IS 398 Pt.-2,Pt- 5 , IEC 888 & BSPTCL Spec.	As per Approved Technical specification	Suppliers TC BSPTCL Report	B A	K J	P S	Z Z	- -	N N	
2.1.4	Elongation at break	Mechanical	20 % Coils per lot 10% Coils per lot	IS 398 Pt.-2,Pt- 5 , IEC 888 & BSPTCL Spec.	Min.4.0 % at 250 mm gauge length.	Suppliers TC BSPTCL Report	B A	K J	P S	Z Z	- -	N N	
2.1.5	Torsion Test	Mechanical	20 % Coils per lot 10% Coils per lot	IS 398 Pt.-2,Pt- 5 , IEC 888 & BSPTCL Spec.	Min.18 twist on a gauge length of 100xdiameter of wire	Suppliers TC BSPTCL Report	B A	K J	P S	Z Z	- -	N N	
2.1.6	Wrapping Test	Mechanical	20 % Coils per lot 10% Coils per lot	IS 398 Pt.-2,Pt- 5 , IEC 888 & BSPTCL Spec.	Wrap-8,unwrap-6 & wrap-6 On a mendrel having diameter equal to 4 x diameter of wire. The wire shall not break.	Suppliers TC BSPTCL Report	B A	K J	P S	Z Z	- -	N N	



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2.1.7	Adhesion Test	Mechanical	20 % Coils per lot	IS 4826 and BSPTCL Spec.	The Zinc coating shall remain adherent to the steel wire when wound 10 turns on a mandrel having diameter equal to 4 x The diameter of wire	Suppliers TC	B	K	P	Z	-	N	
			10% Coils per lot			BSPTCL Report	A	J	S	Z		N	
2.1.8	Preece Test (Dip Test)	Chemical	20 % Coils per lot	IS 4826 and BSPTCL Spec.	As per Approved Technical specification	Suppliers TC	B	K	P	Z	-	N	
			10% Coils per lot			BSPTCL Report	A	J	S	Z		N	
2.1.9	Mass of Zinc coating	Chemical	20 % Coils per lot	IS 4826, IS 6745 and BSPTCL Spec.	As per Approved Technical specification	Suppliers TC	B	K	P	Z	-	N	
			10% Coils per lot			BSPTCL Report	A	J	S	Z		N	
2.1.10	Surface finish of GS Wire coils	Visual	100 % Coils per lot	IS 398 Pt.-2, Pt- 5 , IEC 888 & BSPTCL Spec.	The Wires shall be smooth, uniform and free from imperfections such as spills, splits, scale inclusion, die marks, scratches, abrasion, blow holes etc.	Suppliers TC	B	K	P	Z	-	N	
			100 % Coils per lot			BSPTCL Report	A	J	S	Z		N	
2.1.11	Check for Joints	Visual	100 % Coils per lot	IS 398 Pt.-2, Pt- 5 , IEC 888 & BSPTCL Spec.	There shall be NO JOINT	Suppliers TC	B	K	P	Z	-	N	
			100 % Coils per lot			BSPTCL Report	A	J	S	Z		N	
2.1.12	Purity of Zinc	Chemical	1 sample for every lot of 100 MT or part thereof	IS 209, IEC 888/1987 and BSPTCL Spec.	Min. Purity of Zinc 99.95 %	Suppliers TC	D	L	V	Z	-	N	
<b>B. SECTION:IN PROCESS INSPECTION</b>													
3.0	<b>Aluminium Drawn Wire</b>												
3.0.1	Diameter of Drawn Aluminium Wire	Dimensional	one sample from first, middle & last drawn wire coil from each wire rod	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification	BSPTCL Report	A	J	S	W	-	N	
3.0.2	Breaking Load/ Tensile strength	Mechanical	one sample from first, middle & last drawn wire coil from each wire rod	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification	BSPTCL Report	A	J	S	W	-	N	
3.0.3	Resistance	Electrical	one sample from first, middle & last drawn wire coil from each wire rod	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification	BSPTCL Report	A	J	S	W	-	N	
3.0.4	Wrapping Test	Mechanical	one sample from first, middle & last drawn wire coil from each wire rod	IS 398-P-2 &5 and BSPTCL Spec.	Wrap-8,unwrap-6 & wrap-6 turns on the wire itself. The wire shall not break.	BSPTCL Report	A	J	S	W	-	N	



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							1	2	3	4	5	6	
4.0	Steel Stranding Process												
4.1	Lay Ratio/ Direction & Compactness	Measurement and Visual	At the beginning of Each set up	IS 398-P-2 &5 and BSPTCL Spec..	As per Approved Technical specification	BSPTCL Report	A	J	S	W	-	N	
4.2	Pre-forming and post forming of Steel core	Visual	One sample from each length	IS 398-P-2 &5 and BSPTCL Spec..	No Spreading of strands when composite core wire is cut	BSPTCL Report	A	J	S	W	-	N	
4.3	Check for Joints	Visual	100 % on each drum	IS 398-P-2 &5 and BSPTCL Spec..	There shall be NO JOINT	BSPTCL Report	A	J	S	W	-	N	
4.4	surface smoothness	Visual	100 % on each drum	IS 398-P-2 &5 and BSPTCL Spec...	The wire shall be free from defects	BSPTCL Report	A	J	S	W	-	N	
5.0	<b>Final Conductor Stranding Process</b>												
5.1	Lay Ratio/ Direction & Compactness	Physical	At the beginning of Each set up	IS 398-P-2 &5 and BSPTCL Spec..	As per Approved Technical specification	BSPTCL Report	A	J	S	W	-	Y	
5.20	Check for Joints	Visual	100 % on each drum	IS 398-P-2 &5 and BSPTCL Spec..	There shall be NO JOINT in on the outermost layer. Joints are allowed in inner layers but no two such joints shall be less than 15 meters apart in completed conductor.	BSPTCL Report	A	J	S	W	-	N	
5.30	Surface smoothness of Strands and stranded conductor	Visual	100%	IS 398-P-2 &5 and BSPTCL Spec..	The finished conductor shall be smooth, compact, uniform and free from all imperfections including kinks (protrusion of wires), wires cross over, over riding, looseness (wire being dislocated by finger/hand pressure and or unusual bangle noise on tapping), material inclusions, white rust, powder formation or black spot, dirt, grit, etc.	BSPTCL Report	A	J	S	W	-	N	
5.40	Conductor Packing (in process)	Visual	100%	IS 398-P-2 &5 and BSPTCL Spec..	Medium grade Kraft/crepe paper shall be used in between the layers of conductor. After reeling the conductor, the exposed surface of the outermost layer of conductor shall be wrapped with water proof thick bituminized paper.	BSPTCL Report	A	J	S	W	-	N	



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C. Section: FINAL TESTING													
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							1	2	3	4	5	6	
6.0	<b>Routine Test on Finished</b>												
6.1.	All acceptance tests	-	20 % of the drums	IS 398-P-2 &5 and BSPTCL Spec..	Shall pass all the requirements.	BSPTCL Report	A	J	S	Z	-	N	
6.2	Check for Joints, Surface condition of strands and	-	100 % on each drum	IS 398-P-2 &5 and BSPTCL Spec..	Shall pass all the requirements.	BSPTCL Report	A	J	S	Z	-	N	
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<b>Acceptance Tests on Finished Conductor.</b>													
7.1	Lay Ratio / Direction & Compactness	Physical	One sample from every 10 Drums or part thereof	IS 398-P-2 &5 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y	
<b>Acceptance Tests on Aluminum Strands of Finished Conductor.</b>													
7.2.1	Diameter of Aluminium strands	Dimensional	One sample from every 10 Drums or part thereof	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y	
7.2.2	Breaking Load/ Tensile strength	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y	
7.2.3	Resistance	Electrical	One sample from every 10 Drums or part thereof	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y	
7.2.4	Wrapping Test	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2 &5 and BSPTCL Spec.	As per Approved Technical specification/relevant standard	Inspection test report	A	J	U	Y	-	Y	
7.2.5	UTS test on welded joints of Aluminium strands by cold pressure butt welding machine	Mechanical	5 specimen against each lot	IS 398-P-2 &5 and BSPTCL Spec.	The minimum breaking load shall be not less than the specified value in Data Sheet	Inspection test report	A	J	U	Y	-	Y	



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7.3 Acceptance Tests on Galvanised Steel strands of Finished Conductor.												
7.3.1	Diameter	Dimensional	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IEC-888 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y
7.3.2	Tensile Strength/ Breaking Load	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IEC-888 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y
7.3.3	Elongation at break	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IEC-888 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y
7.3.4	Torsion Test	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IEC-888 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y
7.3.5	Wrapping Test	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IEC-888 and BSPTCL Spec..	Wrap-8,unwrap-6 & wrap-6 On a mandrel having diameter equal to 4 x diameter of wire. The wire shall not break.	Inspection test report	A	J	U	Y	-	Y
7.3.6	Adhesion Test	Mechanical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IEC-888 and BSPTCL Spec..	The Zinc coating shall remain adherent to the steel wire when wound 10 turns on a mandrel having dia. 4x dia. of wire	Inspection test report	A	J	U	Y	-	Y
7.3.7	Preece Test (Dip Test)	Chemical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IS 4826, IEC-888 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y
7.3.8	Mass of Zinc coating	Chemical	One sample from every 10 Drums or part thereof	IS 398-P-2.5, IS 4826, IEC-888 and BSPTCL Spec..	As per Approved Technical specification	Inspection test report	A	J	U	Y	-	Y





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7.4				<b>Length measurement of Finished Conductor</b>											
7.4.1	Check for joints, surface finish and length measurement by rewinding	Visual & Measurement	One sample from every 10 Drums or part thereof	IS 398-P-2 &5 and BSPTCL Spec..	No scale on the surface and the surface shall be free from any	Inspection test report	A	J	U	Y	-	Y			
8.0				<b>Wooden Drums and packing materials</b>											
8.1	Dimensional check of wooden drums	Dimensional	10% of offered drums	IS : 1778 & BSPTCL approved Drum drawing	BSPTCL approved drum drawing	Inspection test report	A	J	U	Y	-	Y			
8.2	Barrel Batten Test	Mechanical	One sample from every 10 Drums or part thereof	IS 1778	Barrel Baten strength Min. 300 Kgf.	Inspection test report	A	J	U	Y	-	Y			
8.3	Chemical Test on water proof bituminised bamboo	Chemical	One sample per batch of paper	-	Chloride - 0.05 % max., Sulphate- 0.25 % max..	TPL report	D	L	V	Y	-	N			
8.4	Visual check of wooden drums	Visual	100% drums	IS : 1778 & BSPTCL approved Drum drawing	The inner cheek of the flanges & drum barrels surface shall be painted	Inspn. Report	A	J	U	Y	-	Y			
9.0	<b>Packing, Marking and</b>														
9.1	Application of water proof bituminised bamboo paper	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Joint Inspn. Report	A	J	S/U*	Y	-	N	*100 % by Conductor manufacturer & 10 % by BSPTCL		
9.2	Distance between outermost layer and inner surface of protective laggings	Visual	100%	BSPTCL Spec..	BSPTCL Spec... ( Min - 75mm )	Packing List	A	J	S/U*	Y	-	N			
9.3	No. of turns in outer most layer	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N			
9.4	Contract/ Award Letter no.	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N			
9.5	Manufacturer's Name and Address	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N			



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9.6	Drum No.	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.7	Size and Code Name of Conductor	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.8	Length of Conductor	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.9	Gross weight of drum after Lagging	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.10	Tare weight with lagging	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.11	Net weight of conductor in the Drum without Lagging	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.12	Arrow Marking for rolling the conductor drum	Visual	100%	BSPTCL Spec..	BSPTCL Spec..	Packing List	A	J	S/U*	Y	-	N	
9.13	Sealing of Drums 100% as per BSPTCL approved sealing procedure	Visual	100%	BSPTCL Spec..	BSPTCL Spec..		A	J	U	Y	-	Y	100% by BSPTCL
9.15	Tack welding on Nuts on the barrel and Hub Plates.	Visual	100%	BSPTCL Spec..	BSPTCL Spec..		A	J	S/U*	W	-	N	*100% by Manufacturer and 10% by BSPTCL
		Visual	As per CUSTOMER Specification	CUSTOMER Spec..		AILS/CL/OP/03	A	J	S/U	Y	-	N	
9.16	Name and address of consignee	Visual	100%	BSPTCL Spec..	BSPTCL Spec..		A	J	S/U*	Y	-	N	