3
Phone Call Coster

Being able to see the cost mounting up as one talks is a sure deterrent to overspending on the telephone account. Since rates vary so widely according to distance and time of day, it is hard for the average person to estimate what the cost of a call is likely to be. The program caters for calls of all distances, both Inland and International, including those dialled directly and those obtained with the assistance of the operator. While you are talking, a marker moves across the bottom of the screen indicating what fraction of the current charging period has elapsed. This lets you know when you should begin to try to close the conversation, rather than incur the extra expense of another whole period.

The charges, durations and rate of VAT shown in the listing are those in force at the time of writing. These are incorporated in DATA statements which are easy to revise when changes in rates are announced.

How to use the program

The operation of the program is as simple as the telephone call tariff will allow it to be. You are given full screen displays of charges and the more important regulations affecting them. Whenever you have to key in a letter, the prompting message indicates which letters are appropriate. There is no need to key RETURN at any stage. All these features make for quick and easy use of the program.

When you RUN the program, you are first asked to choose between calls made by direct dialling and those which are made through the operator. The next choice is between Inland calls (which includes the Channel Islands and the Irish Republic) and International calls.

When you have made your choice the screen displays a table of charges for calls of the kind you have selected. You now have to

answer simple queries about the kind of call you wish to make.

There are five kinds of Inland calls, depending mainly on distance. Each is represented by a 'Charge Letter'. You can find out the letter to use by consulting your local Telephone Dialling codes booklet. The letter is printed to the left of the name of each exchange. Note that instead of 'b1' for low cost calls, this program uses the letter 'C'.

The time ofday or night for which the different Charge Rates are in force (Cheap, Standard, and Peak) are displayed on the screen. The rate for a call depends on the time the call is begun. The timings may vary at holiday periods, as announced in the Press. Frequently the Cheap Rate is in operation over the whole of the Christmas break, for example.   -

Calls which are directly dialled are charged by the number of 'charge units' used. There is a fixed charge for each unit, but the duration of the unit varies with distance and Charge Rate. For a Local call at the Cheap rate, the charge unit lasts three minutes, while for a call over 56 km during the Peak period a charge unit lasts only twelve seconds. Calls made by the operator are charged in a different way. Here the charge is by the minute, and parts of a minute are charged as a whole minute. There is a minimum charge equivalent to the charge for three minutes (nine minutes for local calls at the Cheap rate). On the whole, operator calls are more expensive than direct dialled calls, though there is a special 'Lower Charge' rate for calls that have to be connected by the operator because the caller cannot dial or because a dialled call has failed. If you are timing an inland call by operator, the program asks you to say whether the normal or lower charge rate applies.

The charges for international calls depend on the Charge Band, which is given in the international section of the Telephone Dialling codes booklet. In this program we do not distinguish between Band 5A and Band 5B. The difference is that there is no Cheap Rate for Band 5B, so remember to enter only 'S' (Standard) when making calls in this Band. As with Inland calls, International calls are charged on Charge Unit basis. The length of a charge unit may be very short - only 3.1 seconds on Band 5B! Calls made by the operator are charged by the minute, with a minimum charge for three minutes, just as with Inland calls. Calls to certain countries can only be made as operator calls.

When a call is made by the operator, it is possible to make a Personal Call, the timing of which does not begin until the person named is actually present at the telephone. There is a surcharge for this

service, and the program asks if you are making such a call. For a few countries, all calls are regarded as personal calls, and the surcharge must always be added to the charge.

The program uses colour coding so that you can be sure that your call is being charged by the computer at the correct rate. All charge tables and displays for inland calls are on a green screen, while those for International calls are on a blue screen. When you are making a dialled call (Inland or International) the text is red. When the call is dialled by the operator, the text is in white.

When you have keyed in the details of the call you are intending to make, a message asks you to key ' S'(for start) as soon as you are connected. In the case of a personal call, wait until your caller has answered in person. As soon as you press ' S' the screen display changes to show the duration of the call, its cost so far, and its cost so far with VAT added. You may notice that the charges including VAT are sometimes 1p more than those quoted in British Telecom' s Telephone Charges guide. In the guide the VAT inclusive charges are rounded to the nearest pence. On the telephone bill, however, odd fractions are ignored, as is the usual commercial practice. The program ignores fractions of pence too.

While the call is in progress an arrow moves across the bottom of the screen. This tells you what portion of your current charge period has elapsed. You will see the charge increases suddenly whenever the arrow reaches the right-hand edge of the screen, for then a new period begins and another unit of charge has been incurred. With dialled long-distance calls the arrow moves all too rapidly! Ifyou watch the arrow and can bring your call to a conclusionjust before it reaches the right of the screen you can have the maximum of telephoning time for the minimum of cost. With operator calls the arrow takes three minutes to make its firstjourney across the screen (nine minutes in the case of local calls at Cheap Rate). After that it takes only one minute to cross the screen, as the charge is increased at intervals of one minute from then on.

When you finish the call, press key ' F'The display is then held, allowing you to note down the charge. Then press the space-bar, to make the computer ready for costing the next call.

Keying in

There are many slight variations and exceptions in the telephone call

tariff that make it hard to cover all its intricacies with a few standard subroutines. Consequently, sections of the program duplicate lines from other sections closely but not exactly. You can save yourself a lot of typing by using the Electron' editing facility. For example, type line 70, then use the COPY key to produce lines 80 and 90, altering the few figures and letters which differ in each line. Having typed in lines 200 to 310, you will find that these can easily be copied and edited to provide lines 640 to 760. But remember to give the correct line numbers to the lines you create by copying!

Program design

20 Setting Mode.

30 Dimensioning arrays.

40 Disabling the text cursor.

50 Defining character number 240 as the *arrow' marker.

60-110 Reading charge and duration DATA;

120   Sets screen and text colours to logical default colours (text white: screen black).

133-180 Directing program to main types of call.

190 Text red; screen green.

200-320 Displaying and inputting details of Inland Direct Dialled calls.

330-410 Timing and displaying cost of all Direct Dialled calls.

420 Text red: screen blue.

430-590 Displaying and inputting details of International Direct Dialled calls.

600-620 Directing program to two kinds of operator call.

630 Screen green.

640-800 Displaying and inputting details of Inland operator calls.

8!0-890 Timing and displaying cost of all operator calls.

900 Screen blue.

910-1080   Displaying and inputting details of International operator calls.

1090-1110 PROCchargeD for displaying line of a charge table (dialled calls).

l120-1250   PROC}etter for inputting and analysing details of Inland calls.

1260-1310 ROCsf waiting for call to begin.

1320-1480 PROCdisplayD for timing and costing dialled calls.

1490-1510   PROCchargeG for printing line of a charge table

(operator calls).

1520-1680   PROCdisplayG for timing and costing operator calls.

1690-1730   DATA statement containing durations and charges, etc.

The program

```
   10 REM ** PHONE CALL COSTER **
   20 MODE4
   30 DIM DL(5,3),DT(5,2),PL(5,6),PT(5):
R=0
   40 VDU 23,1,0;0;0;0;
   50 VDU 23,240,24,60,126,24,24,24,24,2
4
   60 CLS:READ C:READ V
   70 FOR J=1 TO 5:FOR K=1 TO 3:READ DL(
J,K):NEXT:NEXT
   80 FOR J=1 TO 5:FOR K=1 TO 2:READ DT(
J,K):NEXT:NEXT
   90 FOR J=1 TO 5:FOR K=1 TO 6:READ PL(
J,K):NEXT:NEXT
  100 FOR J=1 TO 5:READ PT(J):NEXT
  110 READ S1,S2
  120 CLS:VDU 20
  130 PRINT''"CALL DIALLED OR MADE BY OP
ERATOR? (D/O)"
  140 REPEAT:KEY$=GET$:UNTIL KEY$="D" OR
 KEY$="O"
  150 IF KEY$="O" THEN 600
  160 PRINT''"CALL INLAND OR INTERNATIONA
L? (L/T)"
  170 REPEAT:RE$=GET$:UNTIL RE$="L" OR R
E$="T"
  180 IF RE$="T" THEN 420
  190 CLS:VDU 19,1,1,0,0,0:VDU 19,0,2,0,
0,0
  200 PRINT'''"INLAND DIRECT DIALLED CAL
LS:"
  210 PRINT'"STD. RATE: 8-9 AND 13-18, M
-F"
  220 PRINT"PEAK RATE: 9-13, M-F"
  230 PRINT"CHEAP RATE AT ALL OTHER TIME
S"
  240 PRINT'"TIME (SEC.) FOR 1 CHARGE UN
IT (";C;"P)"
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  250 PRINT''"CHARGE-LETTER   CHEAP STAN
DARD PEAK"
  260 PRINT''"LOCAL          L";:J=1:PROCcha
rgeD:PRINT" "
  270 PRINT"UP TO 56 KM A";:J=2:PROCchar
geD:PRINT" "
  280 PRINT"OVER 56 KM  B";:J=3:PROCchar
geD:PRINT" "
  290 PRINT"LOW COST    C";:J=4:PROCchar
geD:PRINT" "
  300 PRINT"IRISH REP.  E";:J=5:PROCchar
geD:PRINT" "
  310 PROCletter
  320 PROCsf
  330 TIME=0
  340 CLS:PRINT''"LENGTH OF CALL ="
  350 PRINT''"COST OF CALL ="
  360 PRINT''"COST INCLUDING VAT ="
  370 PRINT'''"KEY 'F' WHEN YOU HAVE FIN
ISHED"
  380 PROCdisplayD
  390 PRINT TAB(7,20)"SPACE BAR FOR NEXT
 CALL"
  400 REPEAT:KEY$=GET$:UNTIL KEY$=" "
  410 GOTO 120
  420 CLS:VDU 19,1,1,0,0,0:VDU 19,0,4,0,
0,0
  430 PRINT''"INTERNATIONAL DIRECT DIALL
ED CALLS:"
  440 PRINT''"STD. RATE: 8-20, M-F"
  450 PRINT"CHEAP RATE AT ALL OTHER TIME
S"
  460 PRINT"NO CHEAP RATE ON CHARGE BAND
 5B"
  470 PRINT''"TIME (SEC.) FOR 1 CHARGE UN
IT (";C;"P)"
  480 PRINT''"CHARGE BAND     CHEAP
  STANDARD"
  490 FOR J=1 TO 5
  500 PRINT TAB(5);J;TAB(18);DT(J,1);TAB
(31);DT(J,2)
  510 NEXT
  520 PRINT''"CHARGE BAND (1-5)?"
  530 KEY$=GET$
```

```
  540 CL=VAL(KEY$):IF CL<0 OR CL>5 THEN
530
  550 PRINT"RATE (C,S)?"
  560 REPEAT:KEY$=GET$:UNTIL KEY$="C" OR
 KEY$="S"
  570 IF KEY$="C" THEN R=1
  580 IF KEY$="S" THEN R=2
  590 GOTO 320
  600 PRINT''"CALL INLAND OR INTERNATION
AL? (L/T)"
  610 REPEAT:RE$=GET$:UNTIL RE$="L" OR R
E$="T"
  620 IF RE$="T" THEN 900
  630 CLS:VDU 19,0,2,0,0,0
  640 PRINT''"INLAND OPERATOR CONNECTED
CALLS:"
  650 PRINT'"STD. RATE: 8-9 AND 13-18, M
-F"
  660 PRINT"PEAK RATE: 9-13, M-F"
  670 PRINT"CHEAP RATE AT ALL OTHER TIME
S"
  680 PRINT''"CHARGE PER MINUTE (MINIMUM
3 MIN; 9 MIN ON LOCAL CHEAP RATE)."
  690 PRINT TAB(20)"NORMAL       LOWER"
  700 PRINT"CHARGE-LETTER    CH  ST  PK
  CH  ST  PK"
  710 PRINT"LOCAL       L";:J=1:PROCchar
geO:PRINT" "
  720 PRINT"UP TO 56 KM A";:J=2:PROCchar
geO:PRINT" "
  730 PRINT"OVER 56 KM  B";:J=3:PROCchar
geO:PRINT" "
  740 PRINT"LOW COST    C";:J=4:PROCchar
geO:PRINT" "
  750 PRINT"IRISH REP.  E";:J=5:PROCchar
geO:PRINT" "
  760 PROCletter
  770 PRINT"NORMAL OR LOWER CHARGE (N,L)
?"
  780 REPEAT:KEY$=GET$:UNTIL KEY$="N" OR
 KEY$="L"
  790 IF KEY$="L" THEN R=R+3
  800 PROCsf
  810 TIME=0
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```
 820 CLS:PRINT''"LENGTH OF CALL ="
 830 PRINT''"COST OF CALL ="
 840 PRINT'''"COST INCLUDING VAT ="
 850 PRINT''''"KEY 'F' WHEN YOU HAVE FIN
ISHED"
 860 PROCdisplayO
 870 PRINT TAB(7,20)"SPACE BAR FOR NEXT
 CALL"
 880 REPEAT:KEY$=GET$:UNTIL KEY$=" "
 890 GOTO 120
 900 CLS:VDU 19,0,4,0,0,0
 910 PRINT''"INTERNATIONAL OPERATOR CON
NECTED CALLS:"
 920 PRINT''"STANDARD RATE AT ALL TIMES"
 930 PRINT"PERSONAL CALL SURCHARGE (1)"
;S1;"P OR (2)";S2;"P MAY BE PAYABLE"
 940 PRINT''"CHARGE PER MINUTE (MINIMUM
 3 MIN)."
 950 PRINT''"CHARGE-BAND"TAB(20)"CHARGE
"
 960 FOR J=1 TO 5
 970 PRINTTAB(5);J;TAB(23);PT(J)
 980 NEXT
 990 PRINT'"CHARGE-BAND (1-5)?"
1000 KEY$=GET$
1010 CL=VAL(KEY$):IF CL<0 OR CL>5 THEN
1000
1020 PRINT"PERSONAL CALL SURCHARGE? (0,
1,2)"
1030 REPEAT:KEY$=GET$:UNTIL VAL(KEY$)=0
 OR VAL(KEY$)=1 OR VAL(KEY$)=2
1040 IF VAL(KEY$)<0 OR VAL(KEY$)>2 THEN
 1040
1050 IF KEY$="0" THEN SC=0
1060 IF KEY$="1" THEN SC=S1
1070 IF KEY$="2" THEN SC=S2
1080 GOTO 800
1090 DEF PROCchargeD
1100 FOR K=1 TO 3:PRINTTAB(8+K*8);DL(J,
K);:NEXT
1110 ENDPROC
1120 DEF PROCletter
1130 PRINT''"CHARGE LETTER (L,A,B,C,E)?"
1140 REPEAT:KEY$=GET$:UNTIL KEY$="L" OR
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 KEY$="A" OR KEY$="B" OR KEY$="C" OR KEY
$="E"
 1150 IF KEY$="L" THEN CL=1
 1160 IF KEY$="A" THEN CL=2
 1170 IF KEY$="B" THEN CL=3
 1180 IF KEY$="C" THEN CL=4
 1190 IF KEY$="E" THEN CL=5
 1200 PRINT"RATE (C,S,P)?"
 1210 REPEAT KEY$=GET$:UNTIL KEY$="C" OR
 KEY$="S" OR KEY$="P"
 1220 IF KEY$="C" THEN R=1
 1230 IF KEY$="S" THEN R=2
 1240 IF KEY$="P" THEN R=3
 1250 ENDPROC
 1260 DEF PROCsf
 1270 PRINT'"KEY 'S' WHEN YOU ARE CONNEC
TED"
 1280 PRINT"KEY 'F' WHEN YOU HAVE FINISH
ED"
 1290 REPEAT:KEY$=GET$
 1300 UNTIL KEY$="S"
 1310 ENDPROC
 1320 DEF PROCdisplayD
 1330 MK=0:ML=0
 1340 REPEAT
 1350 T=INT(TIME/100):IF T=0 THEN PP=0:G
OTO 1380
 1360 IF RE$="T" THEN PP=T/DT(CL,R):GOTO
 1380
 1370 PP=T/DL(CL,R)
 1380 UP=INT(PP)
 1390 CH=INT((UP+1)*C)
 1400 VA=INT(CH*(100+V)/100)
 1410 PRINT TAB(23,2);T;" SECS"
 1420 PRINT TAB(23,5);CH;" P "
 1430 PRINT TAB(23,8);VA;" P "
 1440 PRINTTAB(ML,29)" "
 1450 MK=40*(PP-UP):PRINTTAB(MK,29)CHR$(
240)
 1460 ML=MK
 1470 UNTIL INKEY(-68)
 1480 ENDPROC
 1490 DEF PROCchargeO
 1500 FOR K=1 TO 6:PRINTTAB(14+K*4);INT(
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PL(J,K)+.5);:NEXT
 1510 ENDPROC
 1520 DEF PROCdisplayO
 1530 MK=0:ML=0
 1540 REPEAT
 1550 T=INT(TIME/100):PP=T/60
 1560 IF T<180 AND(RE$="T" OR RE$="L" AN
D(CL>1 OR CL=1 AND R>1))THEN UP=2:PP=PP/
3+UP:GOTO 1590
 1570 IF T<540 AND CL=1 AND RE$="L" THEN
 UP=8:PP=PP/9+UP:GOTO 1590
 1580 UP=INT(PP)
 1590 CH=INT((UP+1)*PL(CL,R)):IF RE$="T"
 THEN CH=INT((UP+1)*PT(CL))+SC
 1600 VA=INT(CH*(100+V)/100)
 1610 PRINT TAB(23,2);INT(T/60);"  MINS"
 1620 PRINT TAB(23,5);CH;" P "
 1630 PRINT TAB(23,8);VA;" P "
 1640 PRINT TAB(ML,29)" "
 1650 MK=40*(PP-UP):PRINT TAB(MK,29)CHR$
(240)
 1660 ML=MK
 1670 UNTIL INKEY(-68)
 1680 ENDPROC
 1690 DATA 4,4,15,480,120,90,144,45,30,4
8,16,12,60,20,15,15,8,8
 1700 DATA 9,25,7,4,9,25,7,5,6,15,4,95,5
,65,4,8,1,3,1
 1710 DATA 2.6667,8,8,.5556,3,3,10,13,16
,2,6,9,14,24,29,6,17,22
 1720 DATA 13,20,25,5,13,18,26,40,40,26,
40,40
 1730 DATA 62,62,80,95,146,200,400
```

Variations

Telephone charges are certain to change from time to time, and one may always hope for a welcome reduction in VAT. Provided that the structure of the charging does not alter drastically, the program can easily be modified for new charge rates. The DATA lines are made up as follows:

Line 1690: The cost of one charge unit for a direct dialled call (currently 4.4p), the VAT rate (15%), then the times in seconds allowed for one charge unit for Inland dialled calls (in order, row by row, as listed on the screen display).

Line 1700: Times in seconds allowed for one charge unit for International dialled calls.

Lines 1710 and 1720: Charges (pence per minute) for Inland operator calls.

Line 1730: Charges (pence per minute) for International operator calls, the personal call surcharge (Bands 1-3) and the personal call surcharge (Bands 4-5).