

## 6 - NUMBER OF HOPPING FREQUENCY USED

### 6.1 Standard Applicable

According to §15.247(a)(1)(ii), for frequency hopping system operating in the 2400-2483.5 MHz and 5725-5850 MHz bands shall use at least 75 hopping frequencies.

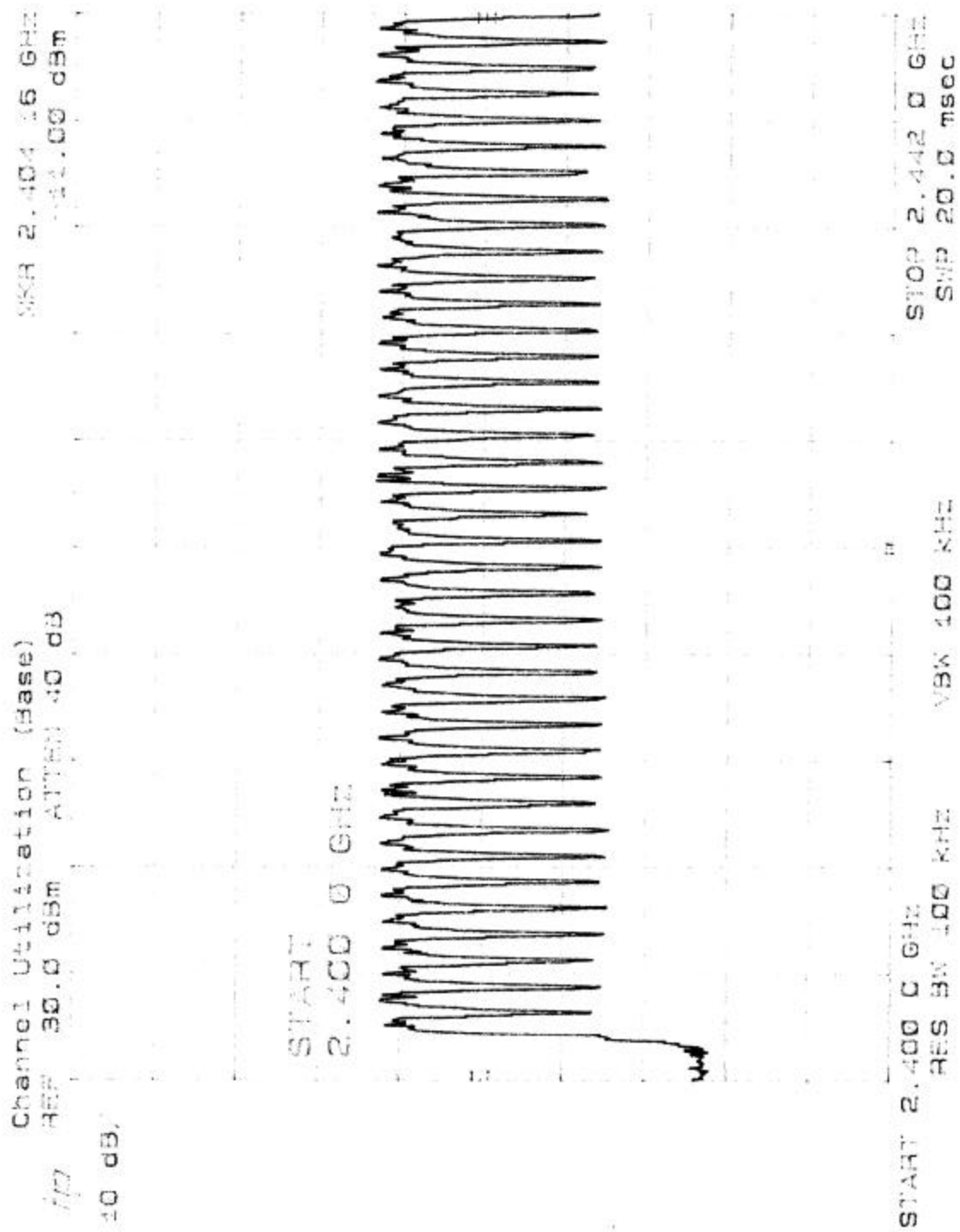
### 6.2 Measurement Procedure

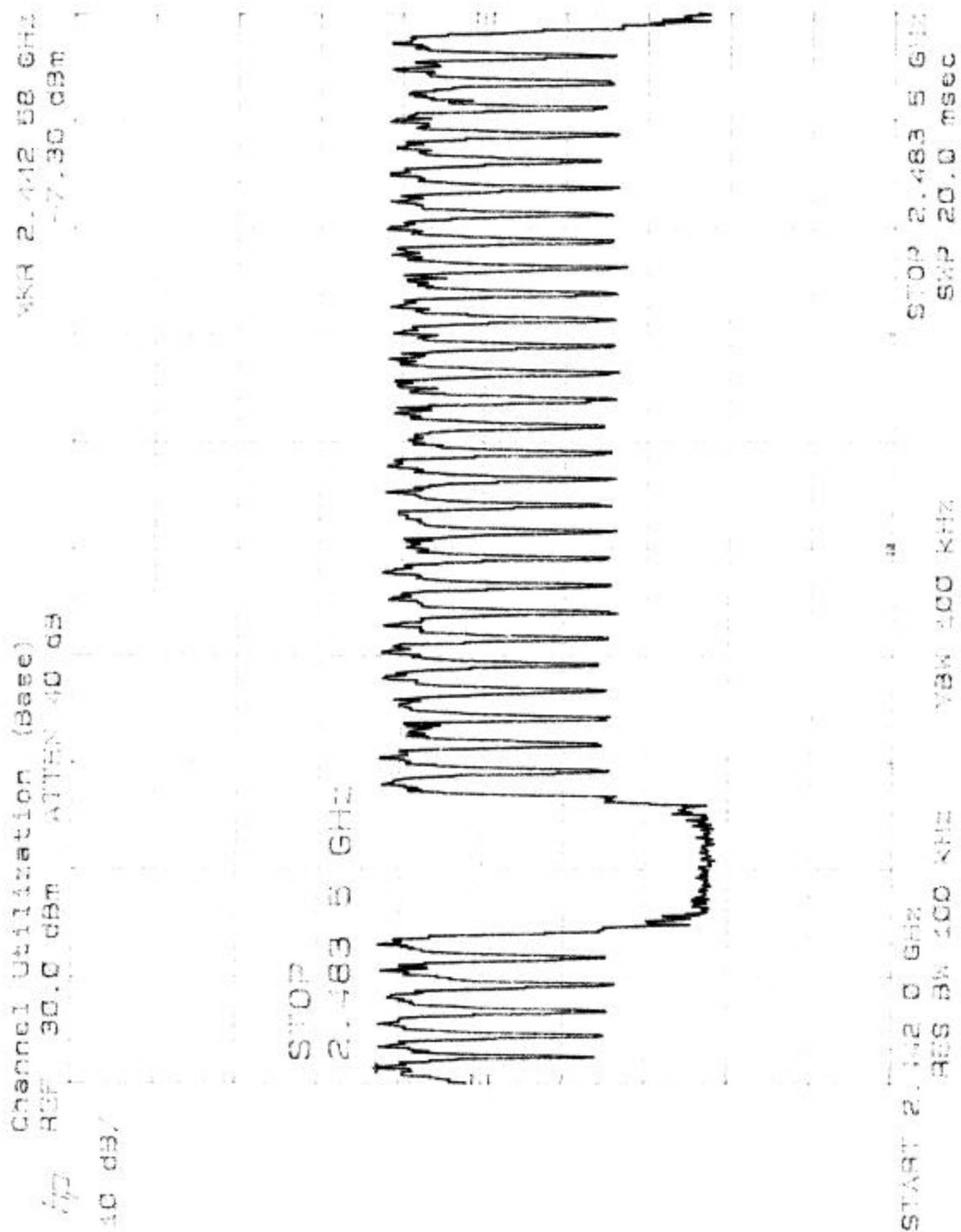
1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the SA on Max-Hold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

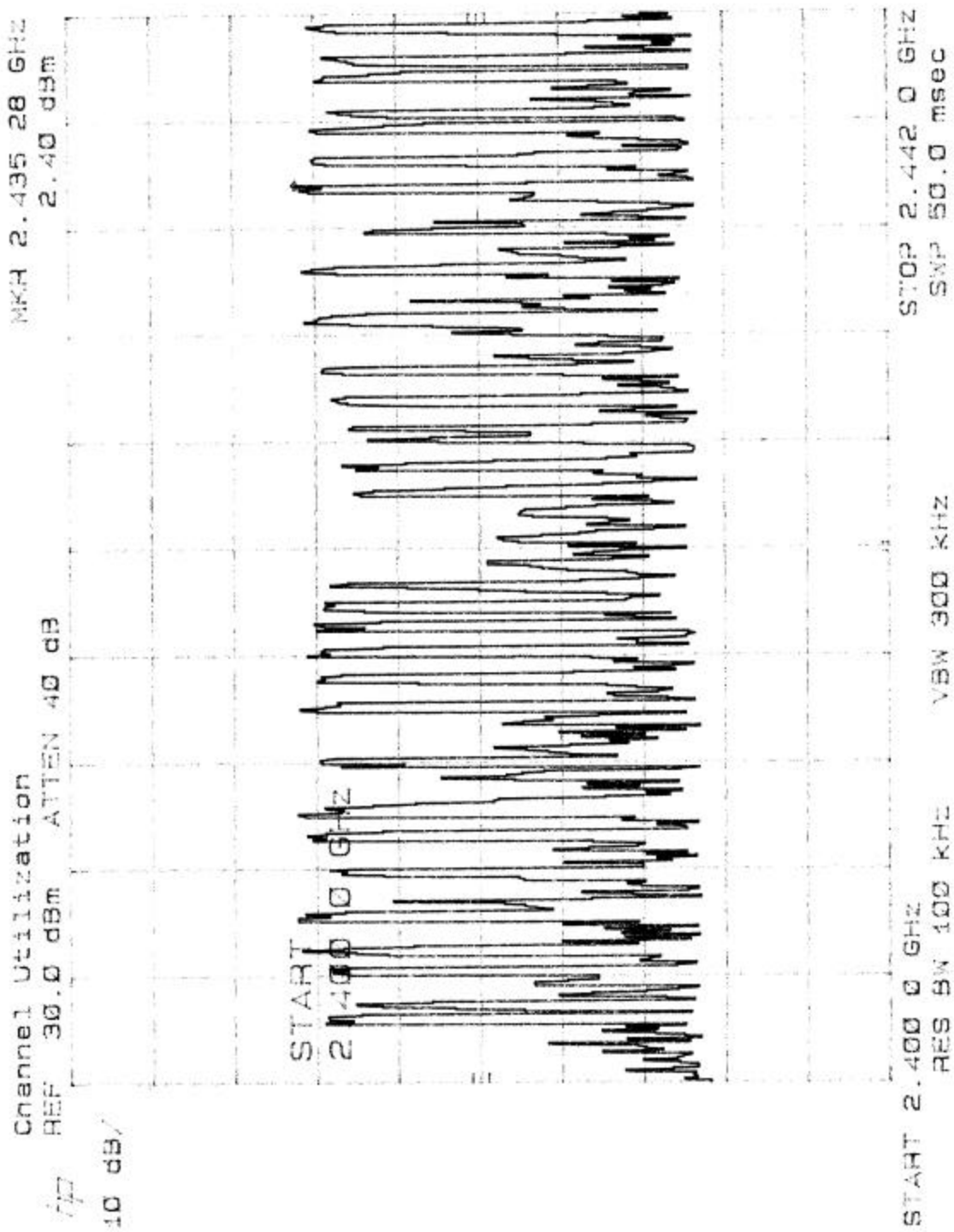
### 6.3 Measurement Procedure

There were 75 hopping frequencies in a hopping sequence.

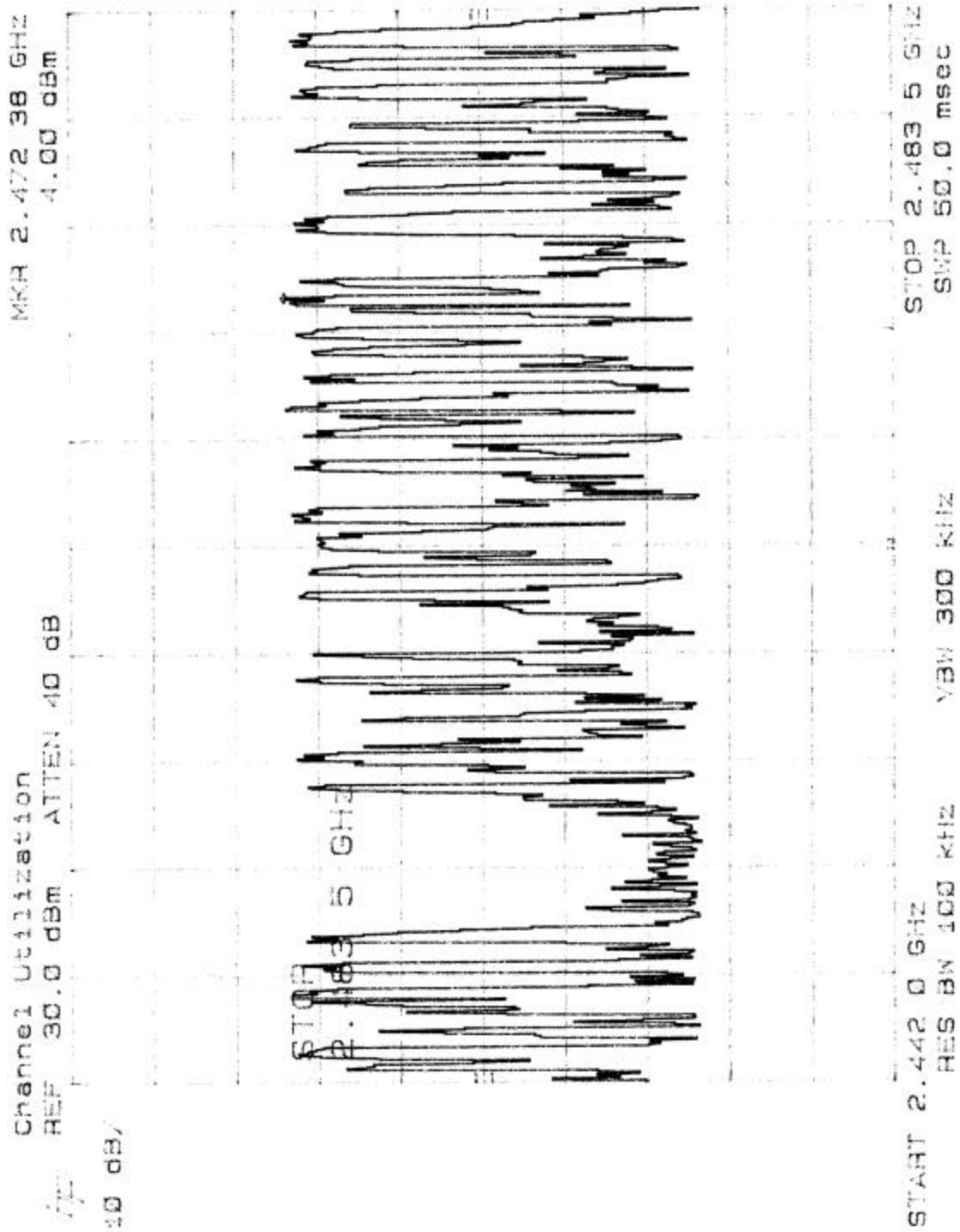
<b>Base</b>	Page 29,30
<b>Handset</b>	Page 31,32











## 7 - HOPPING CHANNEL SEPARATION

### 7.1 Standard Applicable

According to §15.247(a)(1), frequency hopping system shall have, hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

### 7.2 Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the Max-Hold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function, and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

### 7.3 Test Results

Refer to the attached Plots

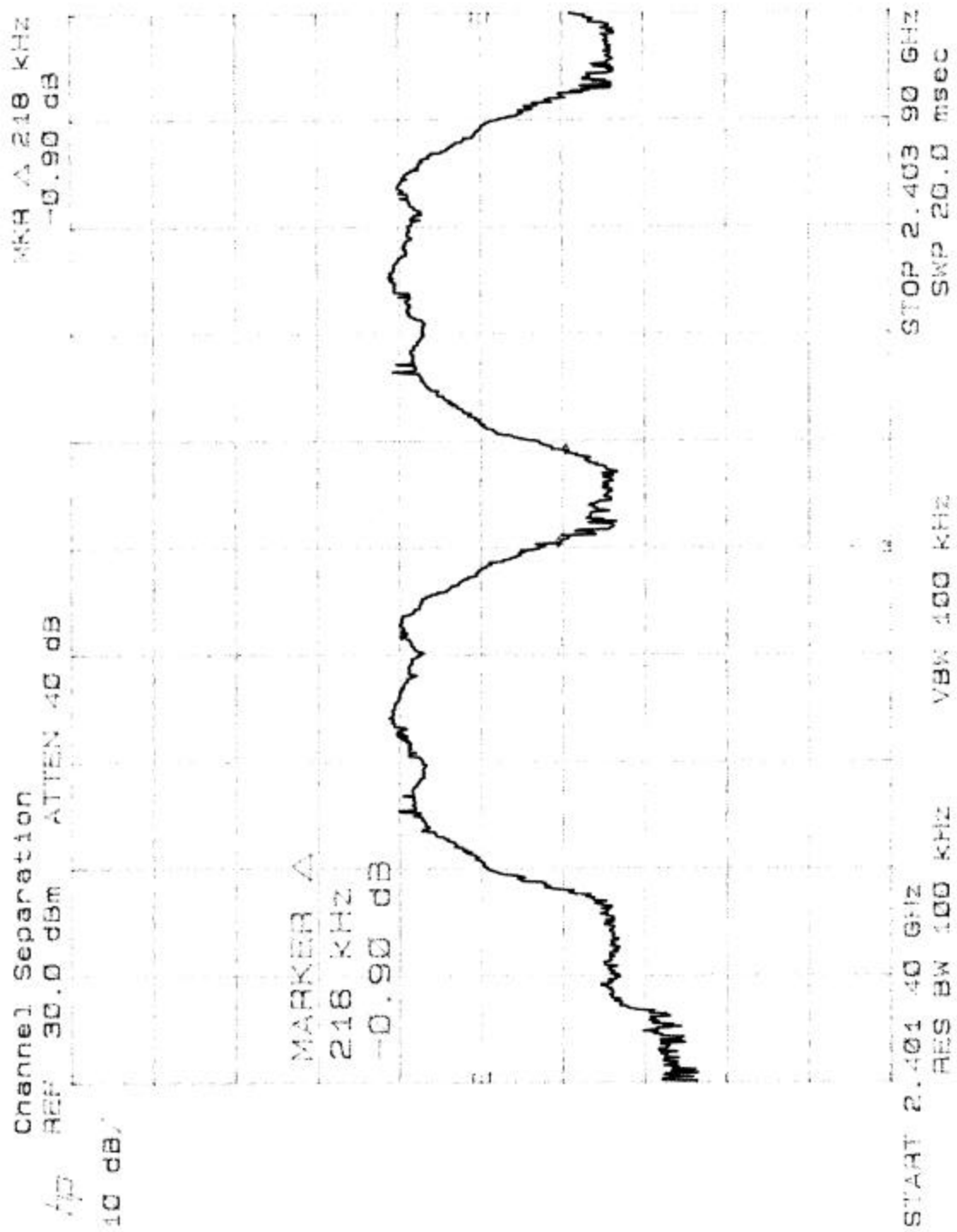
#### BASE

CHANNEL SEPARATION	
Low Channel	Page 34
Middle Channel	Page 35
High Channel	Page 36

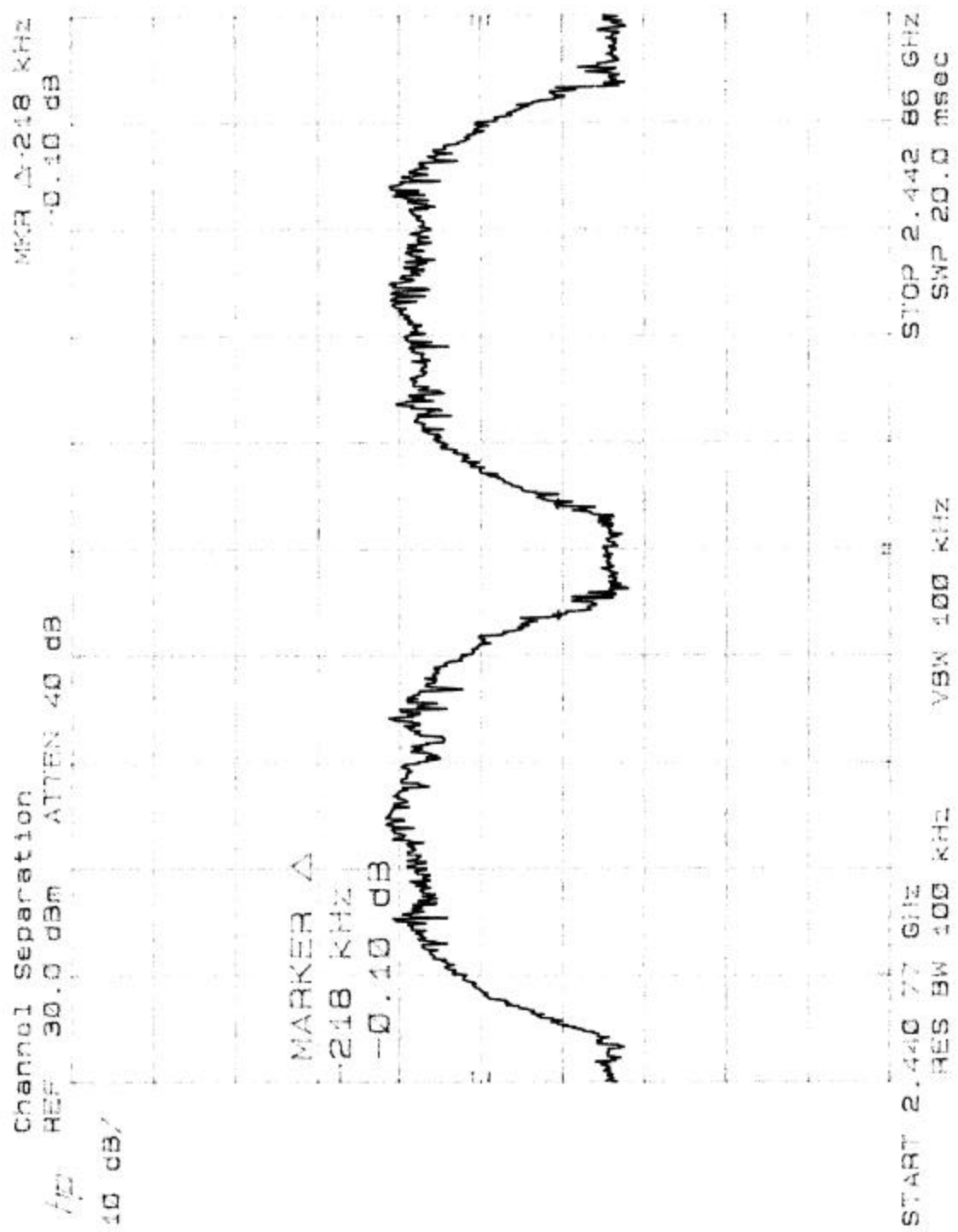
#### HANDSET

CHANNEL SEPARATION	
Low Channel	Page 37
Middle Channel	Page 38
High Channel	Page 39

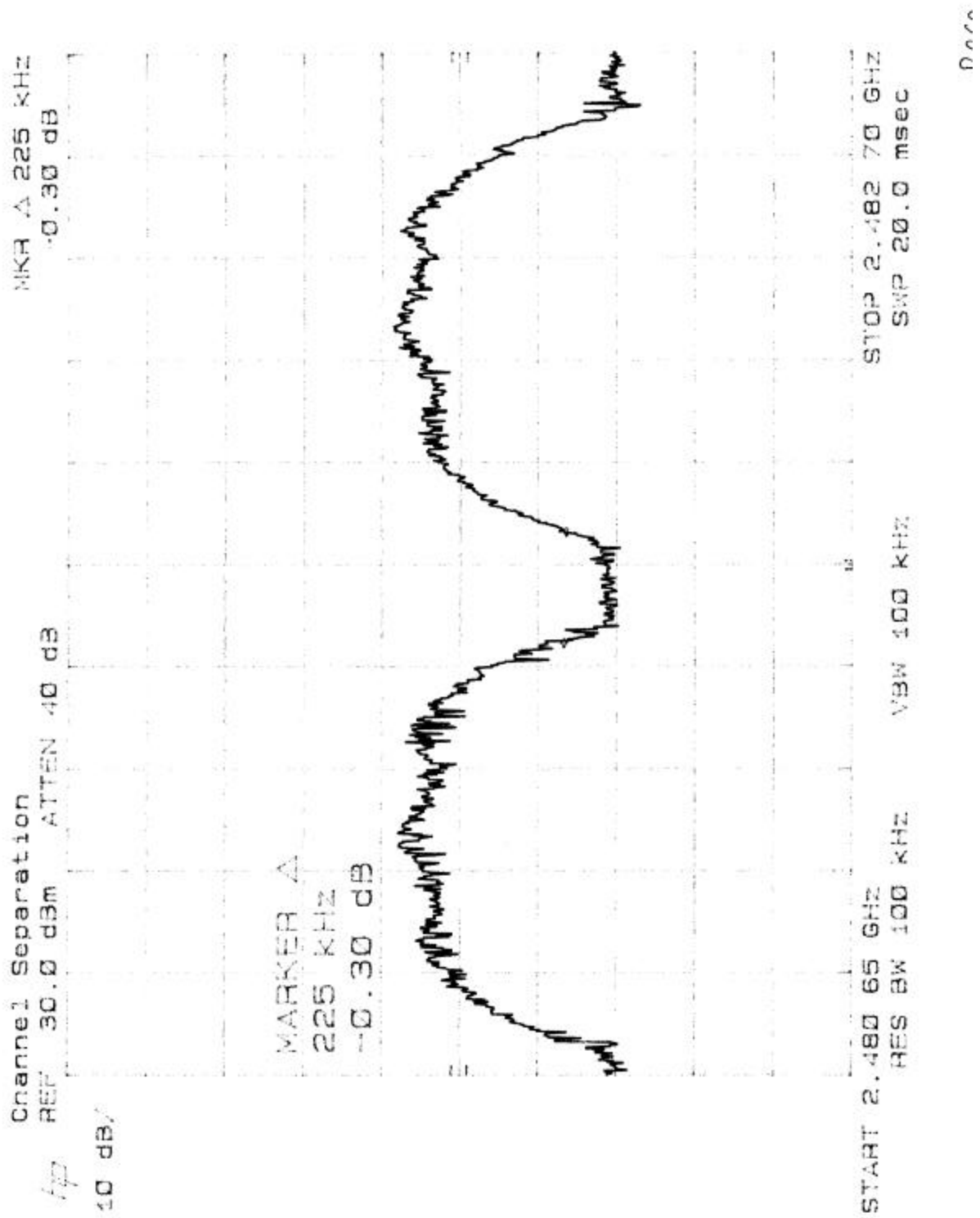


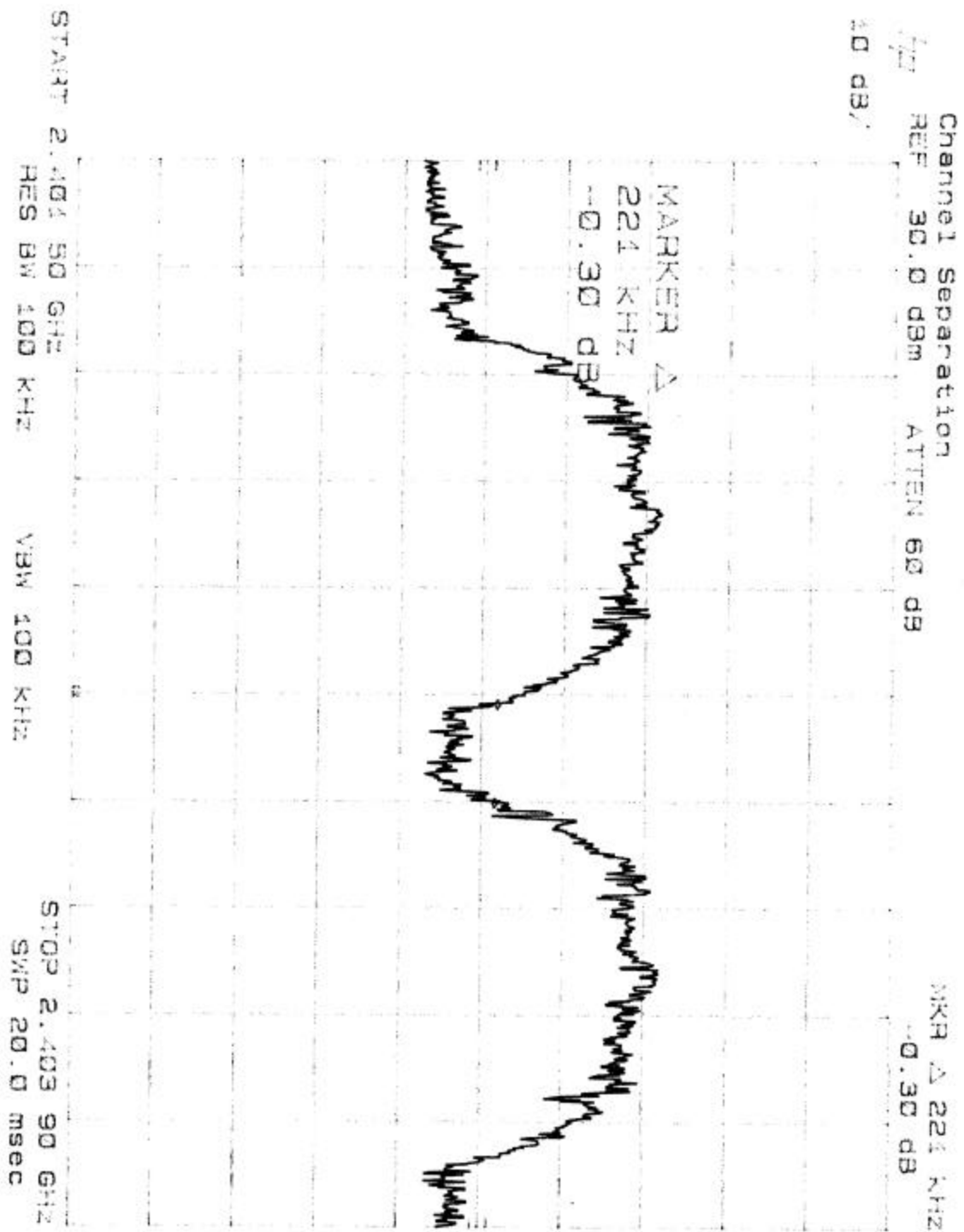


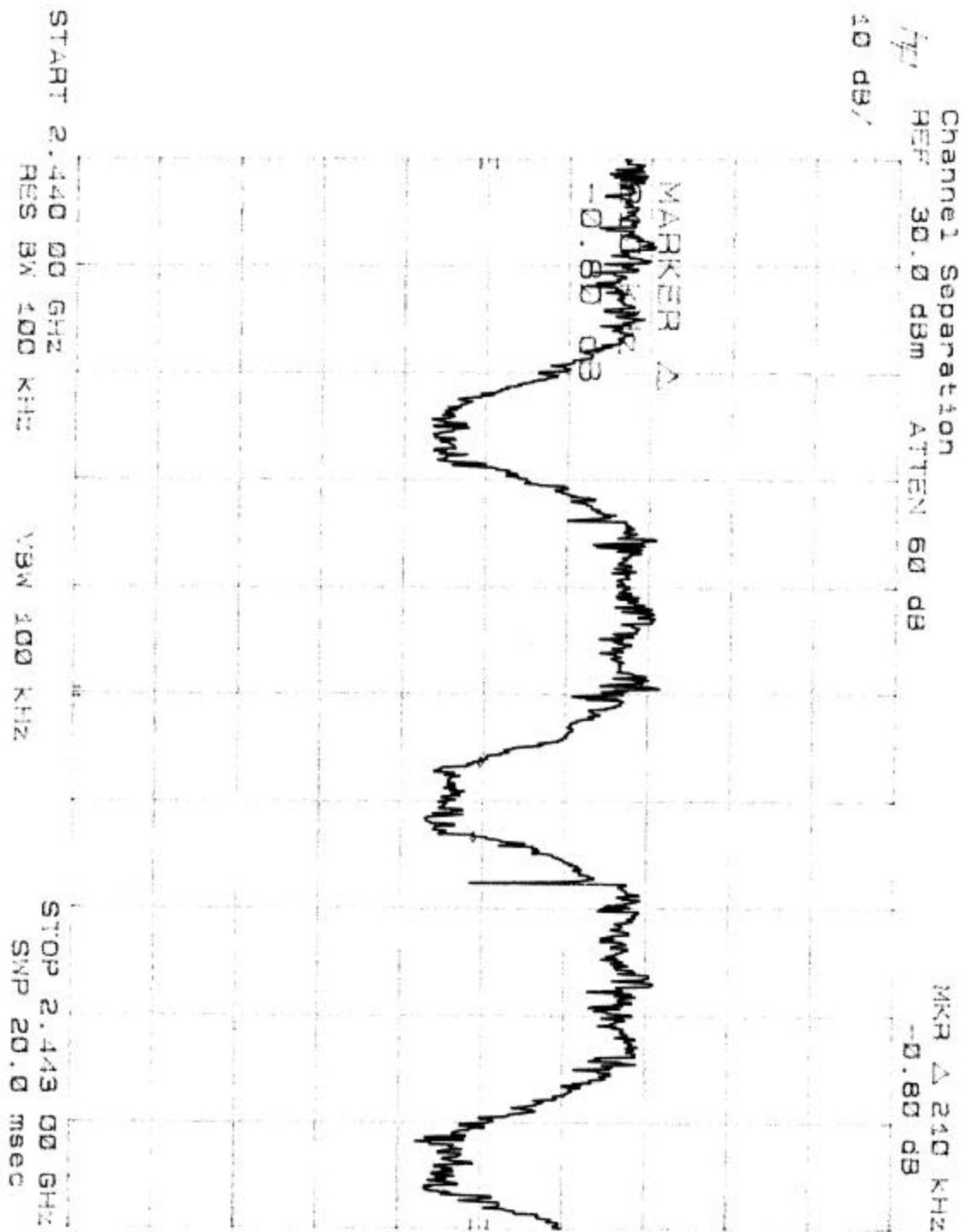
Base

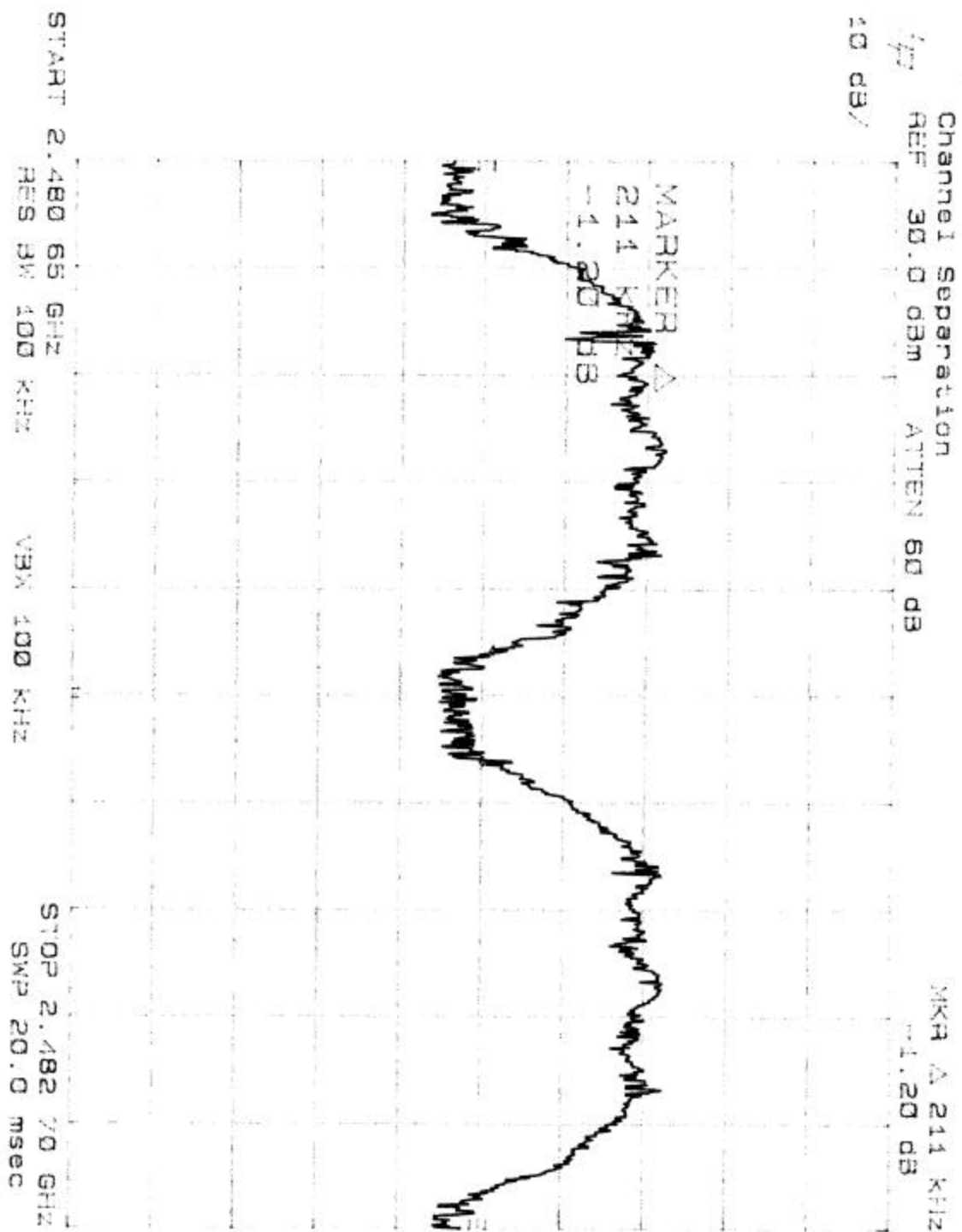


Date









## 8 - 100 kHz BANDWIDTH OF BAND EDGES MEASUREMENT

### 8.1 Standard Applicable

According to §15.247(c), if *any* 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in § 15.209(a), whichever results in the lesser attenuation.

### 8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

### 8.3 Test Results

- a) Lower Band Edge: All emissions in this 100kHz bandwidth are attenuated more than 20 dB from the carrier.
- b) Upper Band Edge: All emissions in this 100kHz bandwidth are attenuated more than 20 dB from the carrier.

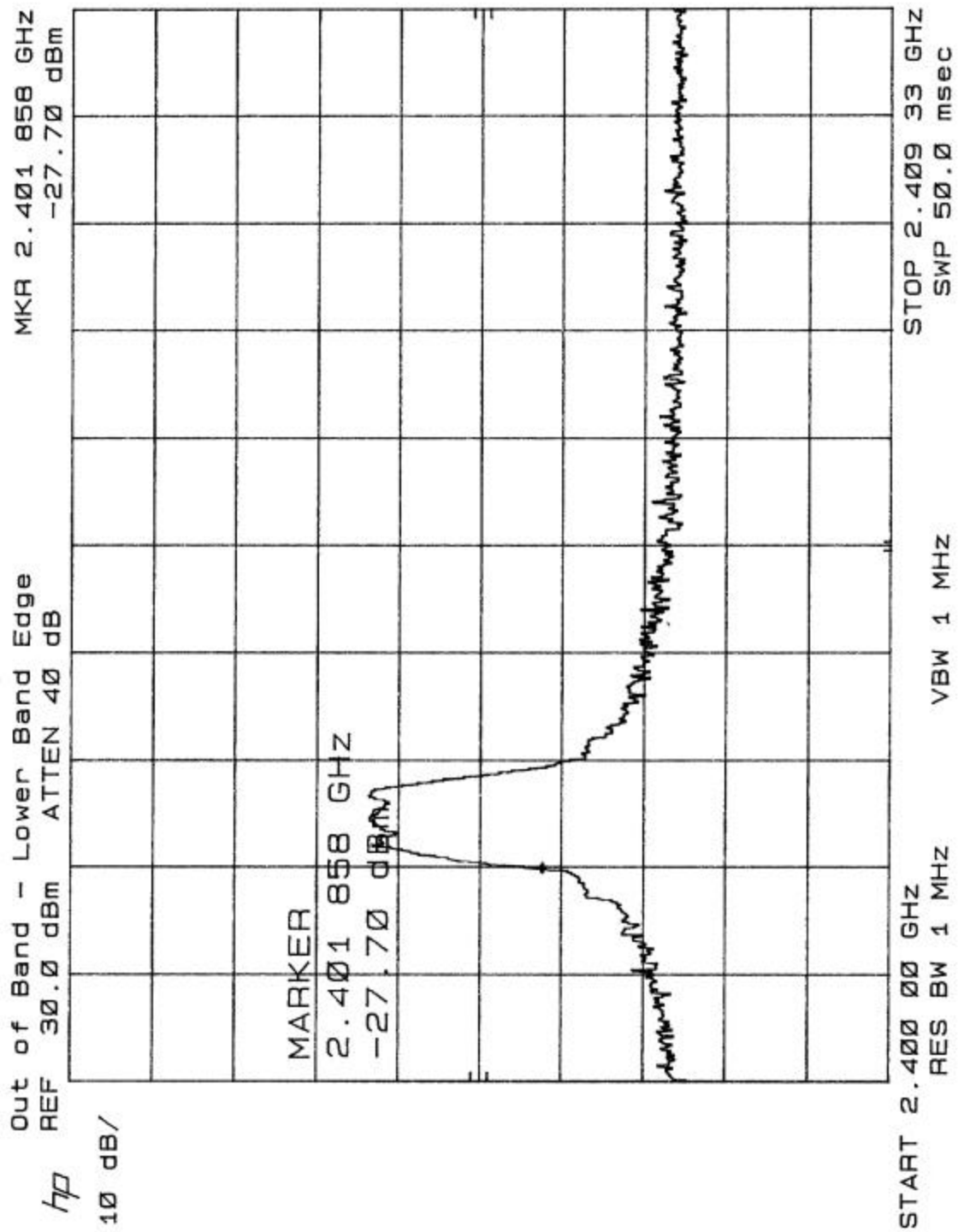
#### BASE

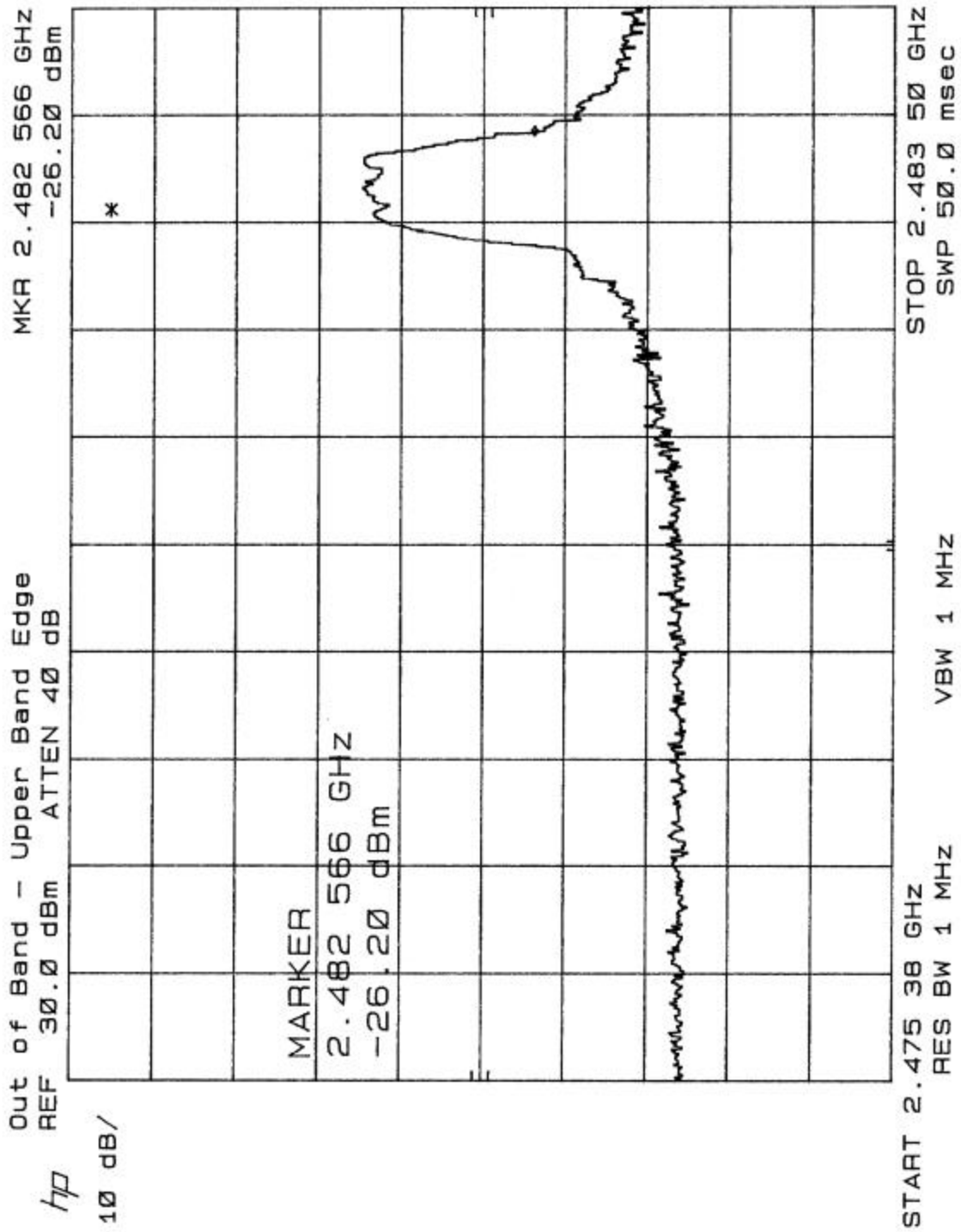
Band Edge	
Low Channel	Page 41
High Channel	Page 42

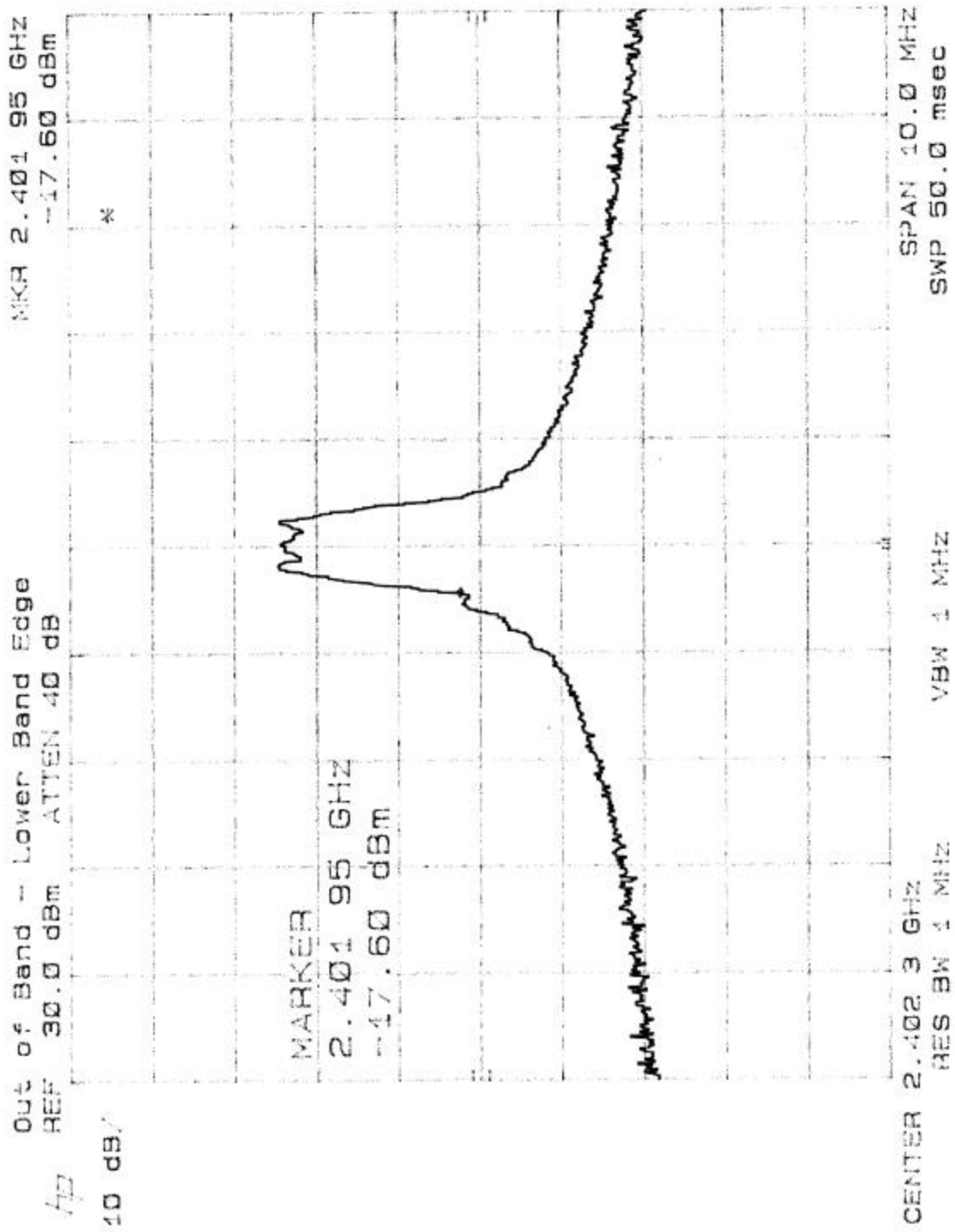
#### HANDSET

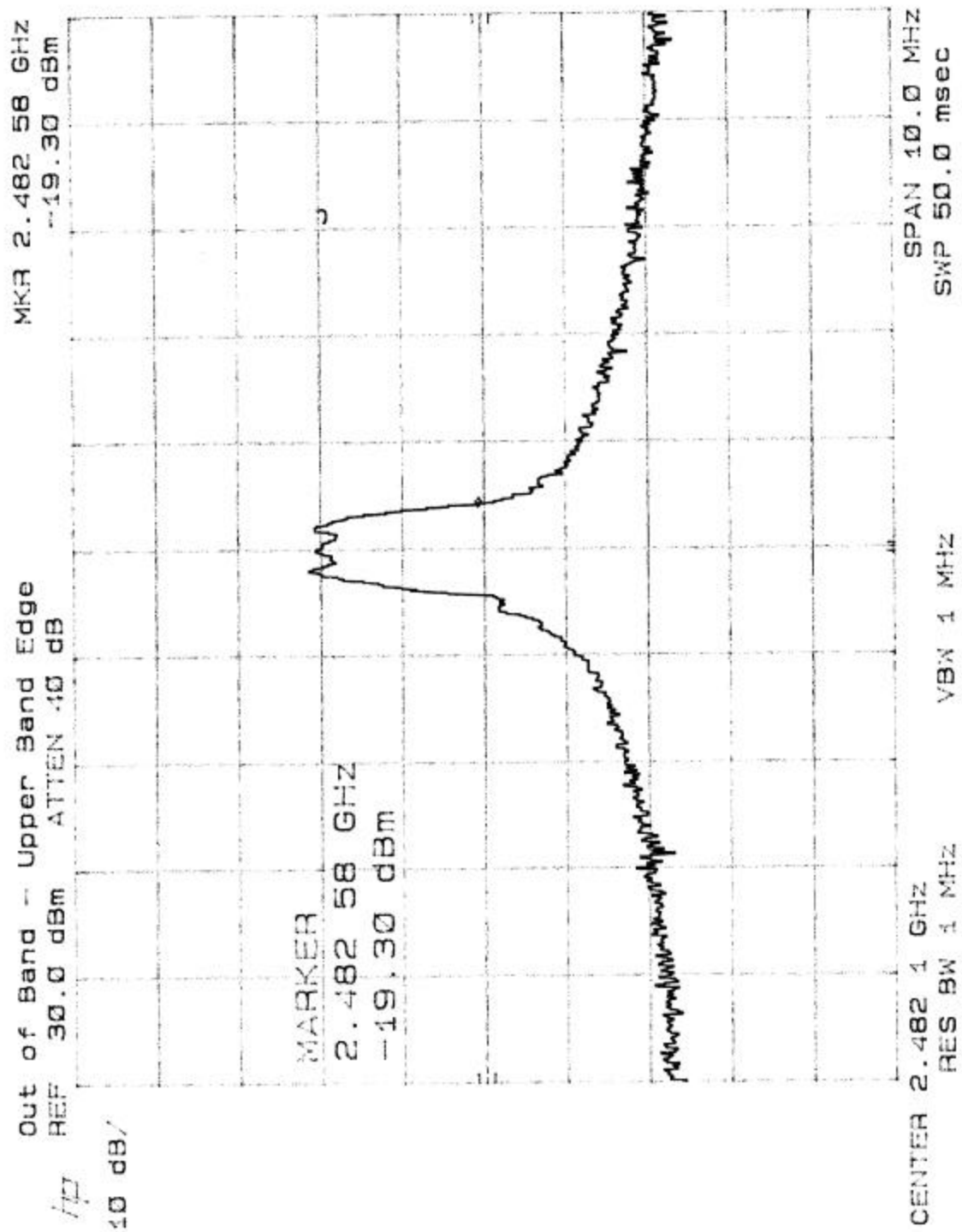
Band Edge	
Low Channel	Page 43
High Channel	Page 44











---

## 9 - DWELL TIME ON EACH CHANNEL

---

### 9.1 Standard Applicable

According to §15.247 (a)(1)(ii), for frequency hopping system operating in the 2400-2483.5 MHz and 5725 – 5850 MHz bands, the average time of occupancy on any frequency shall not be greater than 0.4 second within a 30-second period.

### 9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
  2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
  3. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
  4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
  5. Repeat above procedures until all frequencies measured were complete.
- .

### 9.3 Test Results

In normal operation, there is 2 transmission per 500mS, and the duration is 1.68 ms per transmission. Therefore, the dwell time is

Base Low Channel:  $1.48 \times 102 = 150.96$  ms.

Base Medium Channel:  $1.46 \times 102 = 148.92$  ms.

Base High Channel:  $1.54 \times 104 = 160.16$  ms.

Handset Low Channel:  $0.4 \times 103 = 41.2$  ms.

Handset Medium Channel:  $0.4 \times 102 = 40.8$  ms.

Handset High Channel:  $0.36 \times 110 = 39.6$  ms.

#### BASE

Spurious Emission	
Low Channel	Page 47, 48
Middle Channel	Page 49, 50
High Channel	Page 51, 52

#### HANDSET

Spurious Emission	
Low Channel	Page 53, 54
Middle Channel	Page 55, 56
High Channel	Page 57, 58

