



BHARAT SANCHAR NIGAM LIMITED

(A GOVT. OF INDIA ENTERPRISE)

TELECOM QUALITY ASSURANCE CIRCLE

(An ISO 9001: 2008 Certified Organization)

II Floor, Sanchar Complex, WMS Compound

Jayanagar 5th Block, 9th Main, 47th Cross, Bangalore-560041

TECHNICAL SPECIFICATION EVALUATION CERTIFICATE

No.TSEC/BG/CNC-01/01/122.JUL 2010

Date: 03.07.2010

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED BELOW CONFORMS TO TEC SPECIFICATION (GR) No. MENTIONED BELOW AND IS APPROVED FOR PROCUREMENT BY BSNL. THIS CERTIFICATE IS ISSUED SUBJECT TO THE TERMS AND CONDITIONS STIPULATED IN THE ANNEXED LETTER.

PRODUCT : CARRIER in CARRIER Modem
For 2 /8Mbps IDR system in C -Band

MODEL No: CDM-625
(Technology: M/s COMTECH EF Data, USA)

SPECIFICATION NO.: GR/CNC-01/01.APR 2008

SOFTWARE VERSION
(IF ANY): 1.4.6

ISSUED ON: 03.07.2010

VALIDITY: For P.O.NO:MT/PO/04/2009-10
DTD 08.12.2009 ONLY

ISSUED TO
(TRADER): M/s. Bharath Electronics Limited
Jalahalli, Bangalore-560 013

Manufacturer : M/s Comtech EF Data
Arizona-85281, USA

REMARKS: 1. This Regular TSEC is issued after successful completion of field trial for 8 Mbps and Supercedes the TSEC No.TSEC/BG/CNC-01/01/465.MAR 2010 dated 31.03.2010
2 .Bill of Material is as per Annexure-A.



DIVISIONAL ENGINEER (TSA)
for CGM, TQAC, BG-41



ANNEXURE


No. TSEC/BG/CNC-01/01/122.JUL 2010

Date: 03.07.2010

I. TERMS AND CONDITIONS

- I. Telecom Quality Assurance Circle (TQAC), may at any time and at its absolute discretion, for any reason(s) as it deems fit, suspend or cancel the TECHNICAL SPECIFICATION EVALUATION CERTIFICATE (TSEC). TQAC may modify any of the terms of the Certificate or specifications, which the holder must at his own expense, may comply with.
- II. **No modification without necessary permission /approval from TQAC is permitted in design (Hardware/Software), Engineering and /or facilities in the approved model subsequent to the issue of this certificate. In case of any modification in the product without permission/approval from TQAC, the certificate shall be deemed to have been cancelled and may need fresh certificate.**
- III. During the validity of certificate, TQAC reserves the right to inspect and or test this product at any premises where it is in use, or at the place of manufacturer. If any deterioration in performance of the approved product is noticed during inspection and / or testing or its use in BSNL network, the TQAC reserves the right to cancel/suspend the Certificate.
- IV. In case of any dispute at any stage during the validity of this Approval the verdict of the Competent Authority of BSNL QA shall be final and binding on the manufacturer.
- V. The certificate is valid only up to the date mentioned in the certificate and may be renewed, if required, by applying at least three months prior to the expiry date of this certificate. After expiry of the certificate, the case will be treated as a fresh case.
- VI. **Issue of this Approval does not ensure that the BSNL all necessarily place order on the manufacturer for this product. It merely qualifies the product for meeting the clauses of the relevant Generic Requirement (GR). Actual supply of equipment to BSNL shall depend on their procurement policy and procedures.**
- VII. For any change in the source/Raw material, fresh Approval should be obtained.
- VIII. The Approved equipment/product shall be clearly marked or affixed with following
 - a) Trade name, Model No. and Serial number
 - b) Manufacturer or Traders name
 - c) TSEC number

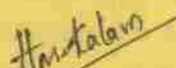
II. Infrastructure Assessment No. CGMQA/TSEC/BG/IA/09-10/016 dated 25.04.2009


DIVISIONAL ENGINEER (TSA)
for CGM, TQAC, Bangalore-41

TO:

1. Sr.DDG, TEC, K.L.Bhavan, Janpath, New Delhi.
2. Sr.DDG (TX)/Sr.DDG (SW), Bharat Sanchar Bhavan, Harichandra Mathur Lane, Janpath, New Delhi-01
3. CGM, T & D Circle, BSNL, Jabalpur.
4. GM (QA), Bangalore.
5. DDG (MM), Bharat Sanchar Bhavan, Harichandra Mathur Lane, Janpath, New Delhi-01
6. DGM (QA), Bangalore
7. Applicant : M/s. Bharat electronics Limited
Jalahalli, Bangalore-560 013
8. Office copy




SUB-DIVISIONAL ENGINEER (TSA-II)
O/o CGM, TQAC, Bangalore-41

ANNEXURE-A TO TSEC No. TSEC/BG/CNC-01/01/122 JUL 2010 dated 03.07.10

Bill of Material FOR 1:1 REDUNDANCY SYSTEM FOR 2 Mbps and 8 Mbps System Supplied to BSNL.

No.	Description	Part No	Qty
1	1:1 IF Switch	CRS1FOR1/025	1
2	Rack Mounting Kit	KT/11700	1
3	Control Cable - Universal, DB-9M to DB-9M	CAWR0370-4	2
4	IF (Tx/Rx) Coax Cable - 50Ω Type 'BNC'	PL/0940-1	4
5	Transformer, 50-75Ω, 2-200 MHz, BNC, M/F	XF/BNC-MF-50-75	2
6	Cable - 1:1 Y-Splitter, (2X) DB-9M to DB-9F	CA-0000071	2
7	BNC-BNC Cable	CA/BNC75OHM	4
8	T-Adapter, 75Ω BNC	CA/BNC-TEE-JPJ	2
9	Cable - 1:1 Y-Splitter, (2X) HD-44M to HD-44F	CA-0000070	1
10	G.703 Balanced Data Patch Cable: DB15 M to DB9 M, 0 foot	CA-0000072	1
11	Cable - Shielded, Multi-drop CrC Plus, 1:1, DB-9M to DM-9M	CA-0000270	1

Bill of Material FOR 1:10 REDUNDANCY SYSTEM FOR 2 Mbps and 8 Mbps System Supplied to BSNL.

No.	Description	Model / Part No	Qty
1	1:10 Data SWITCH	CRS-300/025	1
2	1:10 IF SWITCH	CRS-200	1
3	Control Cable (DB-25M to DB-25F)	CAWR0000	1
4	Data/Control Cable for G.703 plus Audio	CA-0000490	11
5	User Adaptor Cable for G.703 plus Audio	CA-0000491	10
6	PM81 Multi-drop Cable	CA-0000275	1
7	BNC to BNC IF Cable	PL/0813-B (75Ω)	24

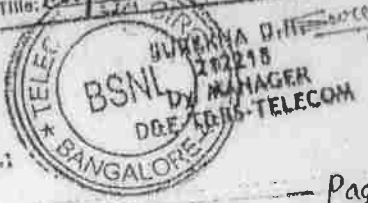


AMARESH HOOLAGERI
 Sub-Divisional Engineer
 BSNL QA At
 KRONE Communications Ltd.
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 P.B. No. 5812, Bangalore-560 090

COMTECH DATA
 2114 71st St, Suite 100, AZ 85211 USA
 (480) 323-2200 (480) 323-2161 Fax
 Company Official / Authorized Representative
 Signed: Naresh K Jain
 Print Name: **NARESH K JAIN**
 Title: **VP, Product Mgmt.**

COMTECH DATA
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 (480) 323-2200 (480) 323-2161 Fax
 Company Official / Authorized Representative
 Signed: [Signature]
 Print Name: [Name]
 Title: [Title]

VP, Product Mgmt.
 DIVISIONAL ENGINEER
 Technical Specification Evaluation Centre
 O/o CGM, TQA Circle, 2nd Floor
 Sancha Complex, WMS Compound
 5th Block, Jayanagar, BANGALORE-5522-1



ANNEXURE-A To TSEC No. TSEC/B6/CNC-01/01/122. JUL 2010 dated 03.07.10

ACTUAL BOM REQUIRED FOR 1:10 REDUNDANCY SYSTEM FOR BSNL PROJECT				
No.	Description	Model / Part No	Used For	Qty
1	1:10 Data SWITCH	CRS-300/625	Redundant Data Switching	1
2	1:10 IF SWITCH	CRS-280	Redundant IF Switching	1
3	Control Cable (DB-25M to DB-25F)	CA-WR0066	Between Data Switch & IF Switch control	1
4	Data/Control Cable for G.703 plus Audio	CA-0000490	Interconnection between Online / Back-up CDM-625 Modems to Redundant Data Switch.	11
5	User Adaptor Cable for G.703 plus Audio	CA-0000491	For interconnecting user G.703(B) data and orderwire interface	10
6	PMSI Multi-drop Cable	CA-0000102 / CA-0000275	For CnC Redundancy	1
7	BNC to BNC IF Cable	PL/0813-8 (750)	Interconnection between Online / Back-up CDM-625 Modems to Redundant IF Switch.	22



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SUREKHA D.R. 212218
Dy. MANAGER
DDE-T&BS-TELECOM