IRS:TC 79- 2000

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

INDIAN RAILWAYS
STANDARD SPECIFICATION

FOR

DESK TYPE ELECTRONIC MAGNETO TELEPHONE

(Tentative)
Serial No. TC 79 - 2000

ISSUED BY

RESEARCH DESIGNS & STANDARDS ORGANISATION
LUCKNOW-226011

INDIAN RAILWAYS
STANDARD SPECIFICATION
FOR
DESK TYPE ELECTRONIC MAGNETO TELEPHONE

0. FOREWORD:

0.1 This specification is issued under the serial No. RDSO/SPN/TL/28/99 .

0.2 This specification requires reference to the following Indian Railway Stanadard (IRS), Indian Telegraphs Department specification(ITD), Indian Standard(IS), American Society for Testing and Materials (ASTM) and British Standard (BS) specifications:

IRS: S23	Electrical Signalling and Interlocking Equipment.
IRS: TC 74-97	Electro Dynamic Transducer
ITD No.S/ZC.107	Extensible Telephone Handset cord
ITD No.S/ZC.108	Cordage for PVC long cords
IS: 9000	Basic Environmental Testing Procedures for Electronic and Electrical Items.
ASTM	American Society for Testing and Materials.(Test Methods for ABS co-polymer moulding material.)
BS: 1006 Pt.-2	Methods of test for colour fastness of Textiles and Leather.

0.3 Wherever, in this specification any of the above mentioned specifications are referred to by number only., the latest issue of that specification is implied; wherever the year of issue is mentioned, the particular issue referred to is meant.

0.4 This specification is intended chiefly to cover the general requirements, constructional features , electrical characteristics and performance requirements of the Electronic Magneto Telephone and does not include all the necessary provisions of a contract.

1. SCOPE

1.1 This specification covers general design features and performance requirements of Electronic Magneto Telephone including procedure for testing.

1.2 This specification is for electronic extended version of Magneto Telephone having additional feature of one Push –Button for calling in place of Hand Generator.

1.3 It shall be possible to interface Electronic Magneto Telephone with Microwave and Optical Fibre System .

1.4 It shall be used for point to point communication between cabin ASMs of a yard, cabin to Level -Crossing gates and between two Level-Crossing gates etc.

2. TERMINOLOGY :

2.1 For the purpose of this specification, the terminology given in IRS:S-23 shall apply

2.2 The term referred to in this specification but not covered in IRS:S-23 are defined below:

2.2.1 **Lot** : A lot is constituted by the Desk Type Electronic Magneto Telephones of the same type manufactured in the same factory during the same period using the same process and materials.

3. GENERAL REQUIREMENTS:

3.1 The system shall permit working of Voice Communication and signalling on two wire omnibus circuit tapped at different places for point to point and multi point communication.

3.2 It shall be possible to call any number of locations by counting the number of beeps of tone.

3.2.1 A Ring back tone shall be generated after 3 sec. of the last push on the button of the calling telephone.

3.3 The telephone shall be capable of working on 3V DC ± 10%

3.4 The telephone shall be protected from Surge and Transients by "MOVR" based surge protection system.

3.5 The receiver of the telephone instrument shall be protected from Acoustic Shocks by providing two rectifiers in parallel and with opposite polarity across the receiver

3.6 Workmanship should conform to good engineering practice so as to ensure that the instrument is free from defects, rust, cracks and other defects that could impair the operation or serviceability while in use or under storage. The treatment and

finishes shall be such that under operating conditions, no deterioration occurs to any of the parts.

3.7 All the components, switches, connectors etc., shall be of good quality industrial grade LCSO/TEC approved. All the numbers of components should be clearly indicated. The LED indicators wherever used shall be of superior quality wide angle with metallic holders. The component type numbers shall not be defaced .

3.8 The layout of components and wiring shall be such that all parts are easily accessible for inspection, repairs and replacement.

4. CONSTRUCTION AND MATERIALS:

4.1 Electronic Magneto Telephone shall consist of the following parts/components:-

a) Body of the Telephone
b) Transmitter and Receiver
c) Cordage
d) Push Button for calling
e) Visual LED indication
f) Power ON LED indication
g) Cradle Switch mechanism
h) Rosettee
i) Piezo Electric Buzzer
j) Tone Generator
k) Wiring and PCB
l) Induction Coil/Transformer
m) DC Blocking Capacitor
n) Battery Compartment with battery.

4.2 Body of the telephone :

4.2.1 The body of the telephone instrument shall be made of ABS (Acrylonitrile Butadiene Stryrene) Plastic material . Properties of ABS material used shall be as per Appendix "A", in case the firm moulds the body at their premises or alternatively if the body is procured from outside , it shall be procured from those telephone body manufacturers who are suppliers to TEC approved telephone instruments manufacturers, the proof of which is to be submitted by the firm.

4.3 **Transmitter and Receiver:**

4.3.1 Electro Dynamic Transducers to Specification No. IRS:TC-74-97 shall be used to perform functions of transmitter and receiver. Both transmitter and receiver transducers must be procured from TEC approved sources having valid and current type approval certificate, the proof of which is required to be submitted.

4.4 **Cordage:**

4.4.1 Cordage used for connecting Hardset with the telephone instrument shall be as per ITD Specification No. S/ZC-107.

4.4.2 Cordage used for connecting the telephone instrument with the line shall be as per ITD Specification No. S/ZC-108.

4.5 **Push Button for Calling :**

4.5.1 Heavy Duty push to ON, push button for calling the other party shall be provided on the right side of the body top cover. When the push button is pressed, a standard DTMF tone shall be generated by a tone generator.

4.5.2 The push button shall be of LCSO approved type

4.5.3 Below the push button, " CALL" shall be legibly printed

4.6 **Visual LED Indication:**

4.6.1 A yellow LED for calling attention shall be provided on the left side of the body top cover. When the push button for calling is pressed, LED of all the parties shall glow.

4.6.2 Below LED , "RING" shall be legibly printed

4.7 **Power – ON LED Indication (Dual colour RED & GREEN):**

4.7.1 LED for indication of availability of power and low battery voltage shall be provided by the side of yellow LED . When battery voltage is available, normally it shall display red colour & when battery voltage become low and drops down to 2.4V, (i.e. 20% below nominal voltage), the power-ON LED shall change colour from RED to GREEN indicating low battery voltage.

4.7.2 Below LED " ON" shall be legibly printed.

4.7.3 Power on indication shall be available all the time as long as battery is connected to the telephone instrument irrespective of whether Handset is ON Hook or OFF Hook.

4.8 **Cradle Switch Mechanism**:

4.8.1 The Handset when resting on the cradle of completely assembled telephone shall push the plunger(s) down to the limits of travel .

4.8.2 The plunger(s) shall be free and shall not stick.

4.8.3 The plunger(s) lifting spring shall be tensioned to give a positive action

4.8.4 Handset of the Telephone when ON Hook or OFF Hook shall operate the Cradle Switch Mechanism which shall be checked electrically .

4.9 **Rosettee:**

4.9.1 Telephone rosettee shall be made of ABS. Suitable rubber grommet shall be provided on the wire entry holes.

4.9.2 4 way terminal strip shall be provided inside the telephone rosettee. All incoming and outgoing wires of terminal strip shall be terminated on screw terminals.

4.9.3 The terminals of 4 way terminal strip inside the rosettee shall be marked for +ve, -ve and L1, L2 on an anodized plate fixed inside the rosette.

4.10.1 **Piezo Electric Buzzer**:

4.10.1 Electric Piezo Buzzer operating at suitable voltage generated internally by the circuitry shall be provided .

4.10.2 Buzzer of proper size shall be fixed in the buzzer housing provided inside the telephone body firmly.

4.10.3 Suitable holes or grills should be available in the body of the telephone instrument for audibility of sound from piezo electric buzzer

4.10.4 The volume level shall be adjustable by strapping provided on the PCB in three steps (Low, Medium & high)

4.11 **Tone Generator:**

4.11.1 Standard DTMF Code Generator shall be provided to produce DTMF tone

4.12 **Wiring and PCB**

4.12.1 The wiring shall normally be by means of coloured PVC insulated multi strand flexible wire of good quality and of suitable size

4.12.2 A single PCB card directly mounted on the base plate of the telephone body shall be used

4.12.3 Glass Epoxy PCB of minimum 1.6mm thickness shall only be used. The PCB shall be coated with epoxy base anti fungal varnish to provide protection against dust, humidity, fungal infection and mechanical abuses. The copper cladding thickness shall not be less than 35 microns and shall be suitably tinned. All the connections shall be terminated on the screw type terminals mounted on PCB. .

4.12.4 The wiring to the components shall be provided with sufficient slack to permit the components to be swung clear of the assembly without any disconnection

4.13 **Induction Coil/Transformer**

4.13.1 Cold rolled Grain Oriented Silicon Steel or Ferrite material shall be used for core so as to obtain required electrical properties.

4.13.2 The complete winding shall be protected by proper insulation to avoid ingress of moisture One complete lapping of varnished tape, the ends of which shall be secured by an adhesive like NECOL CEMENT or similar shall be provided

4.14 **DC Blocking Capacitor:**

4.14.1 1.5 to 2.2 micro Farad Capacitor of operating voltage minimum 400 V shall be provided for blocking DC voltage on line.

4.14.2 Capacitor used shall be made of metallised polyester .

4.15 Battery compartment with battery:

4.15.1 The telephone instrument shall also work on 3V DC on Two nos. dry batteries of 1.5V each.

4.15.2 Dry batteries (heavy duty torch cell) conforming to IS: 8144 Type R-20, shall be used

4.15.3 Dry batteries shall be housed in a plastic holder fitted with springs to give Proper pressure to batteries . The Plastic holder shall be rugged and well fixed inside the body. The quality of springs shall be such that these are rust proof for at least 2 year during use.

4.15.4 It shall be possible to replace battery with out opening the Telephone body. A suitable opening with cover shall be provided from bottom side of instrument below the battery box.

4.15.5 The cover for the battery compartment or recess shall be of Press fit type or screwed with the telephone body

5. ELECTRICAL CIRCUIT:

5.1 Electrical circuit of the instrument shall be such as to segregate the ringing and speech circuits. It shall provide good matching between line and instrument with minimum side tone.

6. ELECTRICAL CHARACTERISTICS:

6.1 Insulation Resistance Test:

The insulation resistance between the body and all terminals of rosettee connected together shall not be less than 50 Mega ohm when tested with 500V DC Megger at ambient temperature.

6.2 High Voltage Test:

A voltage of 2KV, 50Hz AC sinusoidal r.m.s, shall be applied between the body and all terminals of the rosettee connected together for one minute. The test voltage shall be increased gradually at the rate of 500V/sec. It shall withstand this voltage, no flash/smoke shall occur and no damage shall take place.

6.3 **Transmission Characteristics :**

6.3.1 The telephone will be subjected to following transmission tests. The test set up shall be as indicated in Figs. 1 to 4. of Annexure-I.

i) **Send Efficiency :** The test set up shall be as indicated in Fig.1

T1 and T2 : Terminals for Transmitter Inset
R1 and R2 : Terminals for Receiver
L1 and L2 : Line Terminals
B1 and B2 : Battery Terminals
LM : Level Meter

The transmitter of handset shall be removed and simulated by 100+ 100 Ohm Non-Inductive Resistance as shown and the Receiver replaced by a 200 ohm Non-Inductive Resistance. 3V battery shall be connected to the battery terminals. The oscillator level shall be adjusted such that it is –44dBm at 1000Hz. measured across terminals T1 and T2. The line terminals shall be terminated by 600 ohm Non- Inductive Resistance. The level across 600 ohm resistance shall not be less than 0dBm and total harmonic distortion shall not be more than 3%.

ii) **Side Tone:** The test set up shall be as indicated in Fig. 2. The level measured at R1 and R2 across 200 ohm resistance shall not be more than 18dBm with the oscillator level maintained at –44dBm.

iii) **Receive Efficiency:** The test set up shall be as indicated in Fig.3 The line shall be simulated by 300 + 300 ohm Non-Inductive Resistance. The level at 1000 Hz across terminals L1 and L2 shall be adjusted to –12dBm . The level across R1 and R2 shall not be less than –18dBm and total harmonic distortion shall not be more than 3%.

iv) **Insertion Loss :** The test set up shall be as indicated in Fig.4

a) **On Hook :** With the setup as in fig. 4, oscillator level is adjusted to give 0 dBm across 600 ohms without the telephone being connected . The telephone shall then be connected and the drop in the reading of the level will be measured . It shall not be greater than 0.5dB.

b) **Off Hook :** With the same setup as in fig. 4, the oscillator level is adjusted to give 0 dBm across 600 ohms without the telephone being connected . The telephone shall then be connected with handset lifted (Off Hook) and the drop in the reading of the level will be measured . It shall not be greater than 0.8 dB.

6.4 **Test for Tone Generator:**

6.4.1 The output of the tone generator shall be adjustable from 0 dBm to -7dBm when measured across 600 ohm resistance connected across line terminals L1 and L2 .

6.5 **Test for Piezo Electric Buzzer and visual indication LED(green) :**

6.5.1 It shall be possible to work the signalling system with a minimum input level of -25dBm at the line terminals even when the line S/N ratio is 15dB. The telephone shall work satisfactorily for input level of –25dBm to -2dBm.

6.5.2 On receipt of the tone, when the Handset is ON the cradle , piezo electric buzzer and LED shall be activated but when the Handset of the telephone is OFF cradle, only the buzzer shall be activated and LED shall not glow. The output level of the buzzer shall be adjustable.

6.6 **Power Supply**

6.6.1 The telephone shall be capable of working on 3V DC ± 10%

6.6.2 The current consumption at 3V DC supply shall not be more than :-

i) 20mA in idle condition.
ii) 200mA during ringing period
iii) 50mA during conversation.

6.6.3 The power supply arrangement shall not be a part of supply alongwith Electronic Magneto Telephone and it may be indicated separately by the purchaser with details, if required

7. **PERFORMANCE TEST:**

7.1 When two instruments are connected together through a artificial line of 20 dB attenuation, it should be possible to hear clearly and get the ring on both the telephones. This shall be checked at 3V DC ± 10% .

8. INSPECTION:

8.1 The inspection shall be carried out to the satisfaction of the purchaser or his nominee.

8.2 The purchaser or his nominee shall have the right to be present during the all stages of manufacture and shall be accorded all reasonable / complete facilities to satisfy himself that the Electronic Magneto Telephones are being manufactured in accordance with the terms and conditions of the specifications. The purchaser or his nominee shall have the right to reject any material that fails to conform to the specification.

8.3 When the inspection is carried out during the manufacturing process, the manufacturer shall supply the material and samples required for testing free of charges and shall at his own cost prepare and furnish the necessary test pieces and appliances for such testing as may be carried out at his own premises in accordance with the specification. The manufacturer shall bear the cost of carrying out the tests at an approved test laboratory for conducting the tests for which firm is not having in- house test facilities.

8.4 Test certificates incorporating the results of the routine test and other manufacturing tests must be furnished in quadruplicate prior to the inspection for the use of purchaser / his nominee.

8.5 **Visual Inspection**:

8.5.1 The instrument shall be visually inspected to ensure that the moulding is free from cracks and other imperfections and that all the components are fitted properly.

8.5.2 Instruments shall be checked to satisfy general requirements (Cl .3) , construction (Cl.4) and marking (Cl.12)

8.5.3 The faulty sub assembly and / or samples failing in routine / acceptance tests shall be destroyed effectively. The exercise of effective destruction during the manufacture / routine tests shall also be shown to inspecting authority as and when asked for.

8.6 **Type Tests**:

8.6.1 The type tests shall include complete tests in accordance with this specification including climatic and vibration tests.

8.6.2 Unless otherwise specified, all tests shall be carried out at ambient temperature

8.6.3 Type test shall comprise of the following:

a) Visual Inspection (Cl.8.5)
b) Electrical Characteristics Test (Cl.6)
c) Performance Test (Cl.7)
d) Climatic requirements (Cl.11)

8.6.4 Number of samples for type tests shall be 3.

8.6.5 The sequence of type tests shall normally be in accordance with Appendix-B

8.6.6 Operating manual and Maintenance manual of the system shall be submitted along with samples during type tests.

8.6.7 Bill of materials indicating details of parts / components, their values and make shall be submitted along with samples for type tests.

8.7 **Acceptance Tests**:

8.7.1 Acceptance tests shall comprise of the following tests taken in sequential order as follows:-

a) Visual Inspection (Cl.8.5)
b) Electrical Characteristics Tests (Cl.6)
c) Performance Test (Cl.7)

8.8 **Routine Tests**:

8.8.1 Following routine tests shall be conducted by the manufacturer on all the telephones:-

a) Visual Inspection (Cl.8.5)
b) Electrical Characteristics Tests (Cl.6)
c) Performance Test (Cl.7)

9. SAMPLING:

9.1 Unless otherwise agreed to by the purchaser and the supplier, the double sample plan given below shall be adopted :-

Lot consisting of electronic magnoto telephone	1st sample size (N1)	2nd sample size (N2)	Combined sample size (N1 + N2)	Acceptance Number (C1)	Rejection Number (C2)
1	2	3	4	5	6
Under 25	3	6	9	0	2
25 to 50	7	14	21	0	3
51 to 100	10	20	30	0	3
101 to 200	13	26	39	0	5
201 to 300	20	40	60	1	5
301 to 500	25	50	75	1	6

9.2 The number of Electronic Magneto Telephone (N_1) as given in col. 2 shall first be selected and subjected to the acceptance test. If in the first sample, the number of defective Electronic Magneto Telephone, that is those failing in one or more acceptance tests, is less than/equal to the corresponding number(C_1) given in Col 5, the lot shall be considered as conforming to the requirements of the acceptance test. If the number of defective Electronic Magneto Telephone in the first sample is greater than or equal to the rejection number given in Col 6, the lot shall be considered as not conforming to the requirement of the acceptance test. If number of defective Electronic Magneto Telephone in the first sample lies between (C_1) and (C_2) a second sample of

size (N_2) as given in Col. 3 shall be selected and subjected to acceptance test. If in the combined sample, the number of defective Electronic Magneto Telephones is less than (C_2), the lot shall be considered as conforming to the requirements of acceptance test.

9.3 The sample shall be selected at random from at least 10% of the packages. For random selection of packages, all the packages in the lot shall be arranged in a serial order and every 'r' th package shall be selected until the requisite number of packages is obtained:-

'r' being the integral part of : $\frac{\text{Total number of packages in the lot}}{\text{Total number of packages to be selected.}}$

10. REJECTION :

10.1 Any of the materials which do not comply with the requirements of this specification may be rejected.

11. CLIMATIC AND ENVIRONMENTAL REQUIREMENTS:

11.1 The Electronic Magneto Telephone shall function satisfactorily under the following climatic and environmental conditions tested as per IS:9000 series.

11.1.1 **Change of Temperature Test** (Part XIV – Section 2):
Low temperature - 10° C $\pm$ 3° C
High Temperature – 55° C $\pm$ 2° C

Rate of change of temperature over a period of not more than 5 minutes shall be $\pm$ 0.2° C per minute.
Duration of exposure – 3 Hours
Number of cycles – 2

11.1.2 **Dry Heat Test** (Part III Section 3) : $55 \pm 2^{\circ}$ C

Duration : 12 Hours

11.1.3 **Damp Heat (Cyclic) Test** (Part V Section 2) :

Duration : 12 Hours
First Cycle of two cycles
Upper temperature : 40° C
Variant : 1

11.1.4 **Cold Test** (Part II Section 3) :
Temperature : -10° C $\pm$ 3° C
Duration : 2 Hours

11.1.5 **Damp Heat (Cyclic) Test** :

Duration : 12+12 Hours
2^{nd} Cycle of 2 Cycles
Upper temperature : 40° C
Variant : 1

11.1.6 **Salt Mist Test** (Part XI) : Procedure 1
Duration : 48 Hours

11.1.7 **Vibration (Sinusoidial) test** as per IS: 9000 (Part VIII)
Frequency : 10 to 55 Hz
Vibration Amplitude : 0.35 mm
Duration at resonance : 30 minutes ± 1 minute on each of 3 co-ordinate axes.
Duration of endurance for sweep : 20 Sweep cycles between 10 Hz to 55 Hz.
Magnitude of "g" : 1

11.1.8 After climatic and vibration tests, 5% deterioration shall be allowed on visual inspection, electrical characteristics and performance test requirements.

12. MARKING:

12.1 Complete circuit diagram showing the electrical connection of the instrument shall be fixed or printed by an appropriate process on a suitable locations in the base of the instrument. The colour code of the wires, value of components and connection to various terminals should be clearly indicated.

12.2 The following information shall be clearly embossed / engraved / screen printed at a conspicuous places.

a) Name or monogram of the manufacturer.
b) Year of manufacture.
c) Serial Number.
d) Batch Number
e) Specification Number

12.3 Any other information specially requested and required by purchaser

13. PACKING:

13.1 The equipment shall be suitably packed so as to avoid any damage or loss during storage and transit.

APPENDIX-A
(Cl. 4.2.1)

Requirements of A.B.S. (ACRYLONITRLIE BUTADLIENE STYRENE)
Co-polymer moulding material

1. PROPERTIES:

The material shall satisfy the following properties:

1.1	**Mechanical Properties**	:		ASTM Test Method
1.1.1	Tensile strength	:	380 kgf /cm^2	D-638
1.1.2	Flexural Yield strength	:	650 kgf /cm^2 (Min)	D-790
1.1.3	Izod Impact Strength notched			
	1) at 23° C	:	25 kgcm /cm (Min)	D-256(A)
	2) at 0° C	:	20 kgcm / cm (Min)	
1.1.4	Gloss %	:	Above 90%	
1.2	**Thermal properties**			
1.2.1	Heat deflection temperature.	:	1) At 18.5 kg /cm^2 - 90° C (Min)	D-648
			2) At 4.6 kg /cm^2 - 100° C(Min)	
1.2.2	Flammability	:	1.5 Inches / minute 3.81 cm (Max)	D-625
1.3	**Electrical Properties**			
1.3.1	Dielectric Strength	:	15 KV /mm(Min)	
1.3.2	Volume Resistivity	:	10^{16} ohm /cm (Min)	D-257
1.4	**Other Properties**			
1.4.1	Hardness	:	05-110 on R scale	D-785
1.4.2	Mould shrinkage	:	0.6% (Max)	D-955

2. **FASTNESS TO LIGHT:**

The moulding or a portion of it shall be exposed to light together with cuttings of standard patterns (BS:1006 part-2). The source of light shall be either day light or a carbon arc of the enclosed type. There shall be no detectable fading or change of colour of the exposed moulding when No.7 of the standard patterns has begun to fade

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APPENDIX-B

SEQUENCE OF TYPE TESTS
(Cl. 8.6.5)
Three samples
↓
Visual inspection (All three)
(Cl.8.5)
↓
Electrical characteristics (All three)
(Cl.6)
↓
Transmission characteristics (All three)
(Cl. 6)
↓
Performance test (All three)
(Cl. 7)
↓

(Two Samples)	(One Sample)
Climatic requirements	Vibration test
(Cl.11.1.1, 11.1.2,11.1.3, 11.1.4 & 11.1.5)	(11.1.7)
	↓
	Salt Mist Test
	(Cl.11.1.6)

(I) SEND EFFICIENCY (CL. 6.3.1)

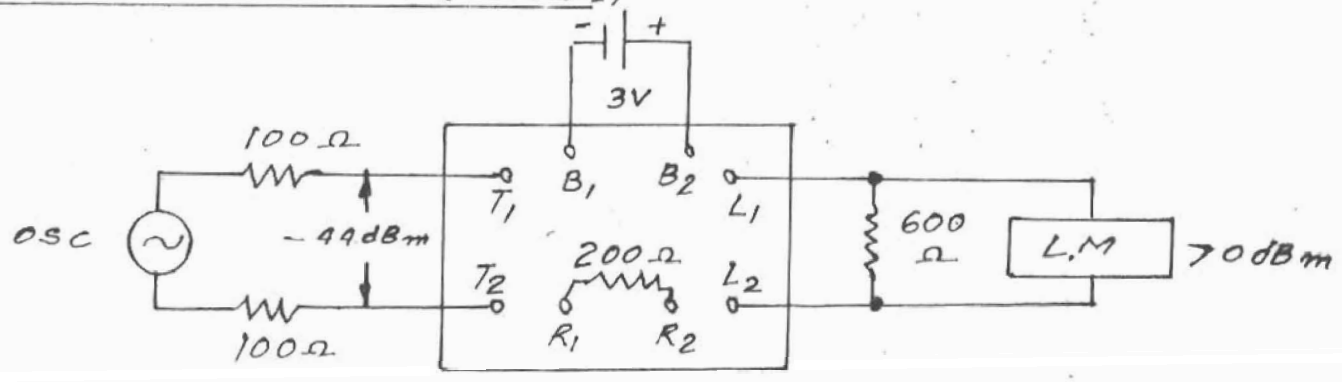

FIG. 1

TEST SET UP FOR SEND EFFICIENCY

T_1 AND T_2 : TERMINALS OF TRANSMITTER INSETS.

R_1 AND R_2 : TERMINALS OF RECEIVER

L_1 AND L_2 : LINE TERMINALS.

B_1 AND B_2 : BATTERY TERMINALS.

L M : LEVEL METER.

(ii) SIDE TONE (CL. 6.3.1)

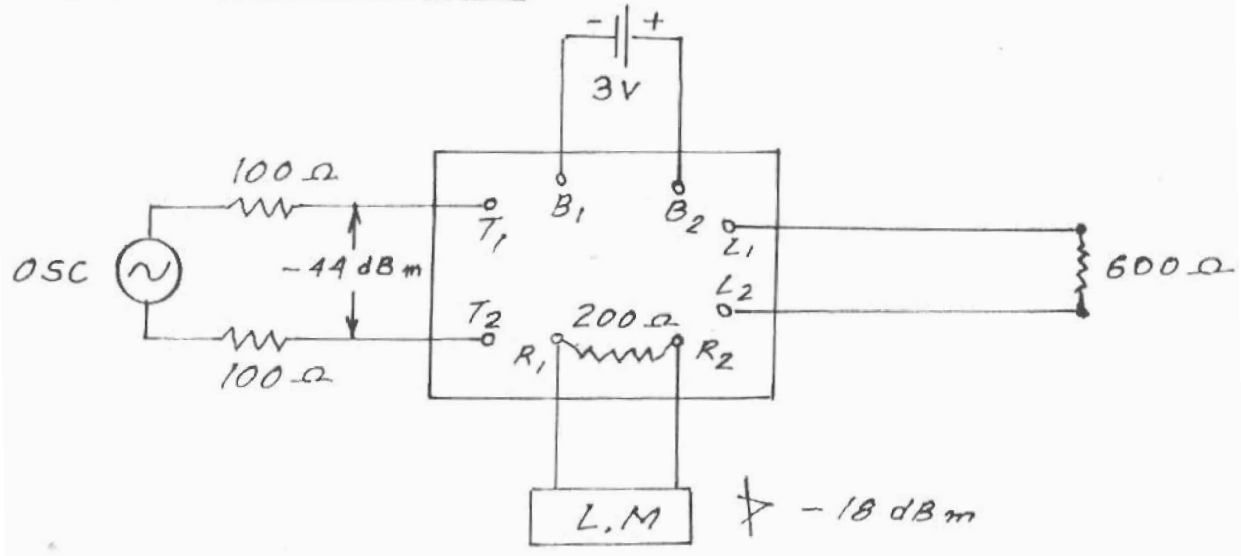

FIG. 2

TEST SET UP FOR SIDE TONE

(iii) RECEIVE EFFICIENCY (CL. 6.3.1)

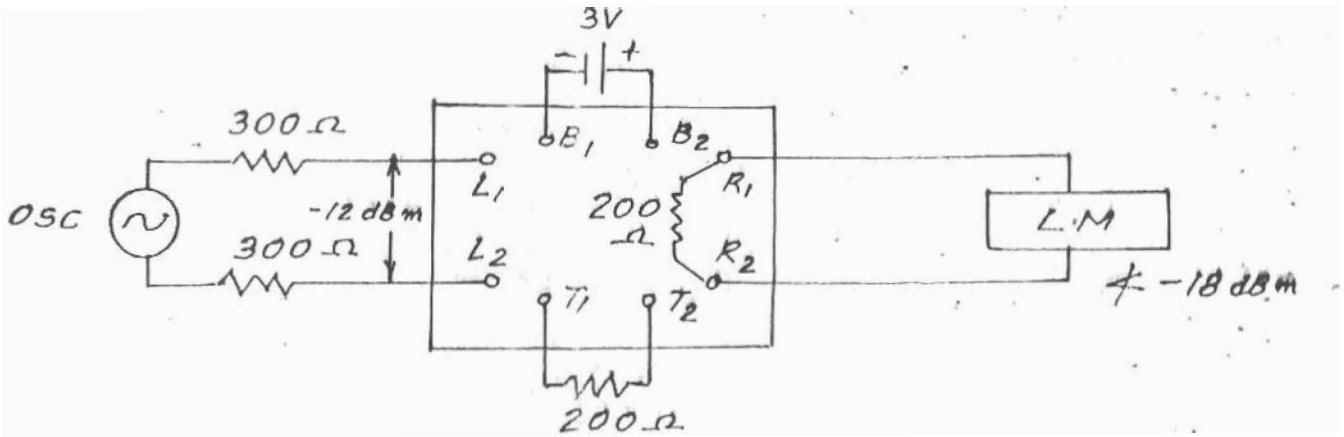

FIG. 3

TEST SET UP FOR RECEIVE EFFICIENCY

(iv) INSERTION LOSS (CL. 6.3.1)

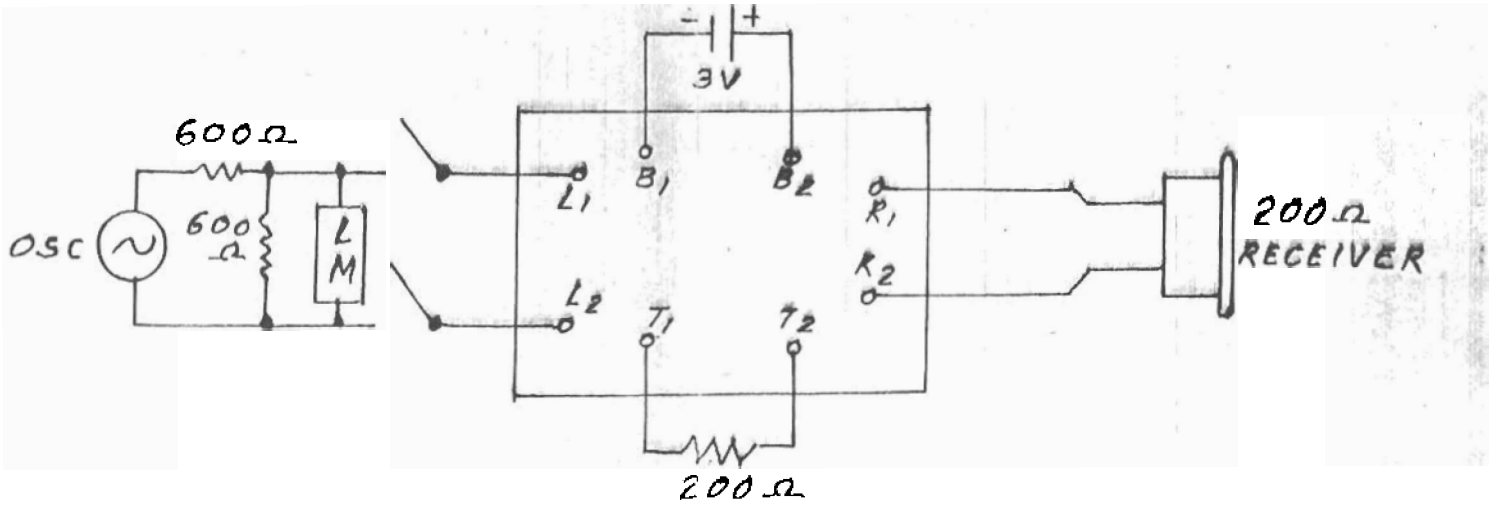

FIG. 4

TEST SET UP FOR INSERTION LOSS

RI/Fax : 91-0522-458500
: 'रेलमानक' लखनऊ
legram : 'RAILMANAK', Lucknow
फोन/Tele : 451200 (PBX)
450567 (DID)

सत्यमेव जयते

भारत सरकार रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ 226011
Government of India Ministry of Railways
Research Designs & Standards Organisation
Lucknow 226011

No. STT/TL/MDT-1/426 Dated 26.2.2001

To : As per list overleaf

Sub:- Amendment No. 1 to Desk Type Electronic Magneto Telephone to Specification No. IRS:TC 79-2000

A copy of Amendment No. 1 to Desk Type Electronic Magneto Telephone to Specification No. IRS:TC 79-2000 is sent herewith for your information and reference

DA/One

(Naresh Saini)
for Director General/Telecom

C/C

Amendment No. 1

CL. No.	Existing Clause	Ammended Clause
3.2.1	A Ring back tone shall be generated after 3 sec of the last push on the button of the calling telephone	Deleted
4.7.1	When battery voltage is available, normally it shall display red colour & when battery voltage become low and drops down to 2.4V, (i.e. 20% below nominal voltage), the power-ON LED shall change colour from RED to GREEN indicating low battery voltage	When battery voltage is available, normally it shall display green colour & when battery voltage become low and drops down to 2.7V (i.e. 10% below nominal voltage), the power –ON LED shall change colour from GREEN to RED indicating low battery voltage.
4.10.4	The volume level shall be adjustable by strapping provided on the PCB in three steps(Low, Medium & High)	The volume level shall be adjustable by strapping/DTP switch provided on the PCB in two steps (Low & High)
4.15.4	A suitable opening with cover shall be provided from bottom side of instrument below the battery box	A suitable opening with cover shall be provided from top side of instrument above the battery box
6.6.3	The power supply arrangement shall not be a part of supply along with Electronic Magneto Telephone and it may be indicated separately by the purchaser with details, if required.	The power supply arrangement or dry batteries shall not be a part of supply along with Electronic Magneto Telephone and it may be indicated separately by the purchaser with details, if required.

फैक्स/Fax : 91-0522-458500
तार : 'रेलमानक' लखनऊ
Telegram : 'RAILMANAK', Lucknow
टेलीफोन/Tele : 451200 (PBX)
450115 (DID)

SN 799

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226011

No. STT/G/TCSC-32 (2004) Dated: 07.11.2005

The General Manager (S&T),

1. Central Railway, CST, Mumbai-400001
2. Eastern Railway, Fairly Place, Kolkata-700001
3. Northern Railway, Baroda House, New Delhi-110001
4. North Frontier Railway, Maligaon, Guwahati-781011
5. North Eastern Railway, Gorakhpur-273012
6. Southern Railway, Park Town, Chennai-600003
7. South Central Railway, Rail Nilayam, Secunderabad-500371
8. South Eastern Railway, Garden Reach, Kolkata-700043
9. Western Railway, Churchgate, Mumbai-400020
10. East Central Railway, Hajipur-844101
11. North Western Railway, Jaipur.
12. North Central Railway, Allahabad
13. East Coast Railway, Bhubaneshwar
14. West Central Railway, Jabalpur
15. South East Central Railway, Bilaspur
16. South Western Railway, Hubli.
17. The General Manager (S&T)/CORE, Civil Lines, Allahabad- 211011.
18. The General Manager (S&T), Metro Railway, 33/1, Chowringhee Road, Kolkata
19. The CPM, IRPMU, Shivaji Bridge, Behind Shanker Market, New Delhi-110001.
20. The Director/IRISET,Lalaguda, Tarnaka Road, Secunderabad.
21. The Managing Director/RailTel, Bank of Baroda Building, Parliament Street, New Delhi.
22. The Executive Director/CAMTECH, Maharajpur, Gwalior.

Sub: Corrected Amendment No. 2 to Specification No. IRS: TC 79-2000 for Desk Type Electronic Magneto Telephone.

Ref: i) This office letter of even no. Dated 31.3.2005
ii) This office letter of even no. Dated 7.3.2005 and Railway Board's order on the minutes of 32nd TCSC.

A copy of the Corrected Amendment No.2 for Desk Type Electronic Magneto Telephone. is sent herewith for your information and reference please.

The earlier issued Amendment No.2 vide letter no. STT/G/TCSC-32 (2004) dated 12.4. 2005 has been withdrawn.

Schedule of Implementation: Duly corrected Amendment No2 enclosed herewith will come into force w.e.f. 1st Jan. 2006. All the firms are hereby advised to submit the improved sample in the Telecom Laboratory, RDSO, Lucknow through QA/S&T, RDSO for incremental testing as per the amendment. On successful completion of the testing, the firms/manufacturers concerned will be approved with the current amendment.

Enc: As above.

(M.K. Yadav) 7/11/05
For Director General/Telecom

Copy to: 1.The Secretary (Telecom), Railway Board, Rail Bhawan, New Delhi for information please.

2. ED/QA (S&T), 4th Floor, Annexe-II, Manak Nagar, Lucknow.

3. The Director/Inspection (S&T), RDSO: -

i) 4th Floor, West Wing, 17, N.S. Road, Kolkata-700001
ii) IRCOT Complex, Behind Shanker Market, Near Shivaji Bridge, New Delhi-110001.
iii) 1st Floor, New Annexe Bldg., Churchgate Station, Western Railway,. Mumbai-400020.
iv) Ground Floor, DRM Office Bldg., Southern Railway, Bangalore-560023 for information and necessary action please.

4. Copy forwarded to the following approved firms for information, implementation and compliance thereof within three months from the date of issue of this letter.

i.) M/s Epsilon Electronic Equipment & Components Pvt Limited, B-2, Electronic Industrial Estate, Kushaiguda, Hyderabad-500062.

ii) M/s ACES Enterprises, 10, Virmani Industrial Estate, 1st Floor, Navaghar, Vasai Road (E), Mumbai-410210.

5. Smt. Latika Singh, SE/Tele, Telecom Dte., RDSO, Lucknow for record.

(M.K. Yadav) 7/11/05

Enc: As above. for Director General/Telecom

CORRECTED AMENDMENT NO.2 TO SPECIFICATION NO. IRS: TC 79-2000 DESK TYPE ELECTRONIC MAGNETO TELEPHONE.

The existing clauses will henceforth be read as given below:

1. Cl. No. 0.1 - This specification is issued under fixed Serial no. IRS: TC 79 followed by the year of adoption as standard or in case of revision, the year of last revision. ADOPTED – 2000.

2. Cl. No. 02 (i) – (existing clause)- "ITD No.S/ZC-107-Extensible telephone handset cord" is being replaced as

ITI/D2732 (with latest amendment) or CACT/ LCSO/SISI/CDOT approved - Extensible telephone coiled cords.

(ii) (Existing clause)- " ITD No.S/ZC –108- cordage for PVC long cords" is being replaced as:

ITI/D 2733 (with latest amendment) or CACT/ LCSO/SISI/CDOT approved – Cordage for PVC line cords.

3. Cl. No. 4.2.1 - The body of telephone instrument shall be made of ABS (Acrylonitrile Butadiene Styrene) Plastic material. Properties of ABS material used shall be as per Appendix 'A' (test on finished ABS product shall be as per Para 2 of Appendix 'A'). In case the firm moulds the body at their premises or alternatively if the body is procured from outside, it shall be procured from CACT approved telephone instruments manufacturers, the proof of which is to be submitted by the firm.

4.Cl. No. 4.4.1 - Cordage used for connecting handset with the telephone instrument shall be as per spec. No.ITI/D2732 (with latest amendment) or shall be procured from CACT/LCSO/SISI/CDOT approved sources.

5. Cl. No. 4.4.2 - Cordage used for connecting telephone instrument with the line shall be as per spec. No.ITI/D2733 (with latest amendment) or shall be procured from CACT/LCSO/SISI/CDOT approved sources.

6. Cl. No. 4.5.2 - The push button shall be procured from CACT/LCSO approved sources

7 Clause No. 4.9.1 – Telephone Rosettee shall be made of ABS or high impact plastic material .

8. New Clause Appendix-A Para-2 - Test on Finished Product made of ABS material.

A special sample of the size as required and mentioned in the test method ASTM D-1525 and ASTM-D-792, should be manufactured from the same raw material as used

for moulding the body of Telephone or a part of the Telephone body will be cut to conduct the tests mentioned below: -

Properties	Specified values	Test Method
1. Specific Gravity	1.04 – 1.07	ASTM D-792
2. Vicat Softening Point	100 - 108° C	ASTM D - 1525

-End of Amendment-

Telephone : +91 – 522 – 2465755
Fax : +91 – 522 – 2462635
E-mail : dtelewlrdso@gmail.com

सत्यमेव जयते

भारत सरकार, रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ–226 011
Government of India - Ministry of Railways
Research Designs & Standards
Organisation LUCKNOW – 226011

No- STT/TL/EMT/445 Date: 01.04.2015

To,

महाप्रबंधक /संकेत एवं दूरसंचार,	1	**GM/S&T**
मध्य रेलवे, मुम्बई सी.एस.टी.।	i	Central Rly, Mumbai CST-400 001
पश्चिम रेलवे, चर्च गेट, मुम्बई ।	ii	Western Rly, Churchgate,Mumbai-400020
पूर्व रेलवे, फेयरली प्लेस, कोलकाता।	iii	Eastern Rly, Fairlie Place, Kolkata- 700 001
दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता।	iv	South Eastern Rly.,Garden Reach, Kolkata-700043
उत्तर रेलवे, बड़ौदा हाउस, नई दिल्ली।	v	Northern Rly.,Baroda House,New Delhi-110 001
पूर्वोत्तर रेलवे, गोरखपुर ।	vi	Northeastern Rly., Gorakhpur -273 012
पूर्वोत्तर सीमान्त रेलवे, मालीगांव, गुवाहाटी ।	vii	North Frontier Rly.,Maligaon, Guwahati-781 011
दक्षिण रेलवे, पार्क टाउन, चेन्नई ।	viii	Southern Rly., Park Town, Chennai -600 003
दक्षिण मध्य रेलवे, सिकन्द्राबाद।	ix	South Central Rlcy, Rail Nilayam, Secunderabad-500371
पूर्व मध्य रेलवे, हाजीपुर।	x	East Central Railway, Hazipur--844101
उत्तर पश्चिम रेलवे, जयपुर ।	xi	North Western Railway, Jaipur-300206
पूर्व तटीय रेलवे, रेल विहार बी.डी.ए. रेन्टल कालोनी, चन्द्रशेखरपुर, भुवनेश्वर।	xii	East Coast Railway, Rail Vihar, BDA, Rental Colony,Chandra shekherpur, Bhubneshwar-751023
उत्तर मध्य रेलवे, हेस्टिंग रोड, इलाहाबाद।	xiii	North Central Railway, HQ's office (S&T Branch), Ganga Parisar, Subedarganj, Allahabad-211033.
दक्षिण पश्चिम रेलवे, मुख्य कार्यालय, हुबली ।	xiv	South Western Railway, Headquarter Office, Hubli-580020
पश्चिम मध्य रेलवे, ओ0एस0डी0 कार्यालय, जबलपुर ।	xv	West Central Railway, OSD Office, Jabalpur-482000.
दक्षिण पूर्वोमध्य रेलवे, आर0ई0 ऑफिस काम्पलेक्स, बिलासपुर।	xvi	South East Central Railway, R. E. Office Complex, Bilaspur-495004
महाप्रबधंक/ संकेत एंव दूरसंचार,कोर , नवाब युसुफ रोड सिविल लाइन्स इलाहाबाद।	2	The General Manager (S&T), CORE, Nawab Yusuf Road, Civil Lines, Allahabad- 211001
महाप्रबधंक/ संकेत एंव दूरसंचार, मेट्रो रेलवे, 33/1, चौरंगी रोड, कोलकता ।	3	The General Manager (S&T), Metro Railway, 33/1, Chowringhee Road, Kolkata700 071
मुख्य प्रशानिक अधिकारी, आईआर – पीएमयू, शिवाजी ब्रिज, शंकर मार्केट के पीछे, नई दिल्ली	4	The CAO, IRPMU, Shivaji Bridge, Behind Shanker Market,New Delhi -110 001.
निदेशक /इरीसेट, सिकन्द्राबाद।	5	Director/IRISET/Lalaguda/Secunderabad.
महाप्रबंधक ;प्राजेक्ट, रेलटेल, बैंक आफ बडौदा बिल्डिंग, नई दिल्ली ।	6	General Manager(Projects)/RAILTEL/Bank of Baroda, Building, Parliament Street, New Delhi.

Sub : Amendment No. 3 to specification No. IRS: TC 79/2000 (with Amendment no.1&2) for Desk Type Electronic Magneto Telephone.

Amendment No. 3 to specification No. IRS: TC 79/2000 (with Amendment no.1&2) for Desk Type Electronic Magneto Telephone has been finalised and is being sent herewith for your information and reference please. This amendment No. 3 is effective from 01.04.2015.

(राकेश सहारिया)
कृते महा निदेशक/दूरसंचार

प्रतिलिपि :

का.का. निदेशक/गुणवत्ता आश्वासन, चौथी मंजिल,एनेक्सी–2,अ.अ.मा.सं, लखनऊ।	1.	ED/QA(S&T), 4th floor, Annexee-II, RDSO, Lucknow.
निदेशक (निरीक्षण)/ गुणवत्ता आश्वासन/सिगनल एवं दूरसंचार, अ0अ0मा0सं0, निकट इरकॉट, शंकर मार्केट के पीछे नई दिल्ली।	2.	Director/QA/S&T/RDSO, Near IRCOT Building, Ist Floor, Behind Shanker Market, New Delhi-110001
निदेशक (निरीक्षण)/ गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार अ0अ0मा0सं0, भूतल, डी0आर0एम0 ऑफिस,, बंगलोर – 560 023।	3.	Director/QA/ S&T/RDSO, Ground Floor, DRM's Office, Bangalore- 560023
निदेशक (निरीक्षण)/गुणवत्ता आश्वासन/संकेत एवं दूरसंचार, अ0अ0मा0सं0, प्रथम तल, न्यू एनेक्सी बिल्डिंग, चर्चगेट, पश्चिम रेलवे, मुम्बई।	4.	Director/QA/S&T/RDSO, 1st floor, New Annexie Building, Western Railway, Churchgate, Mumbai-400020
निदेशक (निरीक्षण)/ गुणवत्ता आश्वासन/सिगनल एवं दूरसंचार, अ0अ0मा0सं0, चौथी मंजिल, 17 एन.एस. रोड, वैस्ट विंग, फेयरली प्लेस, कोलकाता – 70001	5.	Director/QA/S&T/RDSO, 4th floor, West Wing, Fairlie Place, 17 N.S. Road, Kolkata – 700001
निदेशक (निरीक्षण)/ गुणवत्ता आश्वासन/सिगनल एवं दूरसंचार, अ0अ0मा0सं0, हसनपुरा रोड, रेलवे हास्पिटल के सामने, जयपुर – 302 006	6.	Director/QA/S&T/RDSO,Hasanpura Road, In front of Railway Hospital, Jaipur – 302 006.
मैसर्स बेंट्रॉन पावर सिस्टम, 21/1 केदारनाथ चैटर्जी रोड, बेहाला, कोलकाता- 700034	7.	M/s Bentron Power System, 21/1, Kedarnath Chatterjee Road, Behala, Kolkata-700034 Fax: 040-27143532
मैसर्स एपसीलान इलेक्ट्रानिक इक्यूपमेंट एडं कम्पोनेन्ट प्राईवेट लिमिटेड, बी-2, इलेक्ट्रानिक इंड्रस्ट्रियल इस्टेट, ई.सी.आई. एल. "X" रोड़, हैदराबाद– 500 062	8.	M/s Epsilon Electronic Equipment & Components Pvt. Ltd., B-2, Electronic Industrial Estate, ECIL "X" Roads, Hyderabad – 500 062 Telefax No. : 040-27143532
मैसर्स कुमार इलेक्ट्रिकल्स, 306, नया मीना बाजार मस्जिद, दिल्ली – 110006	9.	M/s Kumar Electricals 306, New Meena Bazar, Masjid, Delhi –110006 Ph:011-23265903, 23267717
मैसर्स एसेस इंटरप्राइज, 10 विर्मानी इंडस्ट्रियल स्टेट, पहली मंजिल नवघर वसाइ रोड, मुम्बई – 401210	10.	M/s ACES Enterprise, 10, Virmani Industrial Estate, 1st Floor, Navaghar, Vasai Road (E), Mumbai-401210 Telefax: 0250-2392771
फाइल सं. STT / G / VENDOR (75)	11.	File No. STT / G / VENDOR (75)

(राकेश सहारिया)
कृते महा निदेशक/दूरसंचार

Amendment No. 3 to Specification No. IRS: TC 79/2000 (with Amendment No.1 & 2) for Desk Type Electronic Magneto Telephone

<table>
<tr><th>S. No.</th><th>Clause No.</th><th>Existing Clause</th><th>Amended Clause</th></tr>
<tr><td>1.</td><td>0.2</td><td>This specification requires reference to the following Indian Railway Standard (IRS), Indian Telegraph Department specifications(ITD) and Indian Standard (IS), American Society for Testing and Materials (ASTM) and British Standard(BS) specifications:

<table><tr><td>IRS : S 23</td><td>Electrical Signalling and Interlocking Equipment.</td></tr><tr><td>IRS:TC 74-97</td><td>Electro Dynamic Transducer</td></tr><tr><td>ITI / D2732 [with latest amendment] or CACT / LCSO / SISI / CDOT approved</td><td>Extensible Telegraph coiled cord.</td></tr><tr><td>ITI / D2733 [with latest amendment] or CACT / LCSO / SISI / CDOT approved</td><td>Cordage for PVC line cords.</td></tr><tr><td>IS:9000</td><td>Basic Environmental Testing Procedures for Electronic and Electrical Items.</td></tr><tr><td>ASTM</td><td>American Society for Testing and Materials (Test Methods for ABS co-polymer moulding material)</td></tr><tr><td>BS : 1006 Pt. -2</td><td>Methods of test for colour fastness of Textiles and Leather.</td></tr></table></td><td>This specification requires reference to the following Indian Railway Standard (IRS), Indian Standard (IS), American Society for Testing and Materials (ASTM) and British Standard(BS) specifications:

<table><tr><td>IRS : S 23</td><td>Electrical Signalling and Interlocking Equipment.</td></tr><tr><td>CACT / LCSO / SISI / CDOT approved</td><td>Extensible Telegraph coiled cord.</td></tr><tr><td>CACT / LCSO / SISI / CDOT approved</td><td>Cordage for PVC line cords.</td></tr><tr><td>IS:9000</td><td>Basic Environmental Testing Procedures for Electronic and Electrical Items.</td></tr><tr><td>ASTM</td><td>American Society for Testing and Materials (Test Methods for ABS co-polymer moulding material)</td></tr><tr><td>BS : 1006 Pt. -2</td><td>Methods of test for colour fastness of Textiles and Leather.</td></tr></table></td></tr>
<tr><td>2.</td><td>3.7</td><td>All the Components, Switches, Connectors etc., shall be of good</td><td>All the Components, Switches, Connectors etc., shall be of good</td></tr>
</table>

S. No.	Clause No.	Existing Clause	Amended Clause
		quality industrial grade LCSO / TEC approved. All the numbers of components should be clearly indicated. The LED indicators wherever used shall be of superior quality wide angle with metallic holders. The component type numbers shall not be defaced.	quality & industrial grade and its manufacturer shall have valid ISO 9000 certificate for manufacturing of these items. Switches & Connectors shall preferably be CACT /LCSO/ CDOT/ SISI (Small industries service institution) approved (if available). All the numbers of components should be clearly indicated. The LED indicators wherever used shall be of superior quality wide angle with metallic holders. The component type numbers shall not be defaced.
3.	4.2.1	The body of the telephone instrument shall be made of ABS (Acrylonitrile Butadiene Styrene) Plastic material. Properties of ABS material used shall be as per APPENDIX "A" [test on finished ABS product shall be as per Para 2 of Appendix 'A']. In case the firm moulds the body at their premises or alternatively if the body is procured from outside, it shall be procured from CACT approved telephone instruments manufacturers, the proof of which is to be submitted by the firm.	The body of the telephone instrument shall be made of ABS (Acrylonitrile Butadiene Styrene) Plastic material. ABS raw material shall be procured from reputed manufacturers like Bhansali Polymers, Lanxess ABS Ltd., Bayers, LG & HPCL conforming to the properties mentioned in Appendix –'A'. Raw material manufacturers Test certificate has to be submitted at the time of the type test. The test shall be carried out on finished product shall be as per Para 2 of Appendix 'A'.
4.	4.3	**Transmitter and Receiver:** Electro Dynamic Transducers to Specification No. IRS:TC-74-97 shall be used to perform functions of transmitter and receiver. Both transmitter and receiver transducers must be procured from TEC approved sources having valid and current type approval certificate, the proof of which is required to be submitted.	**Transmitter and Receiver:** Electro Dynamic Transducers shall be used to perform functions of transmitter and receiver. The Manufacturer of transmitter & receiver shall have valid ISO 9000 certificate for manufacturing of these items. Both transmitters and receiver shall be preferably procured from CACT /LCSO/ CDOT/ SISI (Small industries service

S. No.	Clause No.	Existing Clause	Amended Clause
			institution) approved sources (if available).
5.	4.4.1	Cordage used for connecting Handset with the telephone instrument shall be as per spec. No. ITI / D2732 [with latest amendment] or shall be procured from CACT / LCSO / SISI / CDOT approved sources.	Cordage used for connecting Handset with the telephone instrument shall be suitable to meet the requirements of this specification. The Manufacturer of Cordage shall have valid ISO 9000 certificate for manufacturing of this items. This Cordage shall be preferably procured from CACT /LCSO/ CDOT/ SISI (Small industries service institution) approved sources (if available).
6.	4.4.2	Cordage used for connecting telephone instrument with the line shall be as per spec. No. ITI / D2733 [with latest amendment] or shall be procured from CACT / LCSO / SISI / CDOT approved sources.	Cordage used for connecting telephone instrument with the line shall be suitable to meet the requirements of this specification. The Manufacturer of Cordage shall have valid ISO 9000 certificate for manufacturing of this items. This Cordage shall be preferably procured from CACT /LCSO/ CDOT/ SISI (Small industries service institution) approved sources (if available).
7.	4.5.2	**Push Button for calling –** The push button shall be procured from CACT / LCSO approved sources.	**Push Button used for calling –** The Manufacturer of "Push Button used for Calling" shall have valid ISO 9000 certificate for manufacturing of this items. It shall be preferably procured from CACT /LCSO/ CDOT/ SISI (Small industries service institution) approved sources (if available).

------ End of Document ------

Telephone : +91 – 522 – 2465755
Fax : +91 – 522 – 2462635
E-mail : dtelewlrdso@gmail.com

सत्यमेव जयते

भारत सरकार, रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ–226 011
Government of India - Ministry of Railways
Research Designs & Standards
Organisation LUCKNOW – 226011

No- STT/TL/EMT/445 **Date: 16.11.2016**

To,

महाप्रबंधक /संकेत एवं दूरसंचार,	1	GM/S&T
मध्य रेलवे, मुम्बई सी.एस.टी.।	i	Central Rly, Mumbai CST-400 001
पश्चिम रेलवे, चर्च गेट, मुम्बई ।	ii	Western Rly, Churchgate,Mumbai-400020
पूर्व रेलवे, फेयरली प्लेस, कोलकाता।	iii	Eastern Rly, Fairlie Place, Kolkata- 700 001
दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता।	iv	South Eastern Rly.,Garden Reach, Kolkata-700043
उत्तर रेलवे, बड़ौदा हाउस, नई दिल्ली।	v	Northern Rly.,Baroda House,New Delhi-110 001
पूर्वोत्तर रेलवे, गोरखपुर ।	vi	Northeastern Rly., Gorakhpur -273 012
पूर्वोत्तर सीमान्त रेलवे, मालीगांव, गुवाहाटी ।	vii	North Frontier Rly.,Maligaon, Guwahati-781 011
दक्षिण रेलवे, पार्क टाउन, चेन्नई ।	viii	Southern Rly., Park Town, Chennai -600 003
दक्षिण मध्य रेलवे, सिकन्द्राबाद।	ix	South Central Rlcy, Rail Nilayam, Secunderabad-500371
पूर्व मध्य रेलवे, हाजीपुर।	x	East Central Railway, Hazipur--844101
उत्तर पश्चिम रेलवे, जयपुर ।	xi	North Western Railway, Jaipur-300206
पूर्व तटीय रेलवे, रेल विहार बी.डी.ए. रेन्टल कालोनी, चन्द्रशेखरपुर, भुवनेश्वर।	xii	East Coast Railway, Rail Vihar, BDA, Rental Colony,Chandra shekherpur, Bhubneshwar-751023
उत्तर मध्य रेलवे, हेस्टिंग रोड, इलाहाबाद।	xiii	North Central Railway, HQ's office (S&T Branch), Ganga Parisar, Subedarganj, Allahabad-211033.
दक्षिण पश्चिम रेलवे, मुख्य कार्यालय, हुबली ।	xiv	South Western Railway, Headquarter Office, Hubli-580020
पश्चिम मध्य रेलवे, ओ0एस0डी0 कार्यालय, जबलपुर ।	xv	West Central Railway, OSD Office, Jabalpur-482000.
दक्षिण पूर्वमध्य रेलवे, आर0ई0 ऑफिस काम्पलेक्स, बिलासपुर।	xvi	South East Central Railway, R. E. Office Complex, Bilaspur-495004
महाप्रबंधक/ संकेत एंव दूरसंचार,कोर , नवाब युसुफ रोड सिविल लाइन्स इलाहाबाद।	2	The General Manager (S&T), CORE, Nawab Yusuf Road, Civil Lines, Allahabad- 211001
महाप्रबंधक/ संकेत एंव दूरसंचार, मेट्रो रेलवे, 33/1, चौरंगी रोड, कोलकता ।	3	The General Manager (S&T), Metro Railway, 33/1, Chowringhee Road, Kolkata700 071
मुख्य प्रशानिक अधिकारी, आईआर – पीएमयू, शिवाजी ब्रिज, शंकर मार्केट के पीछे, नई दिल्ली	4	The CAO, IRPMU, Shivaji Bridge, Behind Shanker Market,New Delhi -110 001.
निदेशक /इरीसेट, सिकन्द्राबाद।	5	Director/IRISET/Lalaguda/Secunderabad.
महाप्रबंधक ;प्राजेक्ट, रेलटेल, बैंक आफ बडौदा बिल्डिंग, नई दिल्ली ।	6	General Manager(Projects)/RAILTEL/Bank of Baroda, Building, Parliament Street, New Delhi.

Sub : Amendment No. 4 to specification No. IRS: TC 79/2000 (with Amendment no.1,2&3) for Desk Type Electronic Magneto Telephone.

Amendment No. 4 to specification No. IRS: TC 79/2000 (with Amendment no.1,2&3) for Desk Type Electronic Magneto Telephone has been finalised and is being sent herewith for your information and reference please. This amendment No. 4 is effective from 16.11.2016.

राकेश सहारिया 16/11/16

(राकेश सहारिया)
कृते महा निदेशक / दूरसंचार

प्रतिलिपि :

का.का. निदेशक / गुणवत्ता आश्वासन, चौथी मंजिल,एनेक्सी–2,अ.अ.मा.सं, लखनऊ।	1.	ED/QA(S&T), 4th floor, Annexee-II, RDSO, Lucknow.
निदेशक (निरीक्षण) / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, अ0अ0मा0सं0, निकट इरकॉट, शंकर मार्केट के पीछे नई दिल्ली।	2.	Director/QA/S&T/RDSO, Near IRCOT Building, Ist Floor, Behind Shanker Market, New Delhi-110001
निदेशक (निरीक्षण) / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार अ0अ0मा0सं0, भूतल, डी0आर0एम0 ऑफिस,, बंगलोर – 560 023।	3.	Director/QA/ S&T/RDSO, Ground Floor, DRM's Office, Bangalore- 560023
निदेशक (निरीक्षण) / गुणवत्ता आश्वासन / संकेत एवं दूरसंचार, अ0अ0मा0सं0, प्रथम तल, न्यू एनेदसी बिल्डिंग, चर्चगेट, पश्चिम रेलवे, मुम्बई।	4.	Director/QA/S&T/RDSO, 1st floor, New Annexie Building, Western Railway, Churchgate, Mumbai-400020
निदेशक (निरीक्षण) / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, अ0अ0मा0सं0, चौथी मंजिल, 17 एन.एस. रोड, वैस्ट विंग, फेयरली प्लेस, कोलकाता – 70001	5.	Director/QA/S&T/RDSO, 4th floor, West Wing, Fairlie Place, 17 N.S. Road, Kolkata – 700001
निदेशक (निरीक्षण) / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, अ0अ0मा0सं0, हसनपुरा रोड, रेलवे हास्पिटल के सामने, जयपुर – 302 006	6.	Director/QA/S&T/RDSO,Hasanpura Road, In front of Railway Hospital, Jaipur – 302 006.
मैसर्स बेंट्रॉन पावर सिस्टम, 21/1 केदारनाथ चैटर्जी रोड, बेहाला, कोलकाता- 700034	7.	M/s Bentron Power System, 21/1, Kedarnath Chatterjee Road, Behala, Kolkata-700034 Fax: 040-27143532
मैसर्स एपसीलान इलेक्ट्रानिक इक्यूपमेंट एडं कम्पोनेन्ट प्राईवेट लिमिटेड, बी-2, इलेक्ट्रानिक इंड्रस्ट्रियल इस्टेट, ई.सी.आई. एल. "X" रोड़, हैदराबाद– 500 062	8.	M/s Epsilon Electronic Equipment & Components Pvt. Ltd., B-2, Electronic Industrial Estate, ECIL "X" Roads, Hyderabad – 500 062 Telefax No. : 040-27143532
मैसर्स कुमार इलेक्ट्रिकल्स, 306, नया मीना बाजार मस्जिद, दिल्ली - 110006	9.	M/s Kumar Electricals 306, New Meena Bazar, Masjid, Delhi –110006 Ph:011-23265903, 23267717
मैसर्स एसेस इंटरप्राइज, 10 विर्मानी इंडस्ट्रियल स्टेट, पहली मंजिल नवघर वसाइ रोड, मुम्बई - 401210	10.	M/s ACES Enterprise, 10, Virmani Industrial Estate, 1st Floor, Navaghar, Vasai Road (E), Mumbai-401210 Telefax: 0250-2392771
फाइल सं. STT / G / VENDOR (75)	11.	File No. STT / G / VENDOR (75)

DA : As above

राकेश सहारिया 16/11/16

(राकेश सहारिया)
कृते महा निदेशक / दूरसंचार

Amendment No.4 to Specification No. IRS: TC 79/2000 (with Amendment No.1,2&3)
for Desk Type Electronic Magneto Telephone.

S.No.	Cl. No.	Existing Clause	Amended Clause
1.	4.3	Transmitter and Receiver: Electro Dynamic Transducers shall be used to perform functions of transmitter and receiver. The Manufacturer of transmitter & receiver shall have valid ISO 9000 certificate for manufacturing of these items. Both transmitters and receiver shall be preferably procured from CACT /LCSO/ CDOT/ SISI (Small industries service institution) approved sources (if available).	Electro Dynamic Transducer of 150±20% ohm impedance shall be used to perform functions of transmitter and receiver. The Manufacturer of transmitter & receiver shall have valid ISO 9000 certificate for manufacturing of these items. Both transmitters and receiver shall be preferably procured from CACT / LCSO/ CDOT/ SISI (Small industries service institution) approved sources (if available). The transducers shall be fixed in the transmitter and receiver locations of the handset. Proper locking arrangements shall be ensured. The transducers shall be properly protected against ingress of moisture, dust and insects. The frequency response over the range 300 to 3400 Hz shall be uniform. Howling shall not exist when two Telephones Instruments are connected in parallel in OFF-HOOK positions and when one of the handset is placed with the Transmitter/ Receiver in flush with a flat surface. It includes glass surface also.
2.	6.3.1	The Telephone will be subjected to various transmission tests. The test setup shall be as indicated in figs. 1 to 4 of Annexure-I i) Send Efficiency : The test set up shall be as shown in Fig. 1 . T1 and T2 :Terminals for Transmitter Insets. R1 and R2 : Terminals for receivers. L1 and L2 : Line Terminals. B1 and B2 : Battery Terminals.	The Telephone will be subjected to various transmission tests. The test setup shall be as indicated in fig 1 to 4 of Annexure I i) Send Efficiency : The test set up shall be as shown in Fig. 1 T1 and T2 :Terminals for Transmitter Insets. R1 and R2 : Terminals for receivers. L1 and L2 : Line Terminals. B1 and B2 : Battery Terminals LM : Level Meter The Transmitter of hand set shall be

S.No.	Cl. No.	Existing Clause	Amended Clause
		LM : Level Meter The Transmitter of hand set shall be removed and simulated by 100 + 100 ohm non inductive resistance as shown and the receiver replaced by a 200 ohm non inductive resistance. 3 V battery shall be connected to the battery terminals. The oscillator level shall be adjusted such that it is -44 dBm at 1000 Hz measured across terminals T1 and T2. The line terminals shall be terminated by 600 ohms non inductive resistance. The level across 600 ohm resistance shall not be less than 0 dBm and total harmonic distortion shall not be more than 3%.	removed and simulated by R/2 + R/2 ohm non inductive resistance as shown and the receiver replaced by a R ohm non inductive resistance (where R = 150 ohm ±20%). 3 V battery shall be connected to battery terminals. The oscillator level shall be adjusted such that it is -44 dBm at 1000 Hz measured across terminals T1 and T2. The line terminals shall be terminated by 600 ohms non inductive resistance. The level across 600 ohms resistance shall not be less than 0 dBm and total harmonic distortion shall not be more than 3%.
3.	6.3.1 (ii)	Side Tone : The test setup shall be as indicated in Fig. 2. The level measured at R1 and R2 across 200 ohm resistance shall not be more than -18dBm with the oscillator level maintained at -44dBm.	Side Tone : The test setup shall be as indicated in Fig. 2. The level measured at R1 and R2 across R ohm resistance shall not be more than -18dBm with the oscillator level maintained at -44dBm (where R = 150 ohm ±20%).
4.	Page No. 18 & 19	Figures	Figures at existing page no. 18 & 19 of the specification (page no. 3 & 4of this document) are amended accordingly.
5.	14	New Clause	All the provisions contained in RDSO's ISO procedures laid down in Document No. QO-D-7.1-11 dated 19.07.2016 (titled "Vendor-Changes in approved status") and subsequent versions/amendments thereof, shall be binding and applicable on the successful vendor/vendors in the contracts floated by Railways to maintain quality of products supplied to Railways

(I) SEND EFFICIENCY (CL. E 3.1)

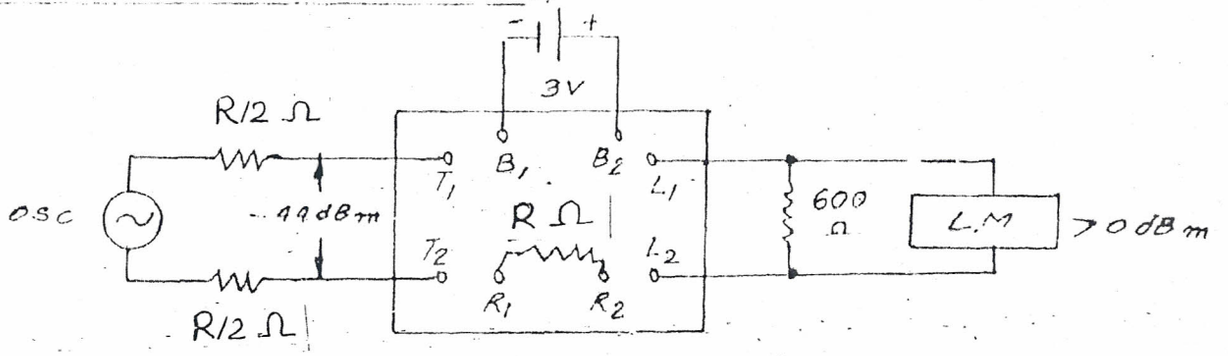

FIG. 1

TEST SET UP FOR SEND EFFICIENCY

T_1 AND T_2 : TERMINALS OF TRANSMITTER INSETS.

R_1 AND R_2 : TERMINALS OF RECEIVER

L_1 AND L_2 : LINE TERMINALS.

B_1 AND B_2 : BATTERY TERMINALS.

L M : LEVEL METER.

(ii) SIDE TONE (CL. E 3.1)

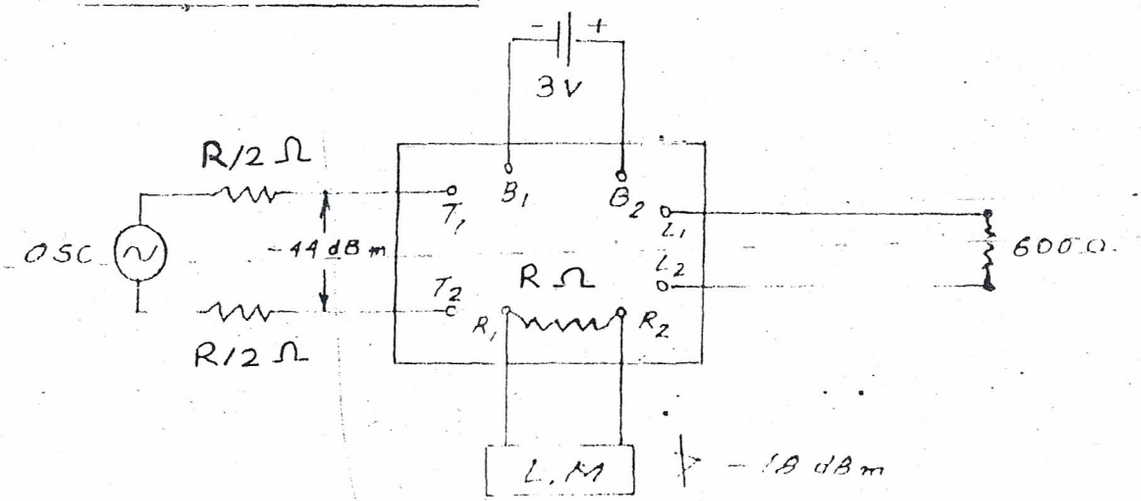

FIG. 2

TEST SET UP FOR SIDE TONE

NOTE : R = (150±20%) ohm

(III) RECEIVE EFFICIENCY (CL. 6.3.1)

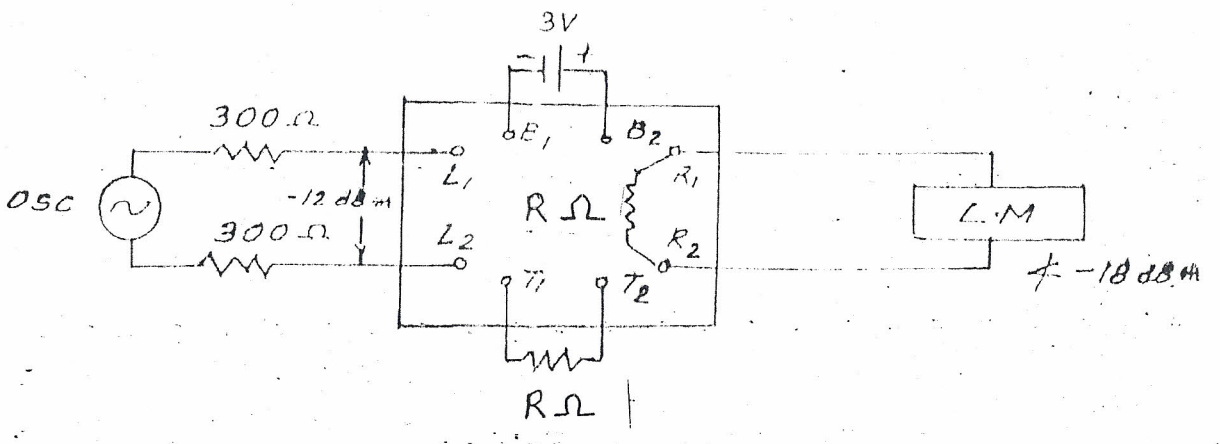

FIG. 3

TEST SET UP FOR RECEIVE EFFICIENCY

(IV) INSERTION LOSS (CL. 6.3.1)

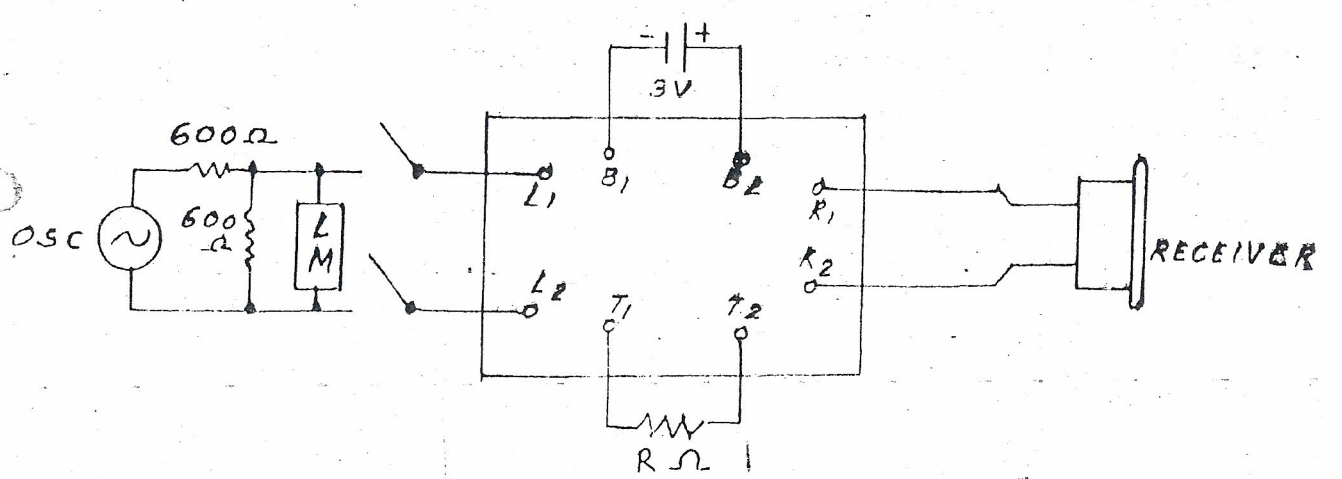

FIG. 4

TEST SET UP FOR INSERTION LOSS

NOTE : R = (150±20%) ohm

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