TALK MODE

CONDITION 1 : All channels are unoccupied (Free channel)

HANDSET   BASE

```
        ( START )                                    ( START )
            |                                            |
            v                                            |
  [ Activate Talk Mode ]                                 |
            |                                            v
            v
```

HANDSET

RECEIVER SCAN FOR FREE CHANNEL
From last channel stored in the H/S memory
ex. 43.720 MHz
CH1 CH2 CH3 ... CH5 ... ... CH25
|---|---|---|---|---|---|---|---|---|
50ms

TRANSMIT TALK DATA AND FREE CHANNEL DATA WHICH IS 43.720 MHz
It would continue sending data until it would
receive the acknowledgement code from base.
This would take <4 seconds and it would stop the
process, user must activate talk again.

RECEIVE DATA FROM BASE. DATA INCLUDES ACKNOWLEDGEMENT CODE AND CHANNEL DATA WHICH IS 48.760 MHz (CH1).

SINCE IT HAS RECEIVED DATA FROM BASE WITHIN THE SPECIFIED TIME OF 4 SECONDS, IT WOULD STOP SENDING DATA .

IT WOULD THEN LINK WITH BASE

RX Frequency : 43.720 MHz (CH1)
TX Frequency : 48.760 MHz (CH1)

(END)

BASE

RECEIVER SCAN FOR FREE CHANNEL
From this channel (48.760MHz)
CH1 CH2 CH3 ... CH5 ... ... CH25
|---|---|---|---|---|---|---|---|---|
25ms
Stores all free channel into its memeory.

RECEIVER RECEIVE DATA FROM HANDSET
It would use 48.760 MHz (CH1) for the receive
frequency.

SEND ACKNOWLEDGEMENT AND CHANNEL DATA USING 43.720 MHz
Channel data is 48.760 MHz (CH1)

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 43.720 MHz (CH1)
RX Frequency : 48.760 MHz (CH1)

(END)

TITLE : Model BE-25FA Automatic Channel Selection Mechanism
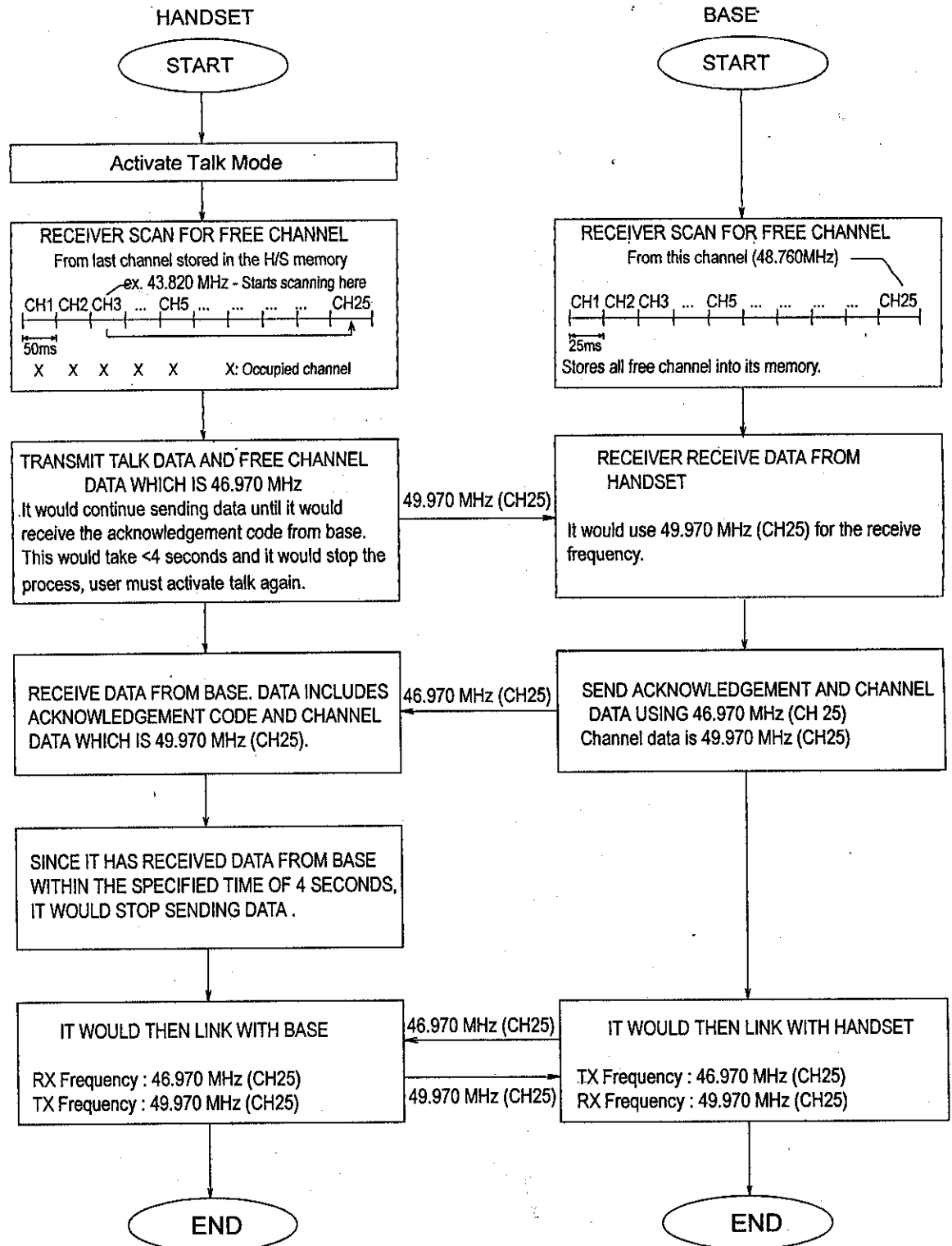
TALK MODE

CONDITION 2   : Multi channel on the base TX frequency are occupied.

Ex.   CH 1: 43.720 MHz   CH 4 : 43.840 MHz

CH 2: 43.740 MHz   CH 5 : 43.920 MHz

CH 3: 43.820 MHz

CH 3: 43.820 MHz - Stored channel during the last link in handset memory

HANDSET   BASE

(START)   (START)

Activate Talk Mode

RECEIVER SCAN FOR FREE CHANNEL

From last channel stored in the H/S memory

ex. 43.820 MHz - Starts scanning here

CH1 CH2 CH3 ... CH5 ... ... CH25

50ms

X   X   X   X   X   X: Occupied channel

RECEIVER SCAN FOR FREE CHANNEL

From this channel (48.760MHz)

CH1 CH2 CH3 ... CH5 ... ... CH25

25ms

Stores all free channel into its memory.

TRANSMIT TALK DATA AND FREE CHANNEL DATA WHICH IS 46.970 MHz

.It would continue sending data until it would receive the acknowledgement code from base. This would take <4 seconds and it would stop the process, user must activate talk again.

→ 49.970 MHz (CH25) →

RECEIVER RECEIVE DATA FROM HANDSET

It would use 49.970 MHz (CH25) for the receive frequency.

RECEIVE DATA FROM BASE. DATA INCLUDES ACKNOWLEDGEMENT CODE AND CHANNEL DATA WHICH IS 49.970 MHz (CH25).

← 46.970 MHz (CH25) ←

SEND ACKNOWLEDGEMENT AND CHANNEL DATA USING 46.970 MHz (CH 25)

Channel data is 49.970 MHz (CH25)

SINCE IT HAS RECEIVED DATA FROM BASE WITHIN THE SPECIFIED TIME OF 4 SECONDS, IT WOULD STOP SENDING DATA .

IT WOULD THEN LINK WITH BASE

RX Frequency : 46.970 MHz (CH25)
TX Frequency : 49.970 MHz (CH25)

← 46.970 MHz (CH25) ←
→ 49.970 MHz (CH25) →

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 46.970 MHz (CH25)
RX Frequency : 49.970 MHz (CH25)

(END)   (END)

TITLE : Model BE-25FA Automatic Channel Selection Mechanism

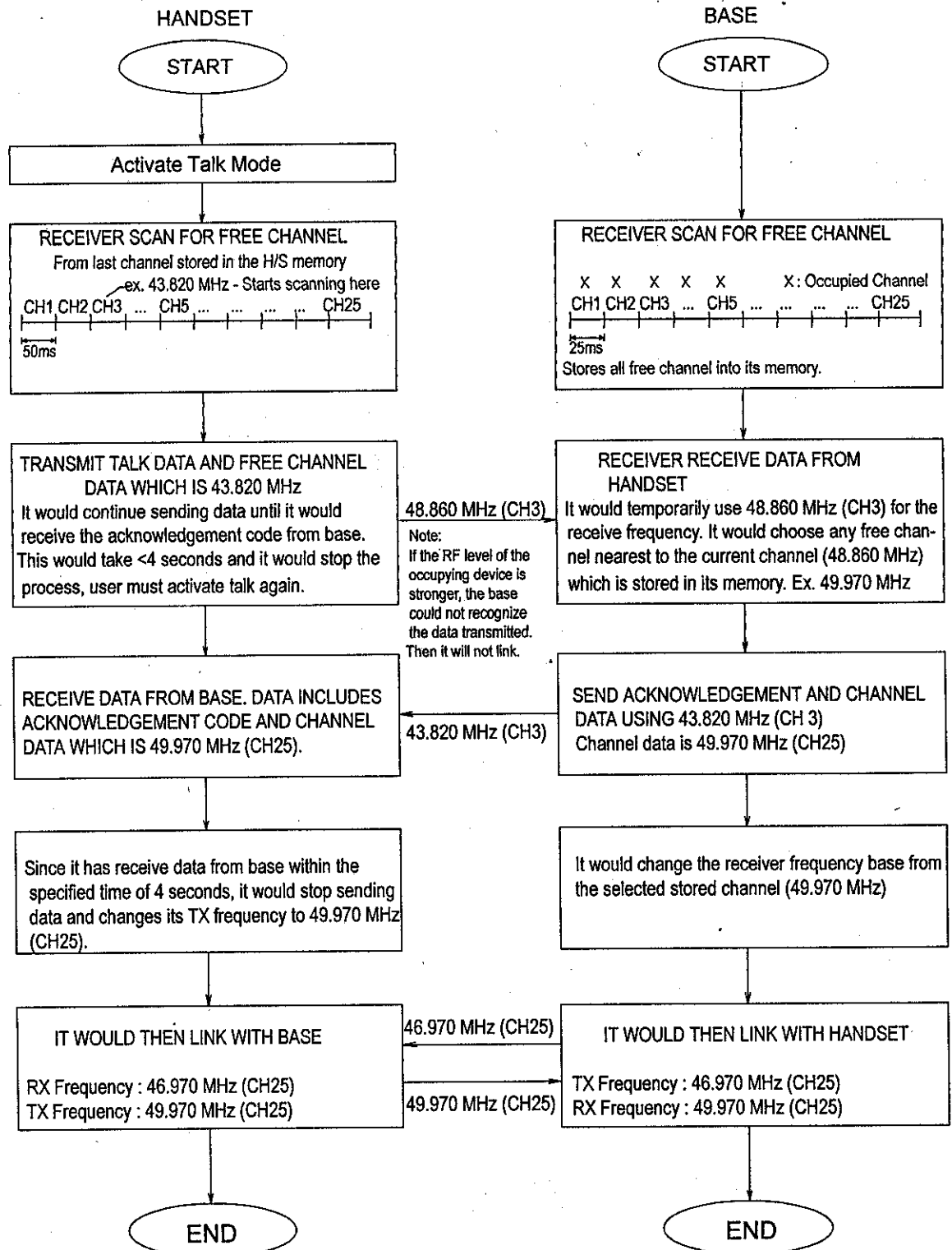## TALK MODE

CONDITION 3   : Multi channel on the Handset TX frequency are occupied.

         Ex. CH 1: 48.760 MHz   CH 4 : 48.920 MHz

            CH 2: 48.840 MHz   CH 5 : 48.020 MHz

            CH 3: 48.860 MHz

CH 3: 43.820 MHz - Stored channel during the last link in handset memory
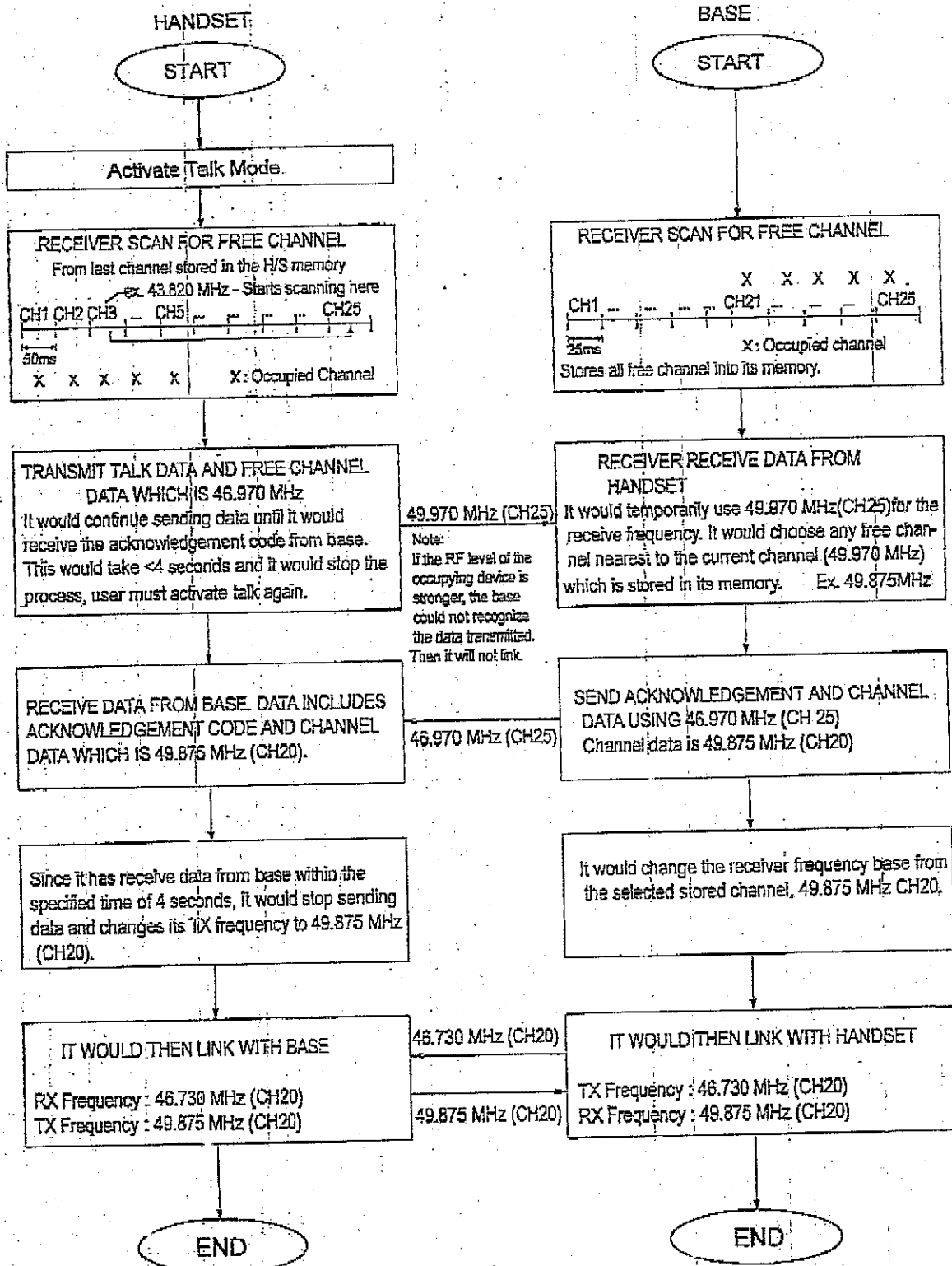
HANDSET   **BASE**

(START)   (START)

HANDSET column:

Activate Talk Mode

↓

RECEIVER SCAN FOR FREE CHANNEL.
From last channel stored in the H/S memory
ex. 43.820 MHz - Starts scanning here
CH1 CH2 CH3 ... CH5 ... ... CH25
50ms

↓

TRANSMIT TALK DATA AND FREE CHANNEL DATA WHICH IS 43.820 MHz
It would continue sending data until it would receive the acknowledgement code from base. This would take <4 seconds and it would stop the process, user must activate talk again.

↓

RECEIVE DATA FROM BASE. DATA INCLUDES ACKNOWLEDGEMENT CODE AND CHANNEL DATA WHICH IS 49.970 MHz (CH25).

↓

Since it has receive data from base within the specified time of 4 seconds, it would stop sending data and changes its TX frequency to 49.970 MHz (CH25).

↓

IT WOULD THEN LINK WITH BASE

RX Frequency : 46.970 MHz (CH25)
TX Frequency : 49.970 MHz (CH25)

↓

(END)

BASE column:

RECEIVER SCAN FOR FREE CHANNEL

X   X   X   X   X   X : Occupied Channel
CH1 CH2 CH3 ... CH5 ... ... CH25
25ms
Stores all free channel into its memory.

↓

RECEIVER RECEIVE DATA FROM HANDSET
It would temporarily use 48.860 MHz (CH3) for the receive frequency. It would choose any free channel nearest to the current channel (48.860 MHz) which is stored in its memory. Ex. 49.970 MHz

↓

SEND ACKNOWLEDGEMENT AND CHANNEL DATA USING 43.820 MHz (CH 3)
Channel data is 49.970 MHz (CH25)

↓

It would change the receiver frequency base from the selected stored channel (49.970 MHz)

↓

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 46.970 MHz (CH25)
RX Frequency : 49.970 MHz (CH25)

↓

(END)

Inter-column labels:

48.860 MHz (CH3)
Note:
If the RF level of the occupying device is stronger, the base could not recognize the data transmitted. Then it will not link.

43.820 MHz (CH3)

46.970 MHz (CH25)

49.970 MHz (CH25)

TALK MODE

CONDITION 4 : Multi channel on the Base TX and Handset TX frequency are occupied.

Ex. CH 1: 48.760 MHz CH 4: 48.920 MHz   CH 21: 49.830 MHz   CH 24: 49.990 MHz
    CH 2: 48.840 MHz CH 5: 48.020 MHz   CH 22: 49.890 MHz   CH 25: 49.970 MHz
    CH 3: 48.860 MHz   CH 23: 49.930 MHz

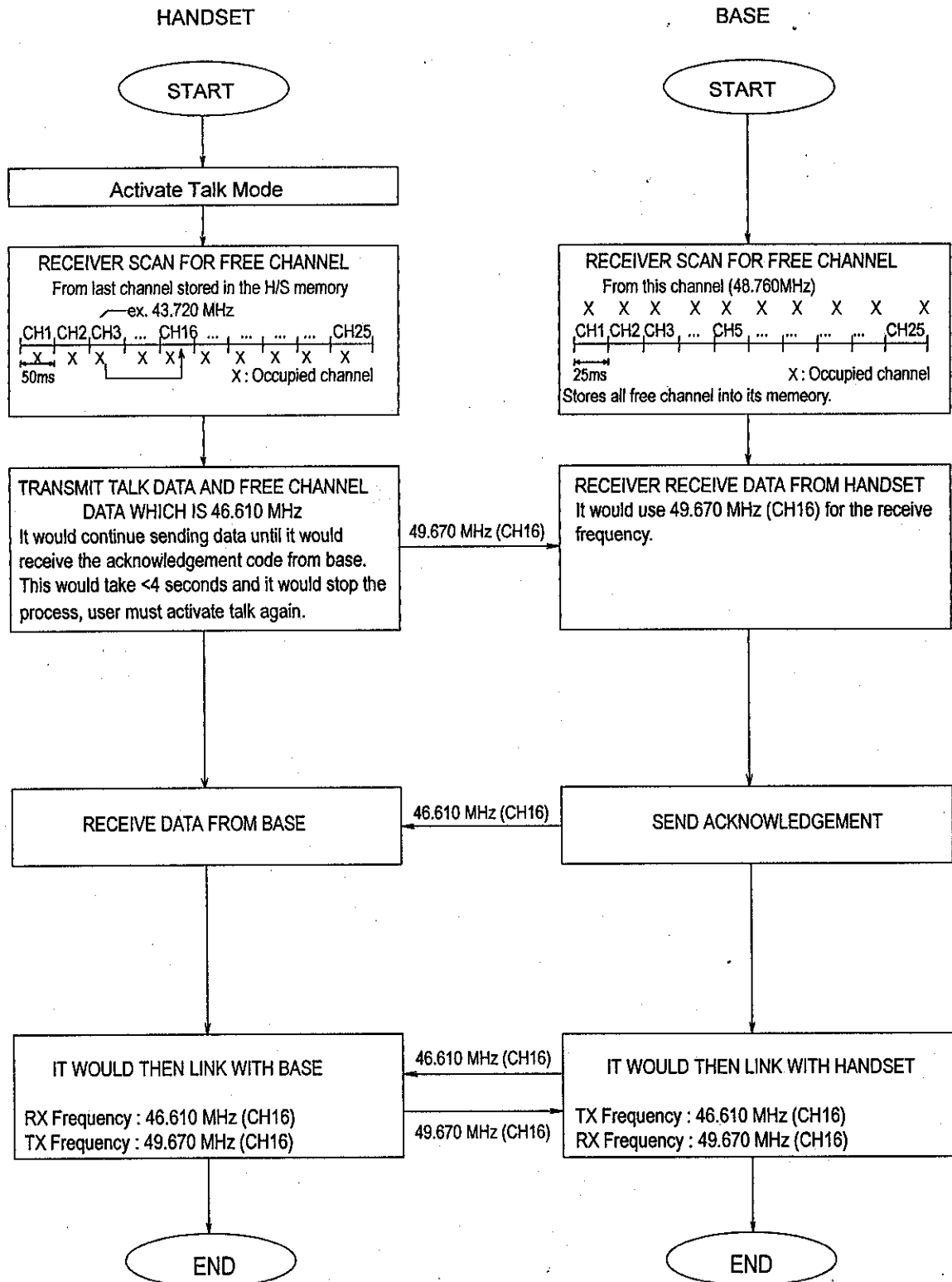CH 3: 43.820 MHz - Stored channel during the last link in handset memory

HANDSET

(START)

Activate Talk Mode.

RECEIVER SCAN FOR FREE CHANNEL
From last channel stored in the H/S memory
ex. 43.820 MHz – Starts scanning here

CH1 CH2 CH3 _ CH5 ~ _ ~ _ ~ CH25
|—|
50ms

X X X X X   X : Occupied Channel

TRANSMIT TALK DATA AND FREE CHANNEL
DATA WHICH IS 46.970 MHz
It would continue sending data until it would
receive the acknowledgement code from base.
This would take <4 seconds and it would stop the
process, user must activate talk again.

RECEIVE DATA FROM BASE. DATA INCLUDES
ACKNOWLEDGEMENT CODE AND CHANNEL
DATA WHICH IS 49.875 MHz (CH20).

Since it has receive data from base within the
specified time of 4 seconds, it would stop sending
data and changes its TX frequency to 49.875 MHz
(CH20).

IT WOULD THEN LINK WITH BASE

RX Frequency : 46.730 MHz (CH20)
TX Frequency : 49.875 MHz (CH20)

(END)

BASE

(START)

RECEIVER SCAN FOR FREE CHANNEL

X   X X   X X
CH1 _ ~ _ ~ CH21 _ ~ _ CH25
|—|
25ms   X: Occupied channel
Stores all free channel into its memory.

RECEIVER RECEIVE DATA FROM
HANDSET
It would temporarily use 49.970 MHz (CH25) for the
receive frequency. It would choose any free chan-
nel nearest to the current channel (49.970 MHz)
which is stored in its memory.   Ex. 49.875MHz

SEND ACKNOWLEDGEMENT AND CHANNEL
DATA USING 46.970 MHz (CH 25)
Channel data is 49.875 MHz (CH20)

It would change the receiver frequency base from
the selected stored channel, 49.875 MHz CH20.

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 46.730 MHz (CH20)
RX Frequency : 49.875 MHz (CH20)

(END)

Connectors (center):

49.970 MHz (CH25)

Note:
If the RF level of the
occupying device is
stronger, the base
could not recognize
the data transmitted.
Then it will not link.

46.970 MHz (CH25)

46.730 MHz (CH20)

49.875 MHz (CH20)

TALK MODE

CONDITION 5   : All TX channels of Handset and Base are occupied (All Busy)

CH3 : 43.820 MHz - Stored channel during the last link in Handset memory.

HANDSET   BASE

(START)   **(START)**

Activate Talk Mode

RECEIVER SCAN FOR FREE CHANNEL
From last channel stored in the H/S memory
— ex. 43.720 MHz
CH1 CH2 CH3 ... CH16 ... ... CH25
X X X X X X X X X X
50ms   X : Occupied channel

RECEIVER SCAN FOR FREE CHANNEL
From this channel (48.760MHz)
X X X X X X X X X X
CH1 CH2 CH3 ... CH5 ... ... CH25
25ms   X : Occupied channel
Stores all free channel into its memeory.

TRANSMIT TALK DATA AND FREE CHANNEL DATA WHICH IS 46.610 MHz
It would continue sending data until it would receive the acknowledgement code from base. This would take <4 seconds and it would stop the process, user must activate talk again.

→ 49.670 MHz (CH16) →

RECEIVER RECEIVE DATA FROM HANDSET
It would use 49.670 MHz (CH16) for the receive frequency.

RECEIVE DATA FROM BASE   ← 46.610 MHz (CH16) ←   **SEND ACKNOWLEDGEMENT**

IT WOULD THEN LINK WITH BASE

RX Frequency : 46.610 MHz (CH16)
TX Frequency : 49.670 MHz (CH16)

← 46.610 MHz (CH16) ←
→ 49.670 MHz (CH16) →

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 46.610 MHz (CH16)
RX Frequency : 49.670 MHz (CH16)

(END)   **(END)**

BE-25FA AUTOMATIC CHANNEL SELECTION

The following tests were performed to show the incorporation of automatic channel selection.

Equipment Used to Perform Tests

- JUNGJIN JSG-1051B Signal Generator
 Interference Signal 1KHz, 5KHz deviation

Test Set-Up

← 6 inches →

Signal Generator   Base Unit
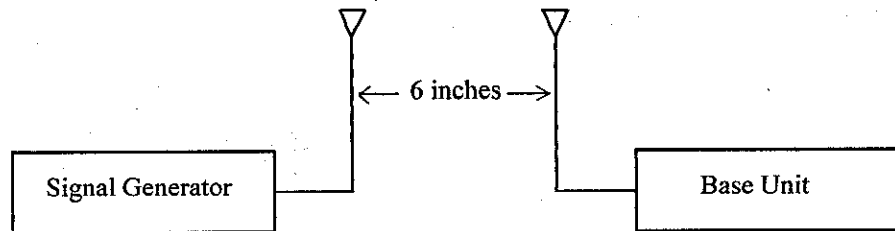
Test Procedures

1. Set signal generator at a certain channel (e.g. channel 1), then turn the generator off.

2. Turn on the phone, set the phone at the same channel as in step 1, then turn off the phone.

3. Turn on the signal generator.

4. Turn on the phone, investigate and record the locked channel. If scan functions correctly, it will lock to any channel, but not the one in step 1.

5. Repeat Step 1-4 for 25 channels

Test Results

INTERFERENCE CHANNEL AT	PHONE PRE-SET CHANNEL AT	PHONE AUTO-SCAN TO CHANNEL AT -13 dBm
1	1	2
2	2	3
3	3	4
4	4	5
5	5	7
6	6	7
7	7	8
8	8	9
9	9	10
10	10	11
11	11	12
12	12	14
13	13	14
14	14	15
15	15	16
16	16	17
17	17	18
18	18	19
19	19	20
20	20	22
21	21	22
22	22	23
23	23	24
24	24	25
25	25	1

Summary

The phone under test has an automatic selection mechanism that will prevent establishment of a link on any occupied frequency channel.