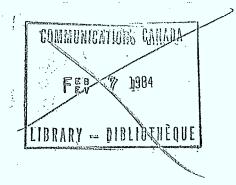
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DBC-P Modified Version of UHF-TV :

Allotment Program



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I - PURPOSE OF THE COMPUTER PROGRAM

The UHF-TV Channel Allotment Program has been developed to allot a requested number of channels, usually from channel 14 through 69, to a specified set of communities, subject to the following:

(1) <u>Compatability</u>. New allotments must be compatible with each other and with existing allotments.

In the following, the term allotment is used to denote either an approved or existing transmitter for a given channel at a specific site, or a channel planned (by D.O.C.) for a given town. In the latter case the channel does not have a fixed location.

- (2) <u>Priorities</u>. The user may specify that certain requests are more important than others.
- (3) Minimum impact. Where a choice exists, the allotment which has the least impact on future spectrum availability in surrounding communities will be chosen.

II- OVERVIEW OF THE SYSTEM

There are two files that can be accessed by the main source file SCOSUHF: the DATA file or "DATAASS" and an output DUMP file or "UHFOUT".

The DATA file contains distance tables and all the relevant Canadian and U.S. UHF-TV data for regular and low power stations. Both protected channels and new requests are found in that file.

Should there be a need to run just a few cities or a small part of a province, and if the channels selected are acceptable, these channels may be frozen and a partial plan may be built around them. The UHF allotment program will dump at the user's request such information onto an output file listed as "UHFOUT" and the information will appear in the proper format ready to be inserted into that part of the UHF data file where protected stations are listed.

To execute the UHF Allotment Program the user should call upon XUHF. The latter will set all input/output ports as well as run the program.

III- THE INPUT DATA FILE "DATAASS"

Requests and Protected Channels

100.000	CHRIS	ВС	4927001181229	42	1500
101.000	CHRIS	ВC	4927001181229	42	1500
102.000	CHRIS	ВС	4927001181229	42	1500
103.000	CHRIS	ВC	4927001181229	42	1500
104.000				4	0001
395.000				-	-0001
396.000					
400.000	26ARMSTRONG	ВC	5027001191200	22	1001
401.000	49ASHCROFT	ВC	5043001211700	22	1002
402.000	14CAMPBELL RIVER	ВC	5001001251500	22	1003
403.000	51CAMPBELL RIVER	ВС	5001001251500	22	1003
404.000	41CASTLEGAR	ВС	4919001174000	22	1004
405.000	14CHILLIWACK	ВC	CBUF4906361215047	22	1005

Each request must be entered into the data file according to the following format:

123	4567890123456789	0123	4567	890123	4567890	123	45678
Blank Channel	City name	Prov	Call sign	Latitude	Longitude	Class Blank	Town number

For channel REQUESTS, columns 2 and 3 are left BLANK. For channels which have to be protected, columns 2 and 3 indicate the correct channel.

Columns 24 to 27 are left BLANK to indicate a vacant allotment or are given a four letter call sign to show that a specified site is being proposed. Since it is often the case that the exact location of a transmitter is unknown, it is specified that the transmitter will be anywhere inside a certain circle. The center of the circle is generally the post office location in the town. The diameter of the circle is a program parameter. A diameter of FLEXC (default: 10 miles) is used for co-channel interference; a diameter of FLEXT (default: 5 miles) is used for adjacent channel interference. Maximum flexibility only occurs between two allotments. If one or both have a call sign, the flexibility is reduced to one-half or to nil.

Column 42 indicates the class by a number code:
Class C stations are shown as 3, class B as 2, class A
as 1 and Low Power stations appear as 4. A U.S. station
is shown as a BLANK but the parameters used are those
of a class C by default.

Column 43 contains a 1 or a 2 to reflect the geographical situation of the channel; Zone 1 denotes a "high density" area.

Columns 44 to 48 must show a 5-digit number. A different number is given to each town; up to 09999 for Canadian towns. All U.S. protected channels must have an associated town number equal to or above 13000.

Whenever more than one request exist in the same town it is imperative that the town numbers be identical.

Channel requests can be arranged into as many as 8 different priority groups. This is done by inserting a line containing +0001 in columns 44 to 48 to separate each priority group. When all requests are entered into the data file, a line containing -0001 (columns 44 to 48) must be inserted, followed by a completely BLANK line. Then the protected channels are entered and they are followed by a completely BLANK line which signals the end of the UHF data file.

Distances

"Taboo Distances" refer to the minimum distance permitted between transmitters.

The first 32 lines of the UHF data file (DATAASS) contain the Canadian Taboo Distances: Presentation of the data is such that the lines represent Taboo Distances from -15 through +15, line 16 reflecting the co-channel taboo for zone 2 and line 32 reflecting the co-channel taboo for zone 1. These 32 lines also contain 16 columns. The latter represent the Taboo Distances between each of the four classes of stations and all the other classes alternatively. The order that is followed is A-A, A-B, A-C, A-LP, B-A, B-B, B-C, B-LP, C-A, C-B, C-C, C-LP, LP-A, LP-B, LP-C and LP-LP such that the first member of the couple represents the class of the protected channel and the second member of the couple that of the requested channel.

Line 33 of the data file contains the U.S. Taboo Distances in the following order: ± 1 , ± 2 , ± 3 , ± 4 , ± 5 , ± 6 , ± 7 , ± 8 , ± 9 , ± 10 , ± 11 , ± 12 , ± 13 , ± 14 , ± 15 , co-channel zone 1 and co-channel zone 2.

Lines 34 to 39 of DATAASS contain distance tables from B.P.5, issue 2, 1962 ed. which give North-South distance in miles per degree of latitude at a certain latitude and the East-West distance in miles per degree of longitude at a given longitude.

Lines 40' to 71 give the Taboo Distances that are required when co-siting of regular or low-power stations (of the same class) is involved. The lines are for Taboo -15 through +15 and the columns are for classes A-A, B-B, C-C and LP-LP respectively.

All distances contained in the UHF data file are in miles. Furthermore, Taboo Separations are now being revised by D.O.C. and thus are subject to further modifications.

Main program

The program reads and stores information about towns in the study area. It does so by reading the data file where it finds the pertinent information with respect to the protected channels and the new requests as well as the distance tables.

Once the initial conditions (initialization) have been satisfied the program proceeds to satisfy the requests, one at the time. It handles the requests by priority, satisfying all requests at the highest priority first and continuing through lesser priority requests. The highest priority has the lowest priority number. Within each priority the worst town (the one first chosen for allotment) is the one which has the most unfavourable, hence the lowest, ratio of number of available open channels to number of unsatisfied requests.

The number of available open channels at a town is usually less than the number of open channels because, in general, some open channels would interfere with each other and therefore could not be allotted simultaneously.

The algorithm used to determine the number of available channels is only an approximate of the true value. It takes the lowest numbered open channel, counts it, blocks out all mutually interfering channels, chooses the next remaining open channel, counts it and so on. The actual number of available channels is not less than the number obtained by the program and not greater than the count of open channels.

Since the algorithm to count the number of available channels is destructive of the VALUE array, the portion of the array needed for this count is copied to a separate vector TEST where the count takes place.

If there are no remaining open channels at a town and outstanding requests are present, an error message is produced and the count of requests for that town is reduced to zero and the count of requests at each priority is correspondingly reduced.

"Impacts" follow the "Channel Criteria". A measure of total impact is given for each available channel at the selected town (unavailable channels are given a total impact of zero). This is the total of the impact coefficients corresponding to all allotments which would conflict with the allotment of that channel to the selected town.

The channel selected will be the one with the lowest positive total impact. If there is a "tie", the lowest channel number will be assigned.

The main program then allots the new channel and reassesses the channel importance and the number of available channels at all towns which are affected by the new allotment.

Program limitations

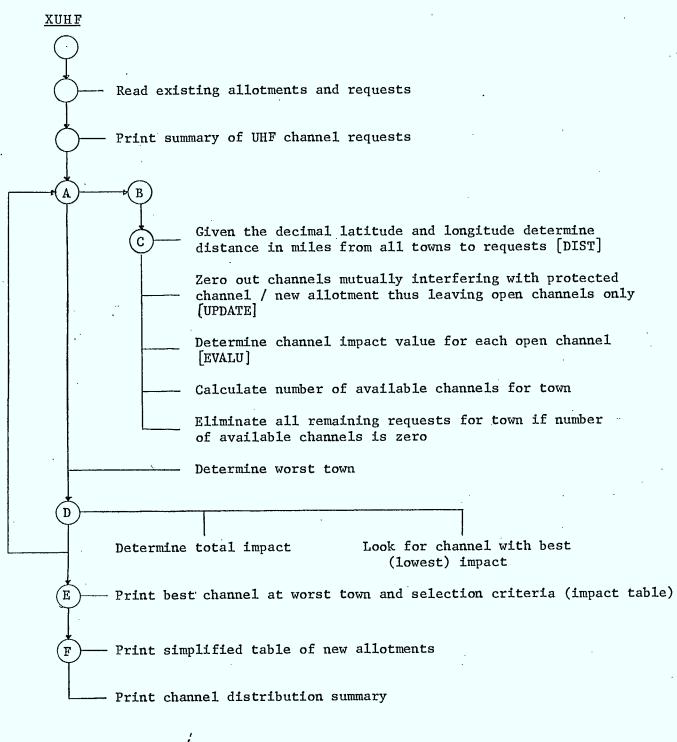
The following parameters limit various aspects of the problems handled by the UHF-TV Allotment Program. Most can be changed by minor program modifications.

- (1) Problem size. The maximum number of towns in the study area must not exceed 150.
- (2) Channels per town. A maximum of eleven new allotments per town is allowed during each run of the allotment program.
- (3) Range of channels. The program may allot UHF-TV channels from channel 14 to 83 unless otherwise specified by the user. Usually channel limits range from channel 14 to channel 69.

V - PROGRAM OUTPUT

The program user can choose between two main possible output formats. The maximum output gives the detailed channel impact matrix for each channel and for each town following the priority scheme. The minimum output of the system consists of a simplified progress check on the new allotments. In both cases an additional table giving the channel distribution summary is printed.

A very concise flow diagram summarizing the rationale followed by the UHF-TV Allotment Program is given in Figure 1. The three subroutines called upon by the main program are referred to as well in Figure 1. They are SUBROUTINES DIST, UPDATE and EVALU.



- A For each priority at which requests exist
- $\ensuremath{\mathtt{B}}\xspace$ For all requests outstanding at this priority
- C If town under consideration is different from previous town
- D-- For each open channel at the worst town
- E-- If print option 1
- F If print option 2

Figure 1: Flow of the UHF-TV Allotment Program

APPENDIX A: GLOSSARY

- adjacent channels two different channels which may interfere with each other
- available channels an estimate of the maximum number of new allotments which could be made at a town without mutual interference
- <u>best channel</u> the open channel at the worst town having the lowest impact
- <u>channel impact value</u> a numeric measure of the relative importance of loosing a given open channel at a given town due to a conflicting new allotment
- co-channel two allotments on the same channel

- request a number of new allotments desired for a given location
- taboo the minimum distance between two allotments on the same or adjacent channels necessary to avoid interference
- town a location at which one or more channels are allotted or at which new requests have been made. Each town has a unique 5-digit town code, a name and a location (latitude and longitude)
- worst town the town having the lowest non-zero ratio of number of available channels to unsatisfied requests

APPENDIX B: USEFUL PROGRAM VARIABLES

DENOM - Number of open channels which interfere with the channel being calculated

RATIO (150) - The ratio of maximum number of channels remaining for allotment and number of new allotments desired for each town i

TEST (56) - Temporary array to hold channel (whose index is i) impact values for a town when counting number of available channels as the counting process is destructive

TIMP (56) - Temporary array to hold channel (whose index is i) impact values for a town when counting the total channel impact as the counting process is destructive

VALUE (56,4,150) - The channel impact values. The inverse of the number of channels at town k which would mutually conflict with the channel whose class is j and whose index is i. If = 0.0 use of the channel has been precluded by some previous allotment.

MCH (11,150) - A list of channels newly allotted to town j; by channel number

APPENDIX C: PROGRAM PRINT OUT (SCOSUHF)

APPENDIX F : DETAILED PROGRAM LOGISTICS

DBC-P Modified Version of UHF-TV Allotment Program

SET F : 200 / DATAASS ; IN To read the DATA file

SET F : 201 / UHFOUT ; OUT As an output DUMP file

<u>Refe</u> <u>line</u>				Comments
8 -	-	33.1		Dimensioning of arrays and declaring of parameters
2	1			Definition of classes '', 'A', 'B', 'C', 'LP' where '' or "BLANK" represents U.S. station
26 -	•	2,7		Enter channel limits (LOW , HIGH)
24 -	-	45		<pre>Initialization of several variables (VALUE = 1)</pre>
4	6			Elimination of channel 37 from plan (i.e. VALUE = 0)
47 -	•	5 5		Read in Canadian and U.S. Taboo distances
56 -		61		Read in distance tables as listed in B.P.5 issue 2, 1962 (miles per degree of latitude and miles per degree of longitude)
61.1 -	•	61.2	·	Read in Canadian Taboo distances allowing for co-siting
62 -		7 3		Further initialization

			·
74	-	7 7	Read in each channel request
78		119	Totalize number of requests per priority per town
89		90	Calculate latitude and longitude (in decimal degrees) of every town for which there exists a channel request
121		130	When last request under lowest priority group (highest priority number) is read, tabulate the requests as a summary of UHF channel requests
131	-	139	Possibility of wiping off any other channel (than channel 37) by entering town and channel number (then VALUE = 0)
	140		Prints the action that is taken at this stage in the program
153	· . -	164	Read in all protected channels and measure effect on all towns for which there exists a channel request
153		1.5 4	Read in each protected channel from DATAASS
155	-	157	Calculate latitude and longitude (in decimal degrees) of every town which has a protected channel
	158		If protected channel is in U.S. town, class is defaulted to a Canadian "C" class
159	-	161	Call for subroutine DIST
363	-	386	Subroutine DIST
			Given the decimal latitude and longitude of all towns, determine the distance in miles from each protected channel to every request following the procedure outlined in B.P.5 issue 2, 1962. The algorithm makes allowances for the spheroid shape of the earth. If distance

separation

for the spheroid shape of the earth. If distance is greater than 250 miles default to that mileage

		r	
159		162	Call for subroutine UPDATE
387	_	433	Subroutine UPDATE
·		÷	Given a protected channel at a given location determine its effects on the channels in the towns for which there exists a channel request. If the two are mutually interfering, block the channels in those towns
(399.1	-	399.14)	Given the distance between the protected channels and the towns for which there exists a request, if the distance is less than or equal to 40 meters (0.02485 miles) the 2 channels are considered to be c0-sited and their fields at 1 km from the transmitter are not permitted to differ by more than 0.5 dB
(394		397)	Determine if protected channel is in Canada or in the U.S.
(400	-	407)	Determine FLEX (full, half or none) to be used given each couple of protected channel - requested channel
(409	-	413)	Determine which Taboo table is to be consulted: * REQ if protected channel is in U.S. * REQD if protected channel and requested channel are in Canada * REQC if co-siting is involved If the protected channel is a U.S. low-power station then the Canadian Taboo table is used. In order to co-site two channels they must be of the same class
(414	-	421)	Check for zone in case of co-channel and read corresponding line of Taboo tables: Lines 16 and 55 for zone 2 in the non co-sited and co-sited case respectively, and lines 32 and 71 for zone 1
(417	-	422)	Given above factors determine exact separation required for each Taboo
(423	-	431)	If actual distance between protected channel and request is less than that required, zero out that channel (i.e. VALUE = 0)
		,	

162

At this point in the program non zero entries in array VALUE indicate open channels (Initialized VALUE = 1)

159 - 163

Call for subroutine EVALU

434 - 460

Subroutine EVALU

165 - 170

Choice of output is given

172 - 224

For each priority, the "channel criteria" are used to select the town to receive the next allotment. Four numbers are reported for each town.

- (1) Total number of outstanding requests at the current priority
- (2) Total number of requests
- (3) Maximum number of channels available at this town *
- (4) Ratio of (3) to (2), or zero if (1) is zero
- * The algorithm used to determine the number of available channels is only an approximate of the true value. It takes the lowest numbered open channel, counts it, blocks out all mutually interfering channels, chooses the next remaining open channel, counts it, and so on.

(209 - 220)

Select worst town.

The town selected will have the lowest positive ratio of available-to-requests. If two towns under the same priority have the same ratio, then the one with the most requests is handled first

225	-	228			Prints the action program
229		231		,	Call subroutine I in miles from wor
232	-	275	·		Evaluate total in worst town. It is of each open char with the channel nation on whether under request worsame basis as in
					The sequence of the final impact, DO I to calcul for which DO N2 look at a DO ICL and for a DO MCH look at a then calculate
					TIMP = TIMP(I) + where TIMP(I) = 0 WE = weight
				,	
273	-	275			Allot new channel Choose best chann the worst town ha is done systemati numbered open cha value, going to t comparing its imp channel below it lowest impact
278		293	<i>(</i>		Formatting and wr

n taken at this point in the

DIST to determine the distance rst town to all other requests

mpact for each channel at the s the sum of the impact values nnel blocked (mutually interfering) under consideration. Determier a channel at another town uld be blocked is made on the subroutine UPDATE

nested DO loops involved for figure is as follows:

late impact of each channel I h VALUE = 0

each town under request

all possible classes at that town

each Taboo related to channel I

+ VALUE(ICHA, ICL, N2) * WE * CW

initially

ting factor = 0.5 for class LP

1 for class A

2 for class B

3 for class C

1.

nel i.e. the open channel at aving the lowest impact. This ically by taking the lowest annel looking at its impact the next open channel above pact value to that of the and keeping the channel with

Formatting and writing of impact table for maximum program output i.e. option 1

294	-	309	For each and every new allotment reassess the channel importance and the number of available channels at all towns under request which are affected by the new allotment. Thus new allotments are added to the list of protected channels
	310		Do all of the above for next worst town
3·11	-	323	Formatting and writing of minimum program output i.e. part of option 1 and option 2
324		329	Writing new channel allotment on UHFOUT file
330		360	Calculate, format and write channel distribution summary
	361		Stop
	362		End

;

```
TYPE SCOSUHF
 1.000 C
             DBC-P MODIFIED VERSION OF UHF-TV ALLOTMENT PROGRAM
 2.000 C
             NOTE: SET DEVICE 200 TO READ THE DATA FILE
 3.000 C
             NOTE: SET DEVICE 201 AS AN OUTPUT DUMP FILE
 4.000 C
             CLASS A. B. & C IN CANADA: FULL PROTECTION TO U.S.A.
             INCORPORATES BUILT-IN FLEX OF 10 & 5 MILES
 5.000 C
 6.000 C
             ELIMINATES ALL CHANNEL 37S FROM THE PLAN
             ALSO CAN DELETE ANY OTHER CHANNEL AS REQUIRED
 7.000 C
 8.000
             DIMENSION ALAD(150), ALAM(150), ALAS(150), ALOD(150), ALOM(150),
 9.000
            * ALOS(150)
             INTEGER*4 MCH(11, 150), NAVAIL(150, 4), NWANT(150, 9), OPT, MCL(9, 150)
10.000
11.000
            * .MCLA(11,150).CO
             REAL*4 LAT(75), LON(75)
12,000
13.000
             DIMENSION TIMP(71)
             DIMENSION TEST(/0), KATIO(401), PLACE(6)
14.000
15.000
             COMMON /A/ LAT, LON
             COMMON /B/CF(3, 150), MF(2, 150), REQD(-15:16, 4, 4), FC, REQ(0:17)
16:000
            * ,REQC(-15:16,4),FT,KAL(150),KALL,FLEXC
17.000
18.000
             COMMON/C/PLAC(6, 150), JOPUT
19,000
             COMMON/D/VALUE(70.4,150), LBGT, ITOP
             INTEGER CLA, CLASS, NALLO(150), LAVAIL(150)
20.000
             INTEGER KLASS(0:4) /' ','A','B','C','LP' /
21.000
22.000
             INPUT=200
23.000
             JUPUT=105
24,000
             L1MAF=150
25.000
             NCHA=0
26.000
             OUTPUT ENTER CHANNEL LIMITS (LOW, HIGH)
27,000
             INPUT(101)ILOW, IHIGH
28.000
             FC=10.
29.000
             FT=5.
30.000
             IBOT=ILOW-13
31.000
             TTOP=IH1GH-13
32.000.
             CW=I.
33.000
             PLW=0.
33.100
             C0=1
              INITIALIZATION
34.000 C
35.000 C
36.000
             DO 14 I=1, LIMAF
37.000
             DO 99 K=1.11
38.000
             MCLA(K, 1)=0
39.000
          99 MCH(K, 1)=0
             DU 98 L=1,9
40.000
41.000
             MCL(L, 1)=0
42.000
          98 NWANT(1,L)=0
             DO 14 J=IBUT, ITOP
43.000
```

```
44.000
                       DU 14 CLA=1,4
                      VALUE(J,CLA,1)=1:0
         45.000
         46.000 14
                       IF(J+13.EQ.37.) VALUE(J,CLA,1)=0.0
         47.000 C
         48.000 C
                       READ IN TABOOS AND DISTANCE PARAMETERS.
         49.000 C
9
         50.000
                      READ(INPUT, 501)(((REQD(1, J, K), J=1, 4), k=1, 4), l=-15, 16)
         51.000 501
                      FORMAT(16F5.1)
         53.000
                      KEAD(INPUT, 502)(REQ(1), 1=1, 17)
         54.000 502
                      FORMAT(17F6.1)
         55.000 1006 WRITE(JOPUT, 502)(REQ(1), I=1, 17)
                      READ(INPUT, 203)(LAT(I), I=35, 75)
         56.000
         57.000
                  203 FORMAT(16F5.3)
         58.000
                       DO 215 1=1, LIMAF
         59.000
                      DO 215 J=1,2
                  215 MF(J,1)=0
         60.000
                      READ(INPUT, 203)(LON(I), 1=35, 75)
         61:000
                      READ(1NPUT, 205)((REQC(1, J), J=1, 4), 1=-15, 16)
         61.100
         61.200
                   205 FORMAT(4F5.1)
         62.000
                      N1=1
         63,000
                       NGROUP=I
         64.000
                      LASTAF=LIMAF
         65.000
                      LASTRQ=0
         66.000
                      NR=I
         67.000
                       1D=0
         68,000
                      I=1
         69.000
                   18 1F(LASTRQ)/18,718,10
         70.000
                  718 1F(MCH(1,N1))10,10,16
         71.000
                   16 TCHA=MCH(1,N1)-13
         72.000
                      VALUE(ICHA, CLASS, 1)=0.0
         73.000
                      MCH(1,N1)=0
         74.000
                   10 READ(INPUT, 301)MCH(1, NR), (PLAC(J, NR), J=1, 5), KAL(NR),
                      TALAD(NR), ALAM(NR), ALAS(NR), ALOD(NR), ALOM(NR), ALOS(NR),
         75.000
         76.000
                      5CLASS, MF(2, NR), MF(1, NR)
         77.000
                  301 FORMAT(13, 6A4, 3F2.0, F3.0, 2F2.0, 12, 11, 15)
         78.000
                      NI=NK
         79.000
                       IF(MF(1,NR)-1000)11,11,13
         80.000
                   13 IF(LASTRQ)15, 15, 114
         81.000
                   15 1F(1D)210,210,216
         82.000
                  216 DO 19 I=1.1D
                      IF(MF(1,NR)-MF(1,1))19,17,19
         83.000
                   17 NWANT(1,9)=NWANT(1,9)+1
         84.000
         85.000
                      NWANT(1, NGROUP)=NWANT(1, NGROUP)+1
         86.000
                      MCL(NGROUP, 1)=CLASS
         87.000
                      GU TU 18
        88.000
                   19 CONTINUE
                  210 CF(1, NR)=ALAD(NR)+(ALAM(NR)*60.+ALAS(NR))/3600.
         89.000.
                      CF(2, NR) = ALOD(NR) + (ALOM(NR) * 60. + ALOS(NR)) / 3600.
        90.000
         91.00
                      NWANT(NR, 9)=1
                      NWANT (NR, NGROUP)=1
         92.0
                      MCL(NGROUP, NR)=CLASS
         93.000
```

105.000 110.000 111.000 112.000 113.000 114.000	GU TO 10 115 CONTINUS GU TO 210 11 IF(NF(I, NK))/21/2, 1/2, 21/2 21/2 LNSTK(=1D NSTAKT=NK LNSTON=NGKOUP
115.000 116.000 117.000 116.000 126.000 121.000 122.000 123.000 125.000 127.000 128.000 128.000 128.000 128.000 128.000 128.000 128.000 128.000 128.000	Att=ni-1 215 NGROUP=nGROUP+1 GO TO TO 12 LASTAR=1D 1 ASTEF=1 white(JOPUT, JUD) JUD FORANT(//,Tot,'Sthman' OF the Charable Requests',/,Tot, *'
155.000 155.000 155.000 157.000 158.000 159.000 140.000	UUTPUL'ENT BY PRESSING "REIDRN" 'NVICE' INPUT NONTO, INCH IF (NONTO, EQ. 0) GOTO DIS BO DIA CLA=1,4 VALUE(INCH-10, CLA, NONTO)=0.0 JI4 CONTINUE GOTO ZIA JID OUTPUL'** CHANNEL INPACT NATRIX NOW BEING CONFORD!' DO DO KRENSTART, LASTAR ZOIZ CALE DIDTCF(I, NK), CF(Z, NK), INSTARP) K=() DI K=KT1 IF (NCH(K, NK)) DO, UC, UZ
148.000 149.000 150.000 151.000 152.000 154.000 156.000 157.000	Trake=ar(2, kg) ,
166.000 170.000 171.000 171.000 172.000 173.000 173.000 176.000	2001 OUTFUT FOR DETAILED IMPACT MAINTX FOR EACH CHANNEL, ENTER 1' OUTFUT FOR SIMPLIFIED PROGRESS CHECK ON ALLOTHERTS, ENTER 2' OUTFUT OUTFUT OFT INFOCUTION
176.000 179.000 160.000 161.000 162.000 163.000 165.100 160.000 167.000 169.000 189.000 159.000	C
152.00° 150.00° 154.000° 150.00° 150.00° 150.000° 250.000° 261.000° 262.000° 264.000° 263.000° 264.000° 260.000°	DO (21 J=1, 15
207.000 208.000 210.000 211.000 212.000 213.000 215.000 216.000 217.000 217.000 217.000 218.000 227.000 228.000 228.000 228.000 228.000 228.000 228.000 228.000 228.000 228.000 228.000 228.000 228.000	AVAIL=IAVAIL(NK)=NAVAIL(NK,NCL(NCROUP, NK)) WANT=NWANI(NK,9) AATIO(NK)=AVAIL/MANI IF(NATIO(NWORST,-KATIO(NK))/OI, /OO, /OS /OO IF(NWANI(NWORST, S),-NWANI(NK, S))/OS, /OI, /OI /OS NWCKSI=NK /OI CONTINUE IF(NWCKSI-LIMAF-1)43, 48, 40 46 WRITE(JUPUT, JOO)NOKOUP JOO IC 40
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•	(54) (64)	7.02	. UÙ 8. YU	. UO U . 65	4.44	7.01*	.00	5.50	0.83	5.56	4.42.				•				
	** (MANNEL	46LP A	ITOJEN J	in MF2TF		6.75											· · · · ·	
	** C	INANNEL T CASE CHANNEL		AT TORED T	o MF2TF	YVILLE			, ,			ì						• •	
· 	** (WUKS THE -(14)-	T LASE CHANNET	EXISTS IMPACT	AT TOUGH S AKE AS	.00.	EYVILLE EYVILLE S. OU*		.00	.00	.00	.00	ì							
· · · · · · · · · · · · · · · · · · ·	** (WURS THE (14)- (24) (34)	T CASE CHANNET .00 .00	46LP A EXISTS - IMPACT - 00 - 00 - 00	S WE Y	00 - 00 - 00	EYVILLE 	.00	.00	.00 .00 	.00	.00	1							
·	** C WUKS THE (14)- (24) (34) (44)- (54)	.HANNEL	46LP A EXISTS - IMPACT - 00 - 00 - 00 - 00 - 00	AT 10008 S AKE A: - 00 - 00 - 43 - 00 - 00	5 WESTE 5 FOLLOW - 00 - 00 - 00 - 00	EYVILLE EYVILLE (5	.00	.00	.00	.00	.00	1							
	** (WUKS THE (14)- (24) (34) (44) (54) (04)	1 CASE CHANNET - 00 - 00 - 00 - 7.79 - 00	46LP A EXISTS IMPACT .00 .00 .00 .00 .00 .00 .00	AT 10001 S AKE A: -00 -00 3.43 -00 -00 8.36	WESTE S WESTE S FOLLOW - OU - OU - OU - OU - OU - OU - OU - OU	.00* .00* .00* .00* .00* .00* .00* .00*	.00	.00	.00 .00 	.00	.00	1						•	
·	** (WUKS THE (14)- (24) (34) (44) (54) (04)	1 CASE CHANNET - 00 - 00 - 00 - 7.79 - 00	46LP A EXISTS - IMPACT - 00 - 00 - 00 - 00 - 00	AT 10001 S AKE A: -00 -00 3.43 -00 -00 8.36	WESTE S WESTE S FOLLOW - OU - OU - OU - OU - OU - OU - OU - OU	.00* .00* .00* .00* .00* .00* .00* .00*	.00	.00	.00 .00 	.00	.00	1							
	** (C WUKS THE (14)- (24) (34) (44) (54) (04) ** (CHANNEL CHANNEL CHANNEL .00 .00 .00 .7.79 .00 CHANNEL	46LP A EXISTS - IMPACT - 00 - 00 - 00 - 00 - 100 - 50 - 100 - 75	A1 1006 5 AKE A 00 .00 .00 .00 8.36	5 WESTE 5 FOLLOW -00 -00 -00 4.00 5.55	EYVILLE EYVILLE (5. 00* 00* 00* 7.07* 5.34* EYVILLE	.00	.00	.00 .00 	.00	.00	1				-;			
	** (C WOKS THE (14) (24) (34) (44) (04) ** (CHANNEL CHANNEL CHANNEL CO .00 .00 .00 .00 CHANNEL	46LP A EXISTS - IMPACT - 00 - 00 - 00 - 00 - 100 - 50 - 100 - 75	AT 1006 5 AKE A: -00 -00 -00 8 -56 LLOTED	5 WESTE 5 FOLLOW -00 -00 4.00 5.55	YVILLE YVILLE 'S00* .00* .00* .7.07* 5.34* EYVILLE	.00	.00 .00 .00 6.46	.00 .00 5.73 .00	.00 .00 .00 4.25	.00 .00 .00 3.62	1							
	** (WORS THE	CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL	EXISTS INFACT	MAT 10U64 S ARE AT 00 .00 J. 43 .00 8.36 LLUTED AT 304 S ARE A	00 WESTE 5 FOLLOW 00 00 4.00 5.55 10 WESTE 2 NOW, 100	CYVILLE CYVILLE CON CON CON CON CON SON SON SON	.00 .00 .00 .00 .00 5.96	.00 .00 .00 6.46	.00	.00 .00 .00 4.25	.00 .00 .00 3.62	1				-:			
	** (WORS THE (14)- (24) (34) (44) (54) (w4) ** (WORS THE (14) (24) (34)	CHANNEL CHANNEL OU OU CHANNEL CHANNEL ST CASE CHANNEL CO OU CHANNEL	EXISTS IMPACT	AT 10061 S ARE A: -00 -00 3.43 -00 8.36 LLOTED AT 304 S ARE A: -00 -00	5 WESTE 5 FOLLOW -00 -00 -00 -00 -00 -00 -00 -00 -00 -0	YVILLE (S00* .00* .00* .00* .5.34* EYVILLE II battle (S00* .00* .00* .00* .00* .00* .00* .0	.00 .00 .00 .00 .00 5.56	. 00 . 00 . 00 . 00 . 00 . 00	.00	.00 .00 .00 4.25	.00 .00 .00 3.82	1							
	** (WORS THE (14) (24) (34) (44) (54) ** (WORS THE (14) (24) (24) (24)		EXISTS - 100 - 00 - 00 - 00 - 00 - 00 - 00 -	AT 100bl S ARE A: -00 -00 -00 -00 -00 -00 -00 -00 -00 -0	5 WESTE 5 FOLLOW -00 -00 -00 4.06 5.55 TO WESTE 2 NORTH 5 FOLLOW -00 -00 -00	YVILLE (S		.00 .00 .00 .00 .00 .00 .00	.00	.00 .00 .00 4.25	.00 .00 .00 3.62	1							
	** (WORS THE (14)- (24) (34) (44) (54) (w4) ** (WORS THE (14) (24) (34)	CHANNEL CHANNEL OU OU CHANNEL CHANNEL ST CASE CHANNEL CO OU CHANNEL	EXISTS IMPACT	AT 10061 S ARE A: -00 -00 3.43 -00 8.36 LLOTED AT 304 S ARE A: -00 -00	5 WESTE 5 FOLLOW -00 -00 -00 -00 -00 -00 -00 -00 -00 -0	YVILLE (S00* .00* .00* .00* .5.34* EYVILLE II battle (S00* .00* .00* .00* .00* .00* .00* .0	.00 .00 .00 .00 .00 5.56	. 00 . 00 . 00 . 00 . 00 . 00	.00	.00 .00 .00 4.25	.00 .00 .00 3.82	1							
	** (WORS THE (14)-(24) (34)-(44) (54) ** (WORS THE (14) (24) (34)-(44) (54) (64)		EXISTS - 100 - 00 - 00 - 00 - 00 - 00 - 00 -	AT 10061 S ARE A: .00 .00 3.43 .00 8.36 LLUTED AT 304 S ARE A: .00 .00 .00 .00	5 WESTE 5 FOLLOW -00 -00 -00 -00 -00 -5.55 TO WESTE 2 NOK'II 5 FOLLOW -00 -00 -00 -00 -00 -00 -00 -00 -00 -0	YVILLE YVILLE S00* .00* .00* 5.34* EYVILLE II BATTLE SS: .00* .00* .00* .00*		.00 .00 .00 .00 .00 .00 .00	.00	.00 .00 .00 4.25	.00 .00 .00 3.82	1							
	** (WORS THE (14)-(24) (34)-(44) (54) ** (WORS THE (14) (24) (34)-(44) (54) (64)		EXISTS - 100 - 00 - 00 - 00 - 00 - 00 - 00 -	AT 10061 S ARE A: .00 .00 3.43 .00 8.36 LLUTED AT 304 S ARE A: .00 .00 .00 .00	5 WESTE 5 FOLLOW -00 -00 -00 -00 -00 -5.55 TO WESTE 2 NOK'II 5 FOLLOW -00 -00 -00 -00 -00 -00 -00 -00 -00 -0	YVILLE (S	1,50 .00 4,05 4,45	.00 .00 .00 .00 .00 .00 .00 .00	.00	.00 .00 4.25	.00 .00 .00 .00 .00 .00 5.48 6.72 5.30		·						
	** (WORS THE (14)-(24) (34) (44) (54) ** (WORS THE (14) (24) (24) (34) (44) (54) (64)	CHANNEL CHANNEL CO CO CO CHANNEL CHANNEL CHANNEL CO CO CO CHANNEL CO CO CO CO CO CO CO CO CO C	EXISTS INPACT	AT 10061 S ARE A:	5 WESTE 5 FOLLOW -00 -00 -00 -00 -00 -00 -00 -0	:YVILLE :YVILLE :S	1,50 .00 4,05 4,45	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00	.00 .00 4.25	.00 .00 .00 .00 .00 .00 5.48 6.72 5.30		·						
	** (WORS THE -(14)-(24) (34) (54) (04) ** (CHANNEL	EXISTS INFACT	AT 10068 AT 10068 AT 10068 AT 1006	0 WESTE 5 WESTE 00 .00 .00 .00 .00 .00 .00 .00 .00 .00	YVILLE YVILLE 'OU* 'OU* 'OU* 'OU* 'S-34* EYVILLE II BATTLE 'OU* 'OU*		.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00	.00 .00 .00 4.25	.00 .00 .00 .00 .00 .00 5.48 6.72 5.30		·						
	** (WORS THE (14) (24) (34) (44) (54) ** (WORS THE (54) (54) (54) (54) (54) (54) (54)	CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CO CO CHANNEL CO CO CHANNEL CO CO CO CO CO CO CO CO CO C	EXISTS INPACT	AT 10068 S AKE AT 00 J. 43	00 WESTE 5 FOLLOW -00 -00 -00 -00	:YVILLE :YVILLE :S	1.50 .00 .00 .00 .00 .00 .00 4.05 .00 4.45	.00 .00 .00 .00 .00 .00 .00 .7.64	.00 .00 .00 .00 .00 .00 .00	.00 .00 -00 4.25	.00 .00 .00 3.62		·						
	** (WORS THE (14)-(24) (34) (44) (54) ** (WORS THE (44) (24) (34) (44) (54) (54) ** (WORS THE (44) (24) (34) (44) (34) (44) (34)	CHANNEL CO CO CO CO CO CO CO CO CO C	EXISTS INPACT	AT 10061 S ARE A:	5 WESTE 5 FOLLOW -00 -00 -00 -00 -00 -00 -5.55 TO WESTE 2 NORT -00 -00 -5.27 -4.98 -5.80 TO NORT -00 -00 -00 -00 -00 -00 -00 -00 -00 -0	YVILLE (S	1,50 .00 .00 .00 .00 5,56	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00	.00 .00 -00 4.25	.00 .00 .00 3.62								
	** (WORS THE (24) (34) (54) (54) ** (** (44) (24) (34) (44) (54) (54) ** (44) (24) (54) (54)	CHANNEL	EXISTS INPACT	AT 10068 S AKE AT 000 3.43 -00 8.36 LLOTED AT 504 S AKE AT 00 7.06 LLOTED AT 1006 S AKE AT 000 -000 -000 -000 -000 -000	0 WESTE 5 WESTE 00 .00 .00 .00 .00 .00 .00 .00 .00 .00	YVILLE YVILLE 'OU* 'OU* 5.34* EYVILLE II BATTLE 'OU* 'OU* 5.62* H BATTLE EYVILLE EYVILLE 5.62* H BATTLE 5.62*	1.50 .00 .00 .00 .00 .00 4.05 .00 4.45	.00 .00 .00 .00 .00 .00 .00 .7.64	.00 .00 .00 .00 .00 .00 .00	.00 .00 -00 4.25	.00 .00 3.62								
	** (WORS THE (14)-(24) (34) (44) (54) (04) ** ((14)-(24) (34) (64) ** ((14)-(14)-(14) (24) (34)-(14)-(14)-(14) (34)-(14)-(14)-(14)-(14)-(14)-(14)-(14)-(1	CHANNEL	EXISTS INPACT	AT 10068 AT 10068 AT 10068 AT 200 AT	00 WESTE 5 WESTE 00 .00 .00 .00 .00 .00 .00 .00 .00 .00	YVILLE YVILLE (0)* (00* (00)* 5.34* EYVILLE (0)* (00)* (.00 .00 .00 6.46	.00 .00 5.73 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 .00 .00 .00 .5.46 .5.30								
	** (C	CHANNEL CO CO CO CO CO CO CO CO CO C	EXISTS INPACT	AT 1006 S ARE AT 000 S .00 S .	0 WESTE 5 WESTE 00 .00 .00 .00 .00 .00 .00 .00 .00 .00	:YVILLE ::YVILLE ::OU* :OU* :OU* :OU* :S.34* :EYVILLE ::I bATILE ::OU* :OU* :OU* :OU* :OU* :OU* :OU* :OU	1.50 .00 .00 .00 .00 .00 4.05 .00 4.45	.00 .00 .00 6.46	.00 .00 5.73 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 .00 .00 .00 .5.46 .5.30								
	** (WOKS THE (14) (24) (34) (54) (04) ** ((14) (24) (34) (44) (54) (64) ** ((44) (34) (44) (34) (44) (44) (44) (44	CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CHANNEL CO UD CHANNEL CO UD CHANNEL CO CO CHANNEL CO CO CHANNEL CO CHANNEL CO CO CHANNEL CO CO CO CO CO CO CO CO CO C	EXISTS - INPACT	AT 10068 S ARE AT 000 8.36 LLOTED AT 1006 S ARE AT 304 AT 1006 S ARE AT 000 7.06 LLOTED AT 1006 S ARE AT 000 7.05 LLOTED AT 1006 S ARE AT 000 7.05 LLOTED AT 304	0 WESTE 5 WESTE 00 .00 .00 .00 .00 .00 .00 .00 .00 .00	YVILLE YVILLE (0)* (00* (00)	1.50 .00 .00 .00 .00 .00 4.05 .00 4.45	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 5.73 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 .00 .00 .00 .5.46 .5.30								
	** (WORS THE (24) (34) (34) (44) (34) (24) (34) (44) (54) (54) (54) ** (*	CHANNEL	EXISTS IMPACT	AT 10068 S AKE AT 00 .00 J. 43 .00 .00 S. 36 LLUTED AT 1006 S AKE A .00 .00 7. 06 LLUTED AT 1006 S AKE A .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	00 WESTE 5 VESTE 5 VESTE 00 00 00 00 4.06 5.55 10 WESTE 2 NORT 5 FOLLO 00 00 4.06 10 NORT 6 WESTE 5 FOLLO 00 00 4.06 10 NORT 10 N	CYVILLE CYVILLE CON CON CON CON CON CON CON CO	1.50 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 3.62 .00 5.46 6.72 5.30								
	** (WORS THE	CHANNEL	EXISTS EXISTS - IMPACT - 000 - 000 - 000 - 100 - 75 - 36LP A EXISTS - 1MPACT - 000 - 0	AT 1006 S ARE AT 504 S ARE A 60 - 00 - 00 - 00 - 00 - 00 - 00 - 00	00 WESTE 5 WESTE 00 .00 00 .00 4.00 5.55 10 WESTE 2 NORTH 5 FOLLO 00 .00 5.27 4.98 5.80 10 NORTH 8 WESTE 5 FOLLO 00 .00 4.29 5.82 10 WESTE 2 NORTH 8 WESTE 10 WESTE	YVILLE YVILLE S00* .00* .00* 5.34* EYVILLE II BATTLE S00* .00* .00* .00* .00* .00* .00* .00	1.50 .00 .00 5.96 1.50 .00 4.05 4.45	.00 .00 .00 .00 .00 .00 .00 .7.64	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 3.62								
	** (** (CHANNEL CHANNEL	EXISTS IMPACT	AT 10068 S AKE A:	0 WESTE 5 WESTE 00 .00 .00 .00 .00 .00 .00 .00 .00 .00	YVILLE YVILLE S00* .00* .00* .00* .5.34* EYVILLE II BATTLE .00* .00* .00* .00* .00* .00* .00* .0		.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00								
	** (WORS THE (14) (24) (34) (54) (04) ** (CHANNEL	EXISTS IMPACT	AT 10068 S ARE AT 000 8.36 LLOTED AT 304 S ARE AT 304 S ARE AT 304 S ARE AT 304 S ARE AT 305 S A	0 WESTE 5 WESTE 100 .00 .00 .00 4.00 5.55 10 WESTE 2 NORTO .00 .00 .00 5.27 6.80 10 NORTO 10 NORTO 1	YVILLE YVILLE S00* .00* .00* 5.34* EYVILLE II BATTLE II BATTLE S00* .00* .00* .00* .00* 5.62* H BATTLE EYVILLE H BATTLE H BATTLE H BATTLE H BATTLE H BATTLE H BATTLE		.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 4.25	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00								

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