# 6.25 Emissions inside and outside the subband

## 6.25.1 Standard Applicable: FCC 15.323(d)

**Emissions inside the subband same as RSS-213 6.7.2**
*B* < *f* ≤ 2*B:* less than or equal to 30 dB below the maximum permitted peak power level
2*B* < *f* ≤ 3*B:* less than or equal to 50 dB below the maximum permitted peak power level
3*B* < *f* ≤ UPCS Band Edge: less than or equal to 60 dB below the maximum permitted peak power level

Where B is the occupied bandwidth in hertz.

**Emissions outside the subband same as RSS-213 6.7.1**

| | |
|---|---|
| *f* ≤ 1.25MHz outside UPCS band : | ≤ -9.5dBm |
| 1.25MHz ≤ *f* ≤ 2.5MHz outside UPCS band : | ≤ -29.5 dBm |
| *f* ≥ 2.5MHz outside UPCS band: | ≤ -39.5 dBm |

## 6.25.2 Measurement procedure

Measurement method according to ANSI C63.17 2006 paragraph 6.1.6

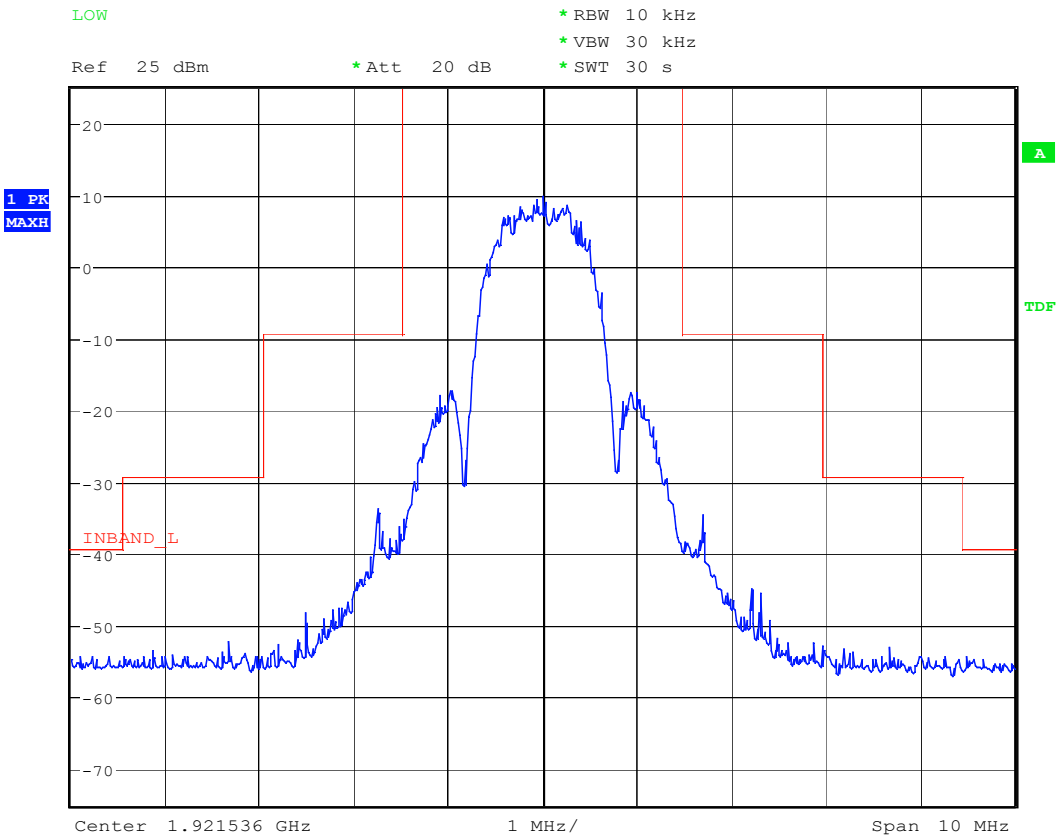
## 6.25.3 Results: Complies

## Measurement Data:

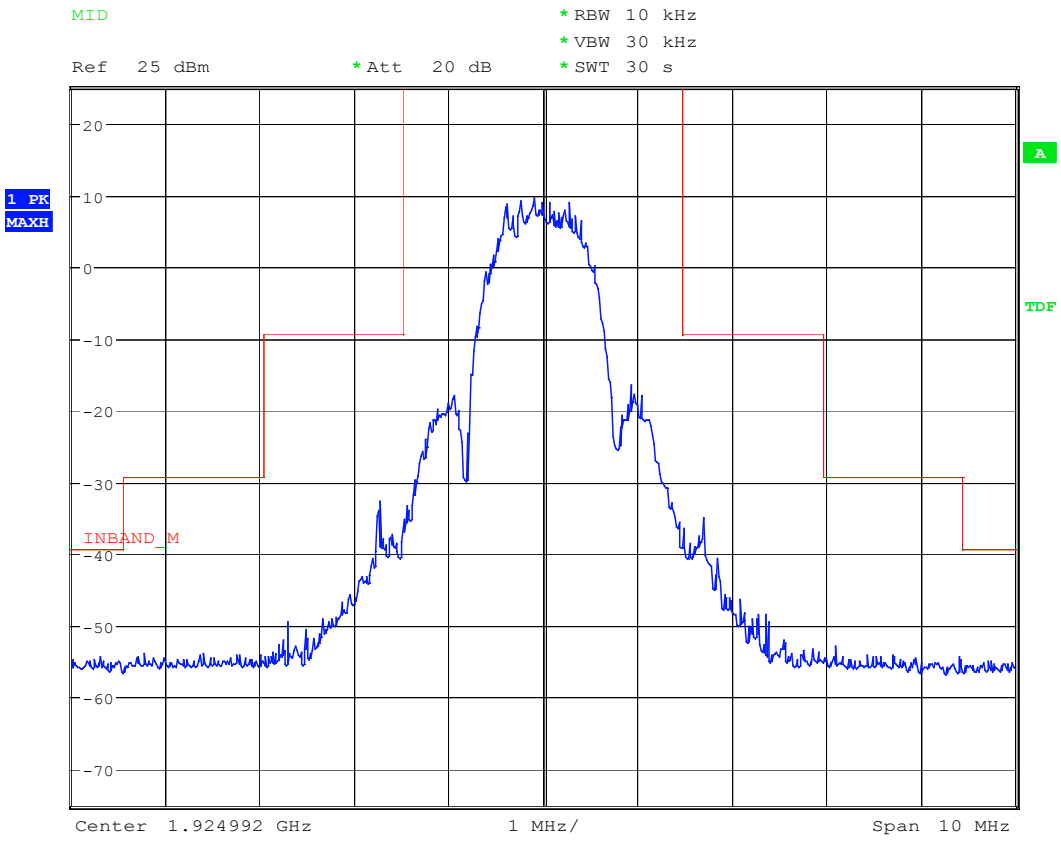
See plots.

Note: Photos of worst-case display follow:

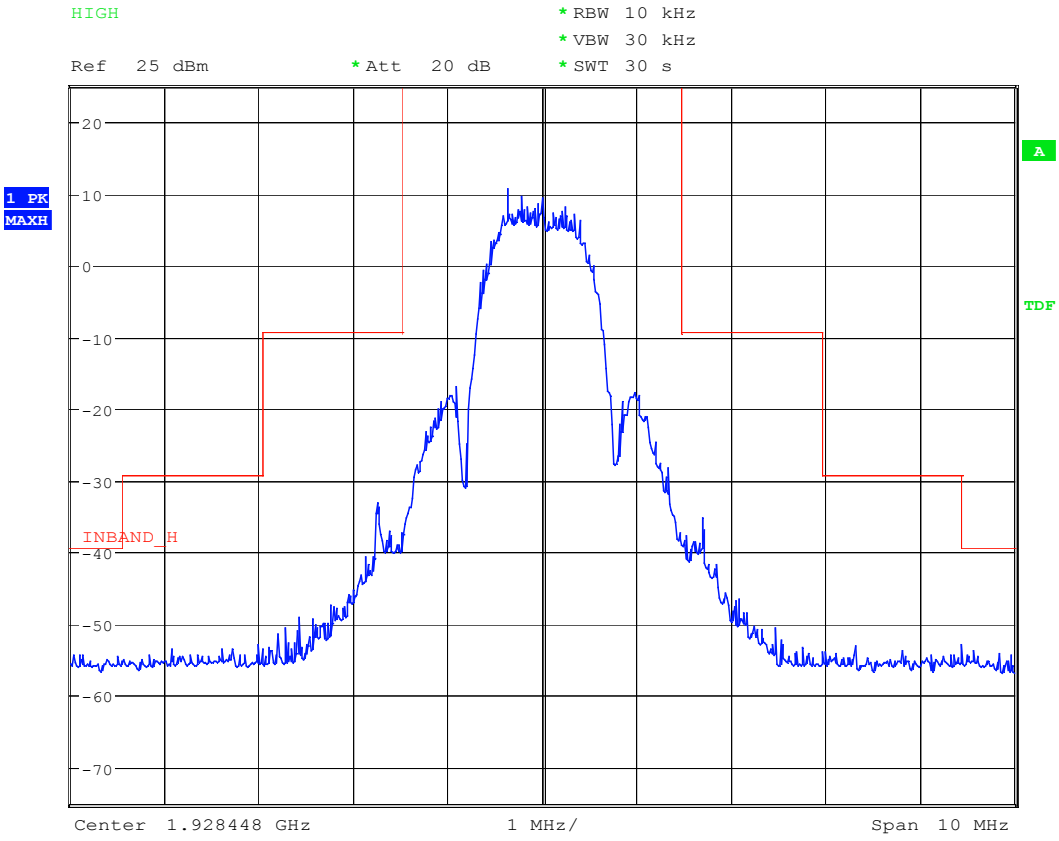
## In-band Unwanted Emissions: CH $F_L$



## In-band Unwanted Emissions: CH $F_M$



## In-band Unwanted Emissions: CH $F_H$

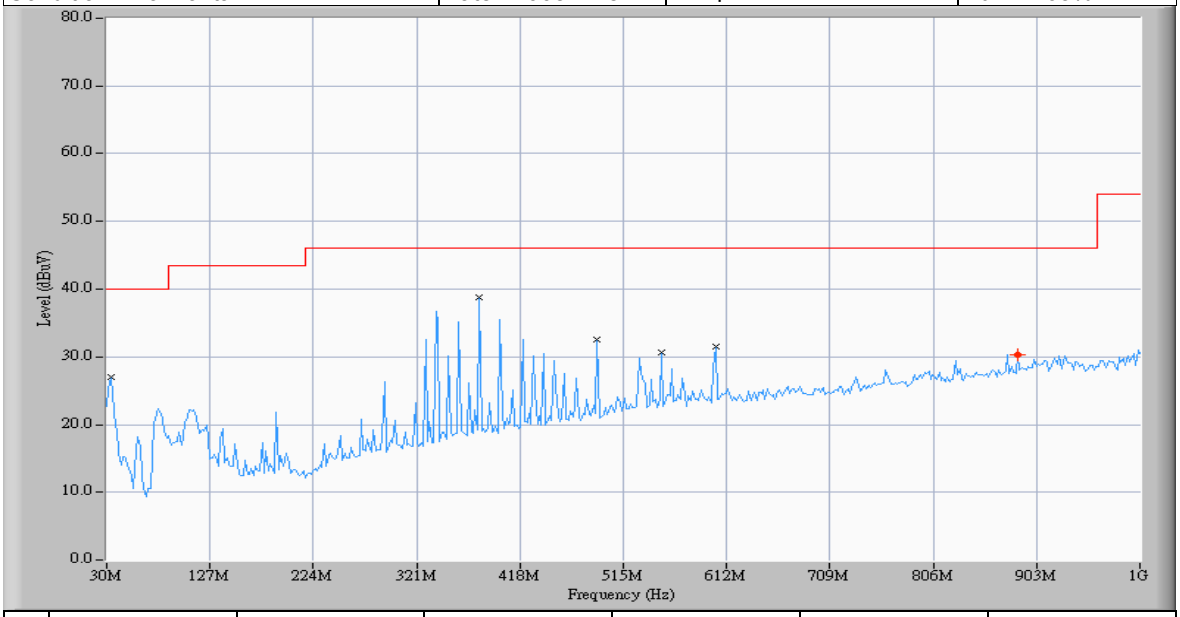


**Out-of-band Unwanted Emission:**

**a) CH FL**

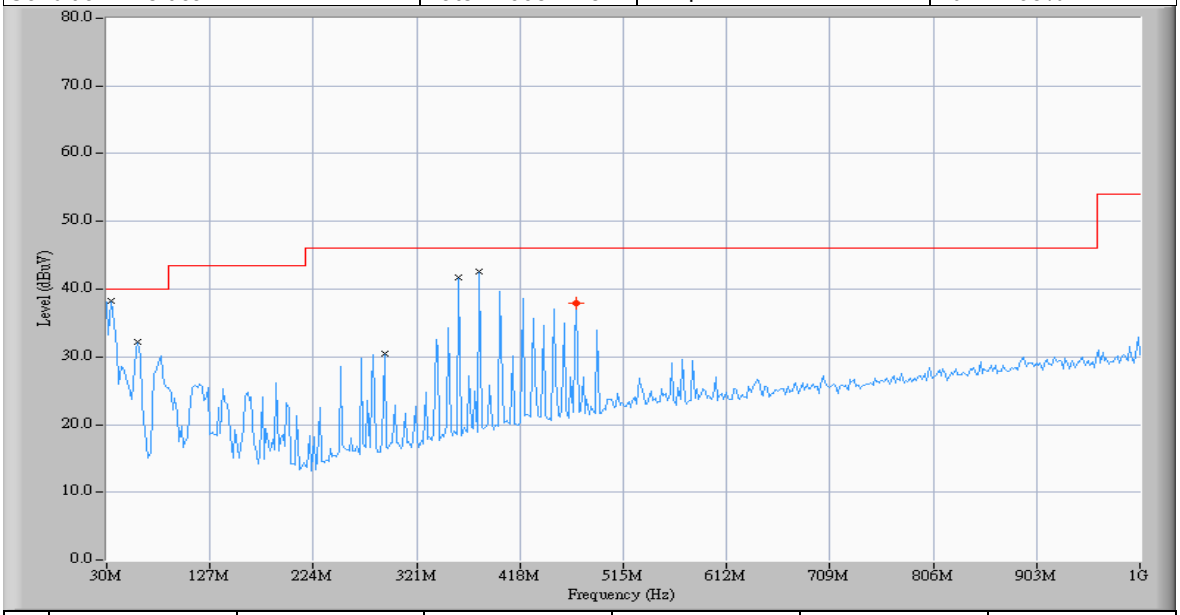
**Out-of-band Unwanted Emissions (below 1GHz): CH FL**

| EUT : US DECT PHONE - BASE (FP) | Model : SE658 FP | Status : FP TX CH Low | |
|---|---|---|---|
| Condition : Horizontal | Date : 2008/1/18 | Temp. : 18℃ | Humi. : 63% |




| | Freq (MHz) | QP Level (dBuV) | Factor (dB/m) | QP Result (dBuV/m) | QP Limit (dBuV/m) | QP Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 33.888 | 9.2 | 17.9 | 27.1 | 40.0 | -12.9 |
| 2 | 379.900 | 19.2 | 19.6 | 38.8 | 46.0 | -7.2 |
| 3 | 490.701 | 10.7 | 21.8 | 32.5 | 46.0 | -13.5 |
| 4 | 550.962 | 7.5 | 23.2 | 30.7 | 46.0 | -15.3 |
| 5 | 601.503 | 7.9 | 23.5 | 31.4 | 46.0 | -14.6 |
| 6 | 885.311 | 2.8 | 27.4 | 30.2 | 46.0 | -15.8 |

| EUT : US DECT PHONE - BASE (FP) | Model : SE658 FP | Status : FP TX CH Low | |
|---|---|---|---|
| Condition : Vertical | Date : 2008/1/18 | Temp. : 18℃ | Humi. : 63% |

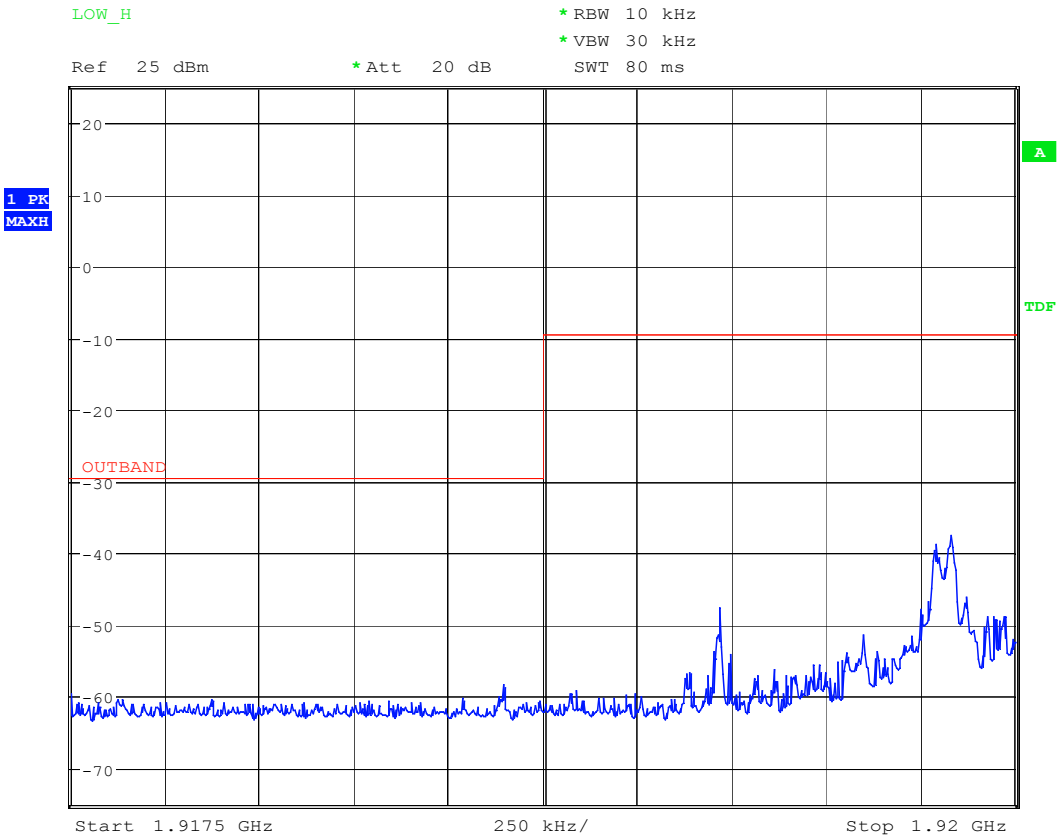



| | Freq (MHz) | QP Level (dBuV) | Factor (dB/m) | QP Result (dBuV/m) | QP Limit (dBuV/m) | QP Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 33.888 | 20.3 | 17.9 | 38.2 | 40.0 | -1.8 |
| 2 | 59.158 | 24.5 | 7.6 | 32.1 | 40.0 | -7.9 |
| 3 | 290.481 | 13.8 | 16.7 | 30.5 | 46.0 | -15.5 |
| 4 | 360.461 | 22.7 | 19.0 | 41.7 | 46.0 | -4.3 |
| 5 | 379.900 | 22.9 | 19.6 | 42.5 | 46.0 | -3.5 |
| 6 | 471.263 | 16.3 | 21.6 | 37.9 | 46.0 | -8.1 |

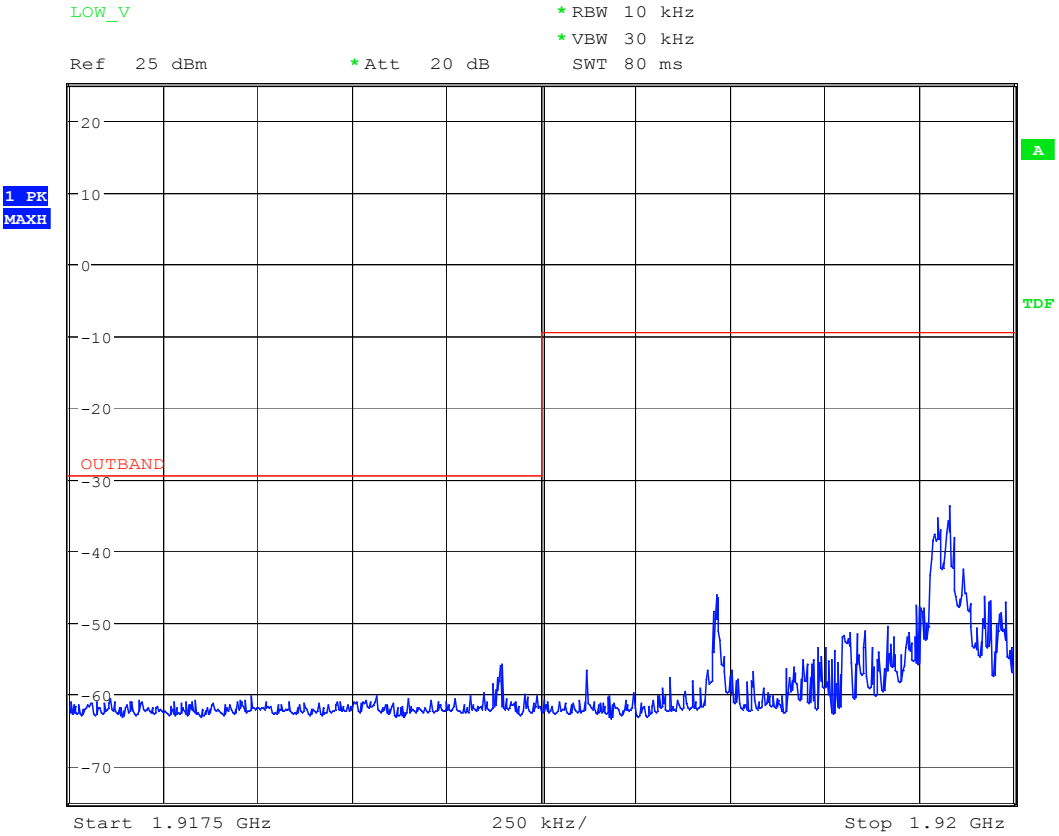
Note:

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).

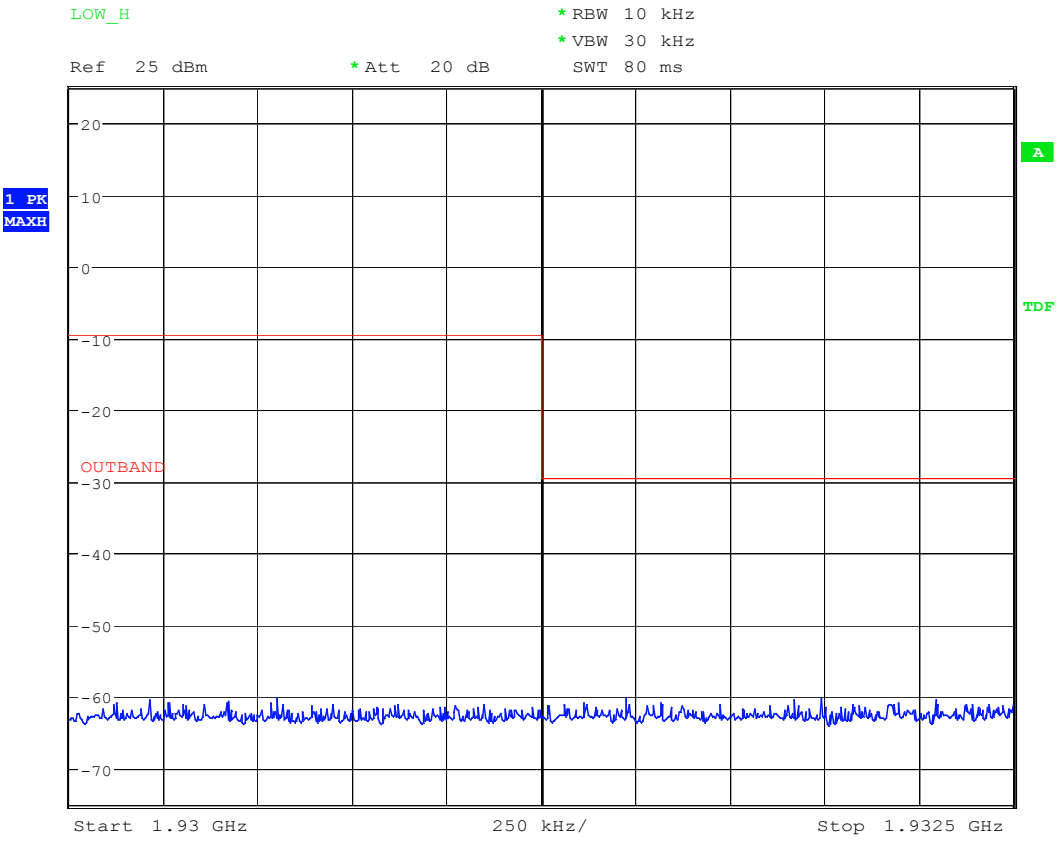
## Out-of-band Unwanted Emissions: CH $F_L$



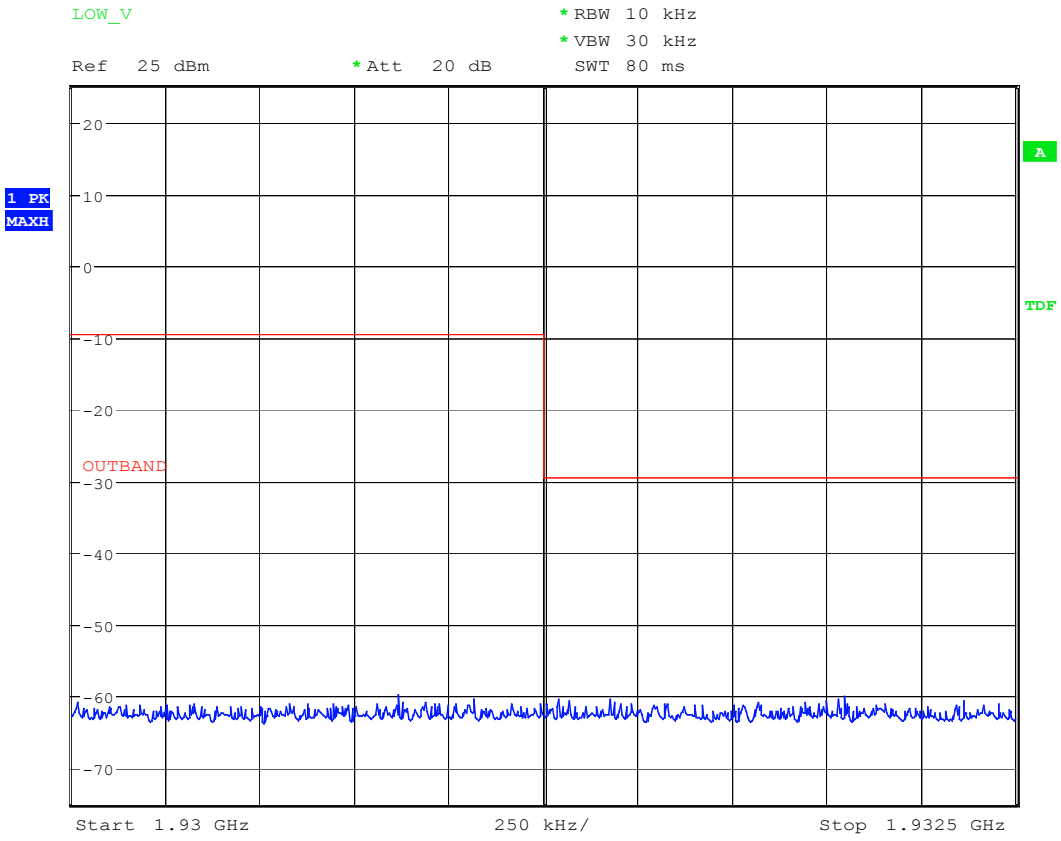
## Out-of-band Unwanted Emissions: CH $F_L$



## Out-of-band Unwanted Emissions: CH $F_L$



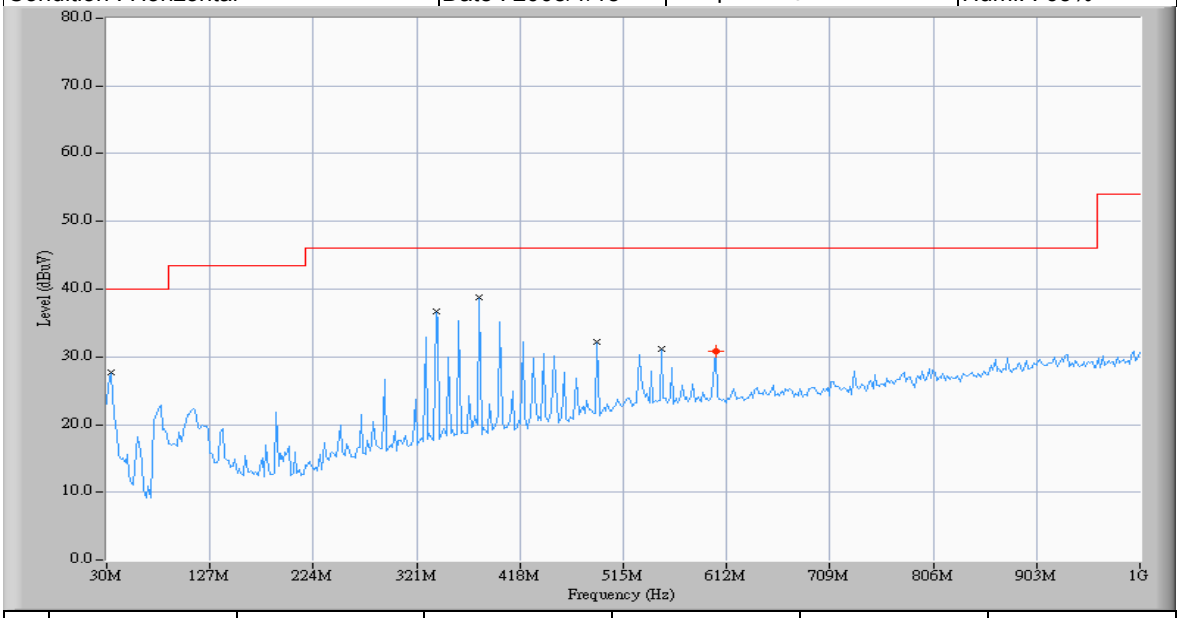
## Out-of-band Unwanted Emissions: CH $F_L$



## b) CH FM

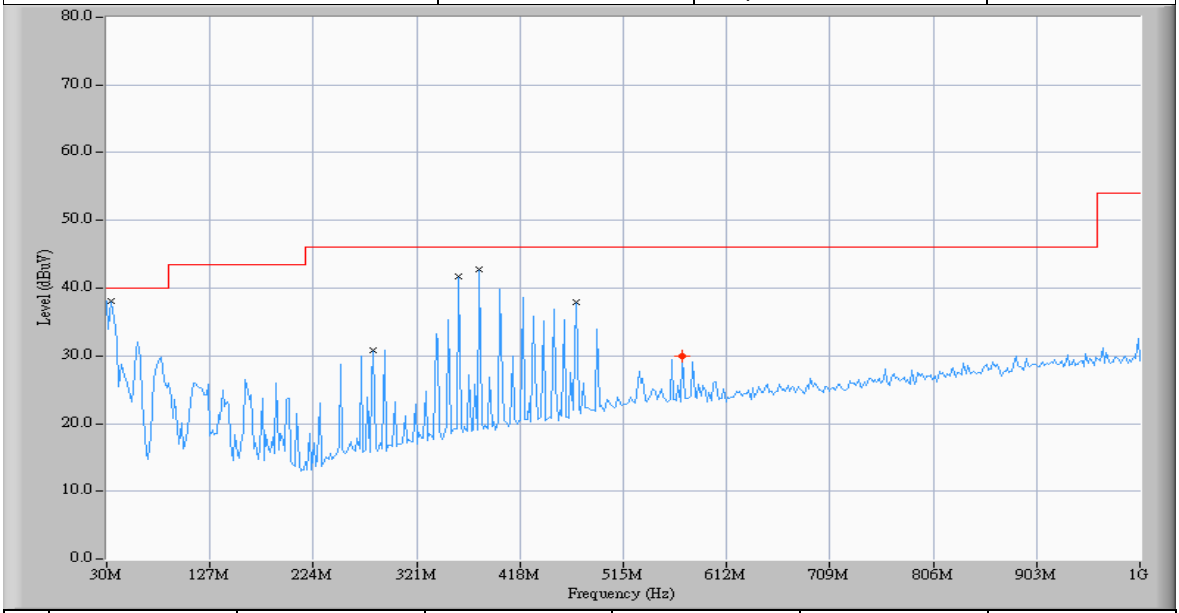
## Out-of-band Unwanted Emissions (below 1GHz): CH FM

| EUT : US DECT PHONE - BASE (FP) | Model : SE658 FP | Status : FP TX CH Mid | |
|---|---|---|---|
| Condition : Horizontal | Date : 2008/1/18 | Temp. : 18℃ | Humi. : 63% |




| | Freq (MHz) | QP Level (dBuV) | Factor (dB/m) | QP Result (dBuV/m) | QP Limit (dBuV/m) | QP Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 33.888 | 9.9 | 17.9 | 27.8 | 40.0 | -12.2 |
| 2 | 339.078 | 18.4 | 18.3 | 36.7 | 46.0 | -9.3 |
| 3 | 379.900 | 19.2 | 19.6 | 38.8 | 46.0 | -7.2 |
| 4 | 490.701 | 10.3 | 21.8 | 32.1 | 46.0 | -13.9 |
| 5 | 550.962 | 7.9 | 23.2 | 31.1 | 46.0 | -14.9 |

| EUT : US DECT PHONE - BASE (FP) | Model : SE658 FP | Status : FP TX CH Mid | |
|---|---|---|---|
| Condition : Vertical | Date : 2008/1/18 | Temp. : 18℃ | Humi. : 63% |

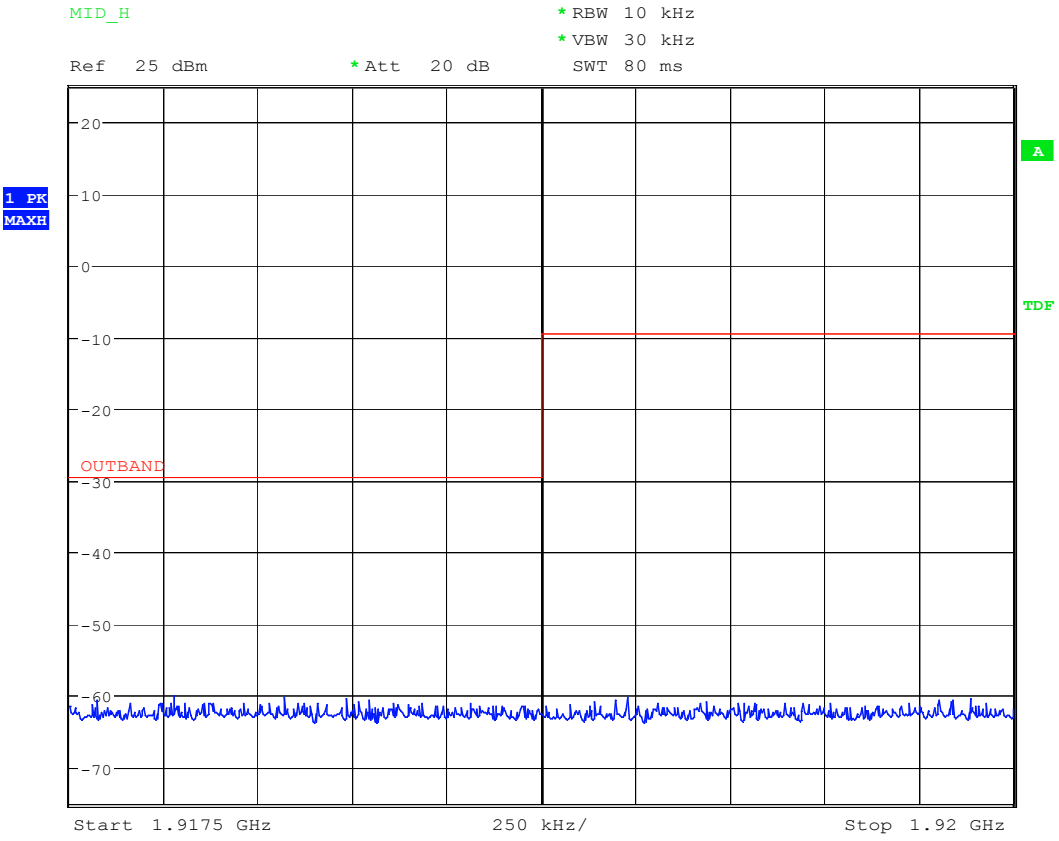



| | Freq (MHz) | QP Level (dBuV) | Factor (dB/m) | QP Result (dBuV/m) | QP Limit (dBuV/m) | QP Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 33.888 | 20.2 | 17.9 | 38.1 | 40.0 | -1.9 |
| 2 | 280.762 | 14.5 | 16.4 | 30.9 | 46.0 | -15.1 |
| 3 | 360.461 | 22.8 | 19.0 | 41.8 | 46.0 | -4.2 |
| 4 | 379.900 | 23.2 | 19.6 | 42.8 | 46.0 | -3.2 |
| 5 | 471.263 | 16.3 | 21.6 | 37.9 | 46.0 | -8.1 |
| 6 | 570.401 | 6.7 | 23.3 | 30.0 | 46.0 | -16.0 |

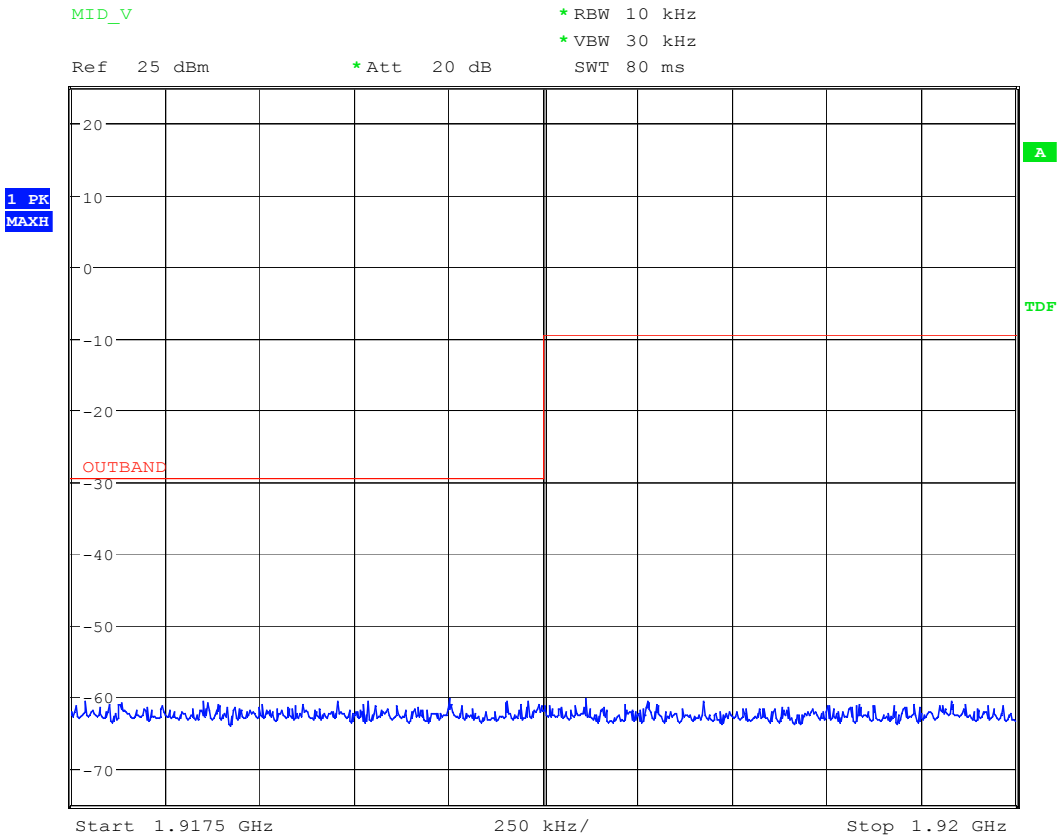
Note:

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).

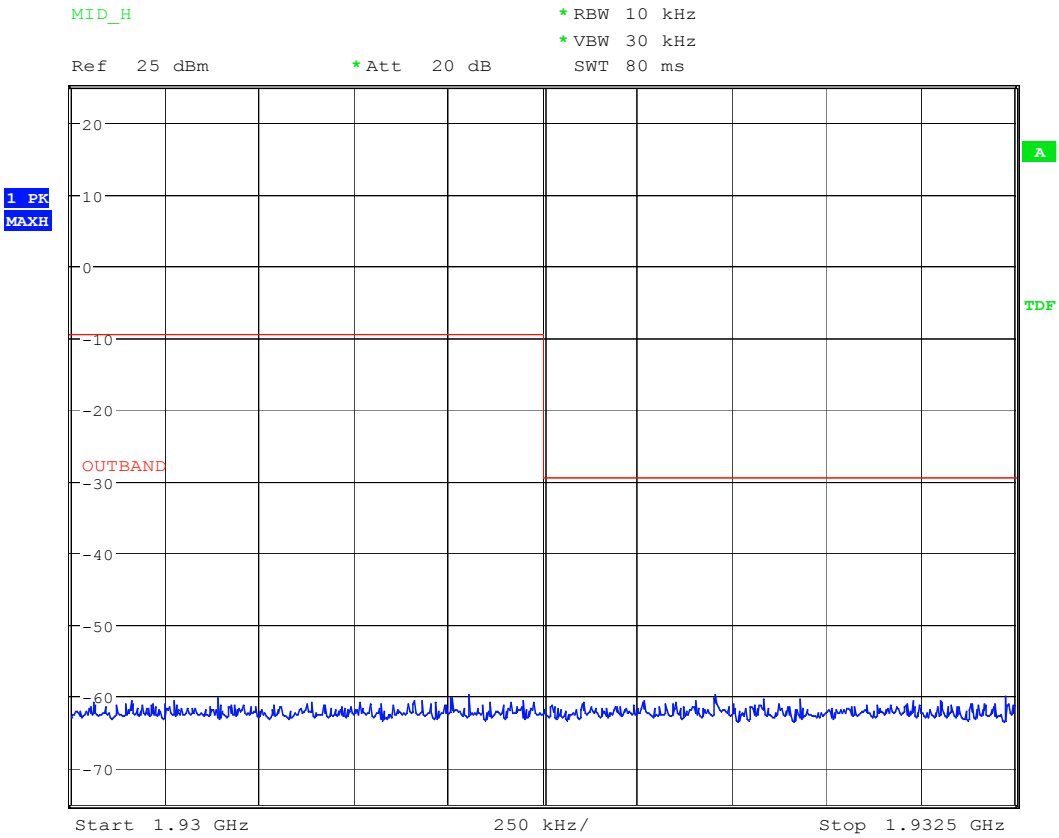
## Out-of-band Unwanted Emissions: CH $F_M$



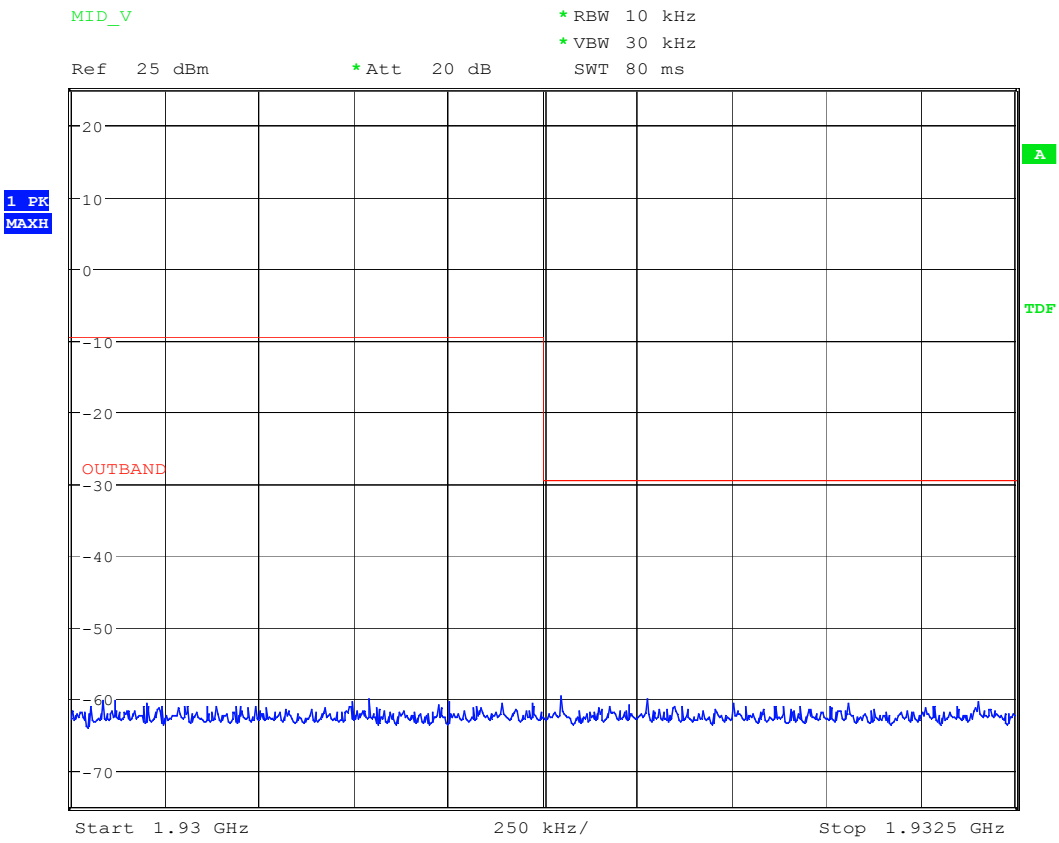
## Out-of-band Unwanted Emissions: CH $F_M$



## Out-of-band Unwanted Emissions: CH $F_M$



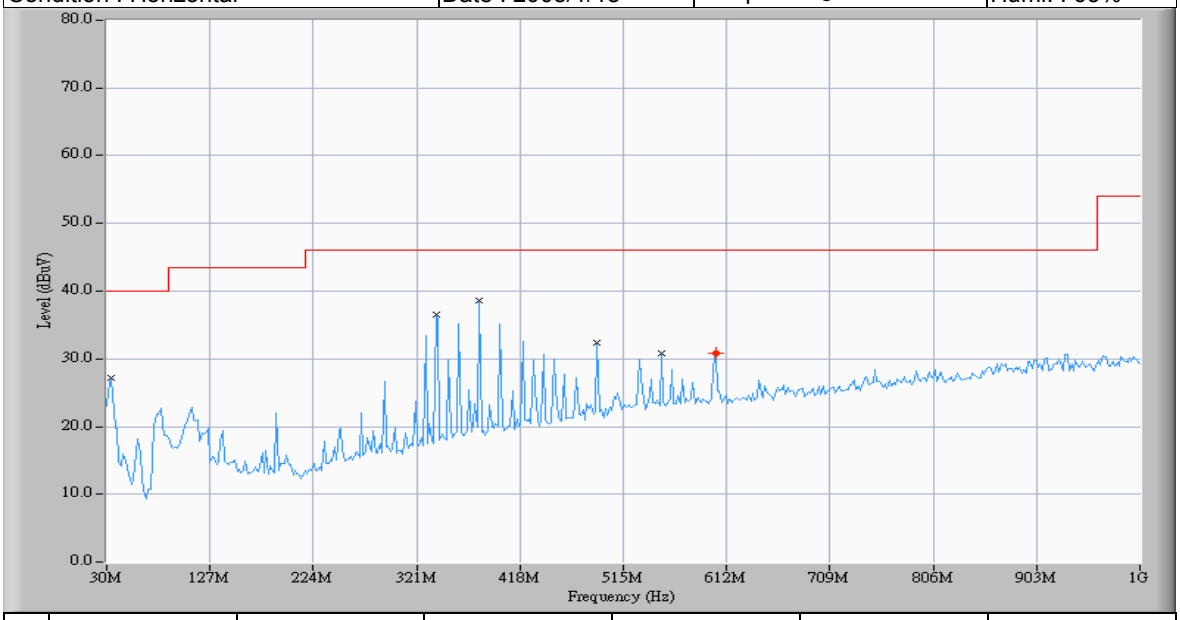
## Out-of-band Unwanted Emissions: CH $F_M$



### c) CH $F_H$

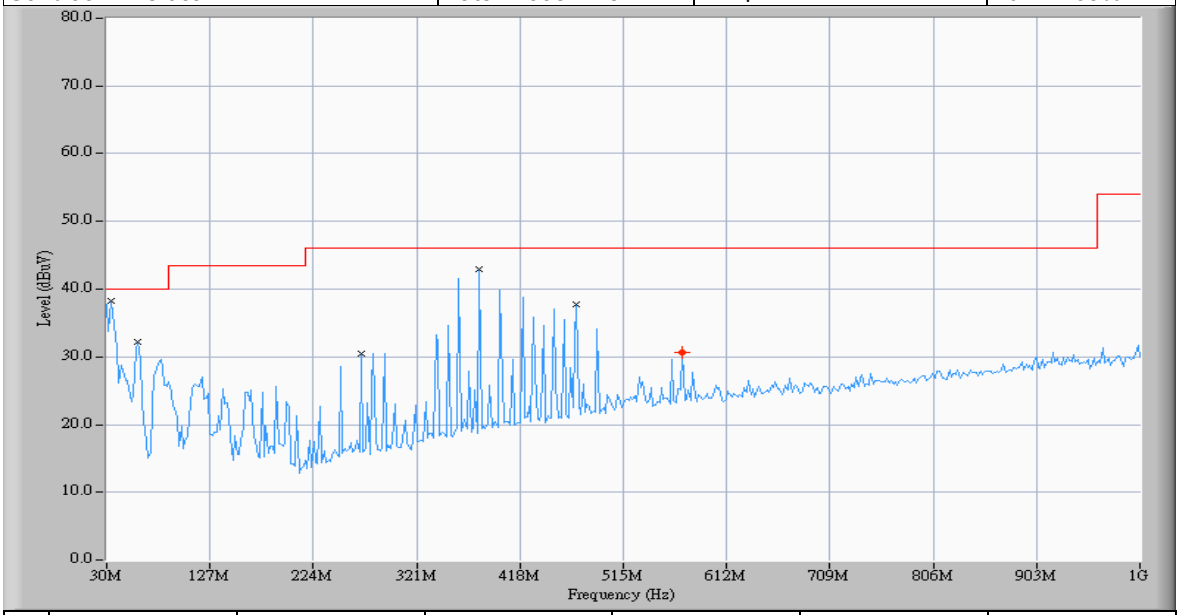
## Out-of-band Unwanted Emissions (below 1GHz): CH $F_H$

| | | | |
|---|---|---|---|
| EUT : US DECT PHONE - BASE (FP) | Model : SE658 FP | Status : FP TX CH High | |
| Condition : Horizontal | Date : 2008/1/18 | Temp. : 18℃ | Humi. : 63% |




| | Freq (MHz) | QP Level (dBuV) | Factor (dB/m) | QP Result (dBuV/m) | QP Limit (dBuV/m) | QP Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 33.888 | 9.3 | 17.9 | 27.2 | 40.0 | -12.8 |
| 2 | 339.078 | 18.3 | 18.3 | 36.6 | 46.0 | -9.4 |
| 3 | 379.900 | 19.0 | 19.6 | 38.6 | 46.0 | -7.4 |
| 4 | 490.701 | 10.6 | 21.8 | 32.4 | 46.0 | -13.6 |
| 5 | 550.962 | 7.6 | 23.2 | 30.8 | 46.0 | -15.2 |
| 6 | 601.503 | 7.3 | 23.5 | 30.8 | 46.0 | -15.2 |

| EUT : US DECT PHONE - BASE (FP) | Model : SE658 FP | Status : FP TX CH High | |
|---|---|---|---|
| Condition : Vertical | Date : 2008/1/18 | Temp. : 18℃ | Humi. : 63% |

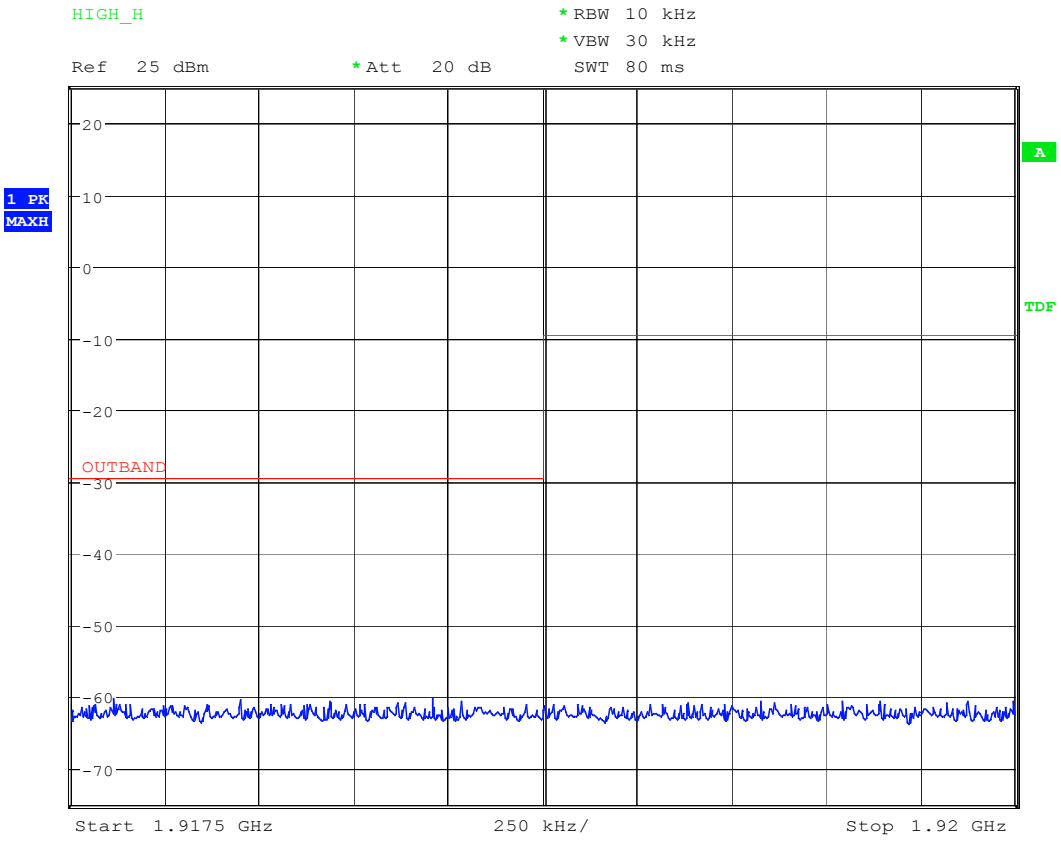



| | Freq (MHz) | QP Level (dBuV) | Factor (dB/m) | QP Result (dBuV/m) | QP Limit (dBuV/m) | QP Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 33.888 | 20.3 | 17.9 | 38.2 | 40.0 | -1.8 |
| 2 | 59.158 | 24.6 | 7.6 | 32.2 | 40.0 | -7.8 |
| 3 | 269.098 | 14.3 | 16.2 | 30.5 | 46.0 | -15.5 |
| 4 | 379.900 | 23.3 | 19.6 | 42.9 | 46.0 | -3.1 |
| 5 | 471.263 | 16.2 | 21.6 | 37.8 | 46.0 | -8.2 |
| 6 | 570.401 | 7.4 | 23.3 | 30.7 | 46.0 | -15.3 |

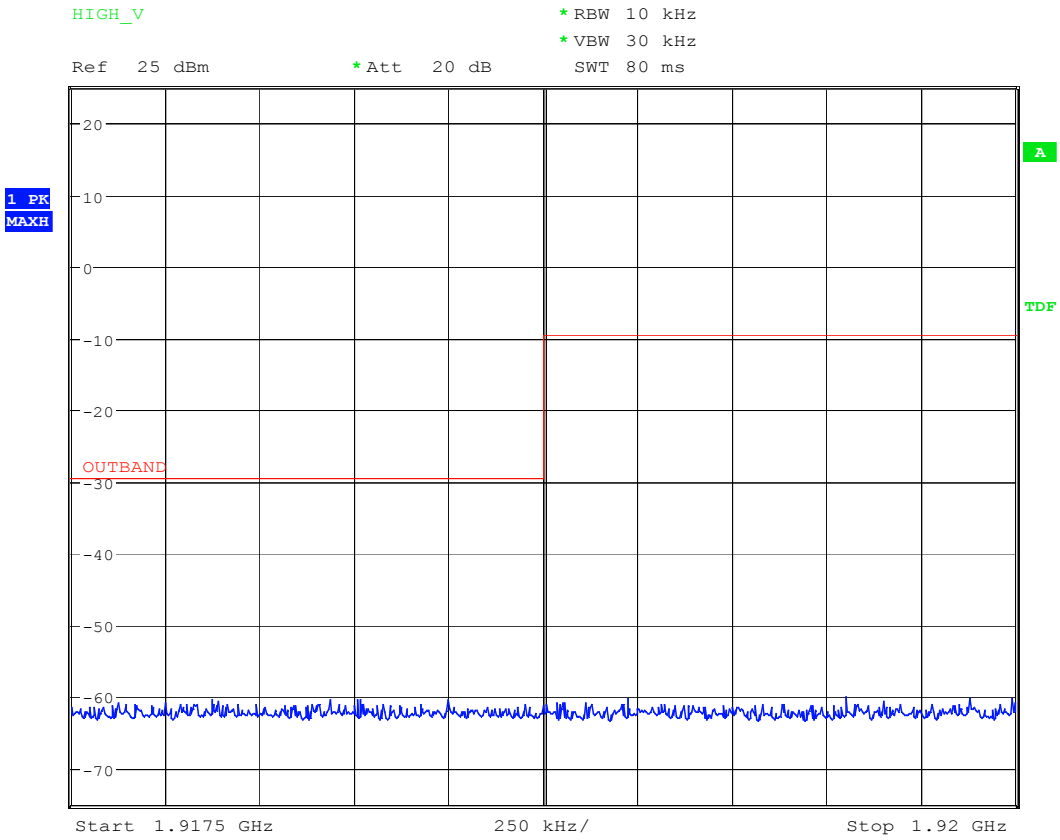
Note:

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).

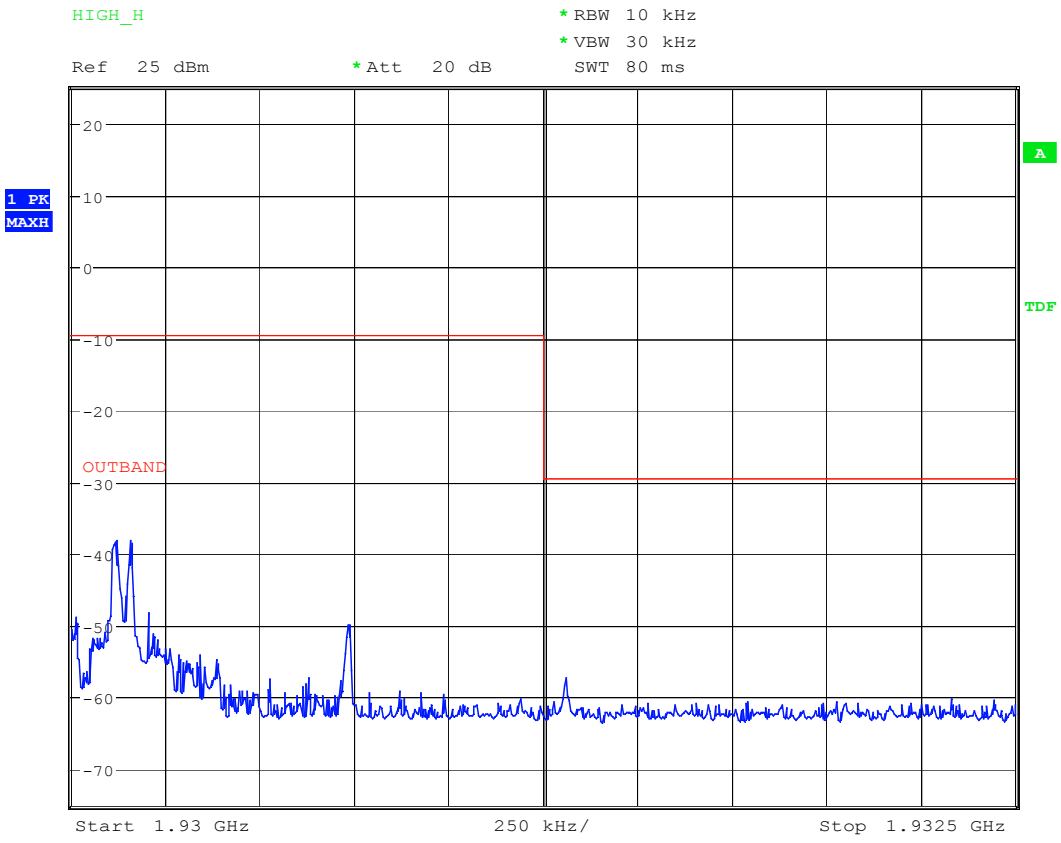
## Out-of-band Unwanted Emissions: CH $F_H$



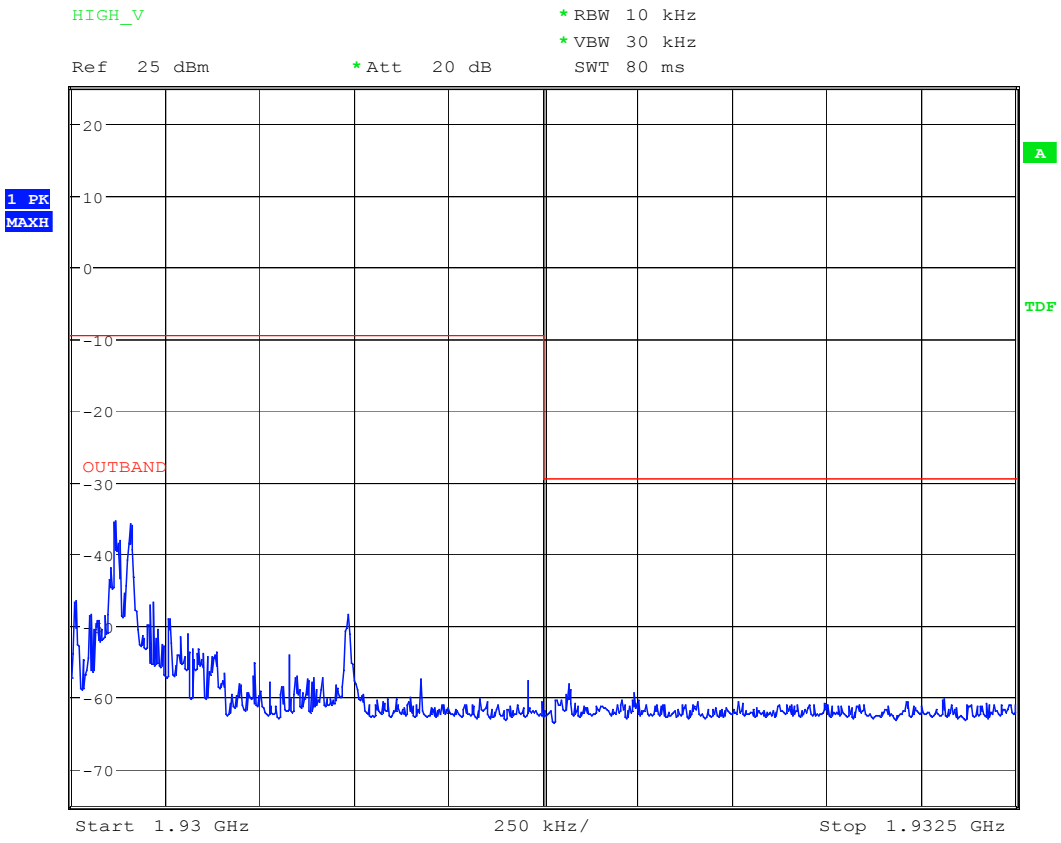
## Out-of-band Unwanted Emissions: CH $F_H$



## Out-of-band Unwanted Emissions: CH $F_H$



## Out-of-band Unwanted Emissions: CH $F_H$



# 6.26 Frame period and jitter

## 6.26.1 Standard Applicable: FCC 15.323(e) same as RSS-213 4.3.4 (C)

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in these subbands shall be 20 milliseconds/X where X is a positive whole number. Each device that implements time division for the purposes of maintaining a duplex connection on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per millions (ppm). Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm. The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

## 6.26.2 Measurement Requirement:

- Frame frequency stability ≤ 50 ppm
- TDMA frame frequency stability ≤ 10 ppm (That translates to frequency drift of19.2 kHz/slot for 1920 MHz carrier)
- Frame jitter ≤ 25 μs

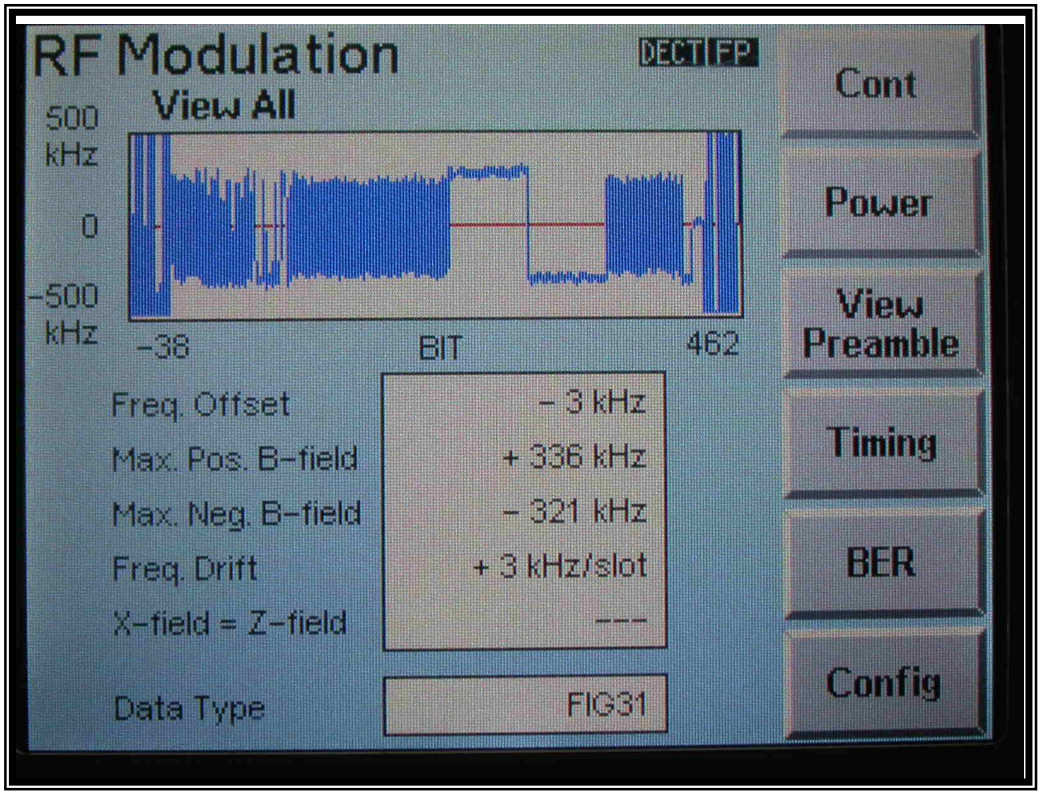
## 6.26.3 Test Results: Complies

**Measurement Data:**

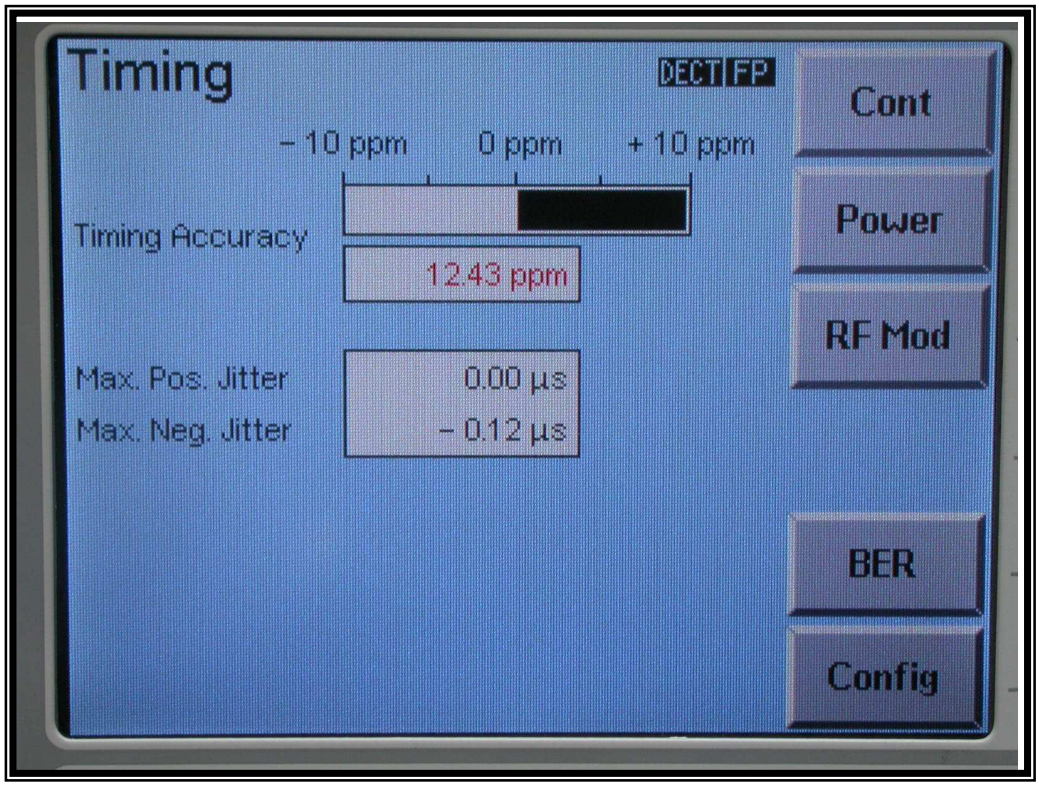
| Channel No. | Frequency (KHz/slot) | | Jitter (us) | |
|---|---|---|---|---|
| | Drift | Limit | Result | Limit |
| $F_L$ | 3 | ±19.2 | -0.12 | ±25 |
| $F_M$ | 2 | ±19.2 | -0.12 | ±25 |
| $F_H$ | 2 | ±19.2 | -0.12 | ±25 |

Photos of worst-case display follow:

**Frequency Drift**




**TDMA Frame Jitter**



# 6.27 Carrier frequency stability

## 6.27.1 Standard Applicable: FCC 15.323(f)

The frequency stability of the carrier frequency of the intentional radiator shall be maintained within ± 10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of -20℃ to +50℃ at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20℃. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

## RSS-213 6.2 Frequency Stability

The carrier frequency stability shall be maintained within ±10 ppm (±0.001%).

## 6.27.2 Measurement Requirement:

- Carrier frequency stability ≤ 10 ppm over 1 hour or interval between channel access monitoring, whichever is shorter (That translates to frequency drift of19.2 kHz for 1920 MHz carrier)
- Carrier frequency stability over -20℃ to +50℃ at normal supply voltage, and over 85% to 115% of rated supply voltage (voltage variation not required for battery operated device)

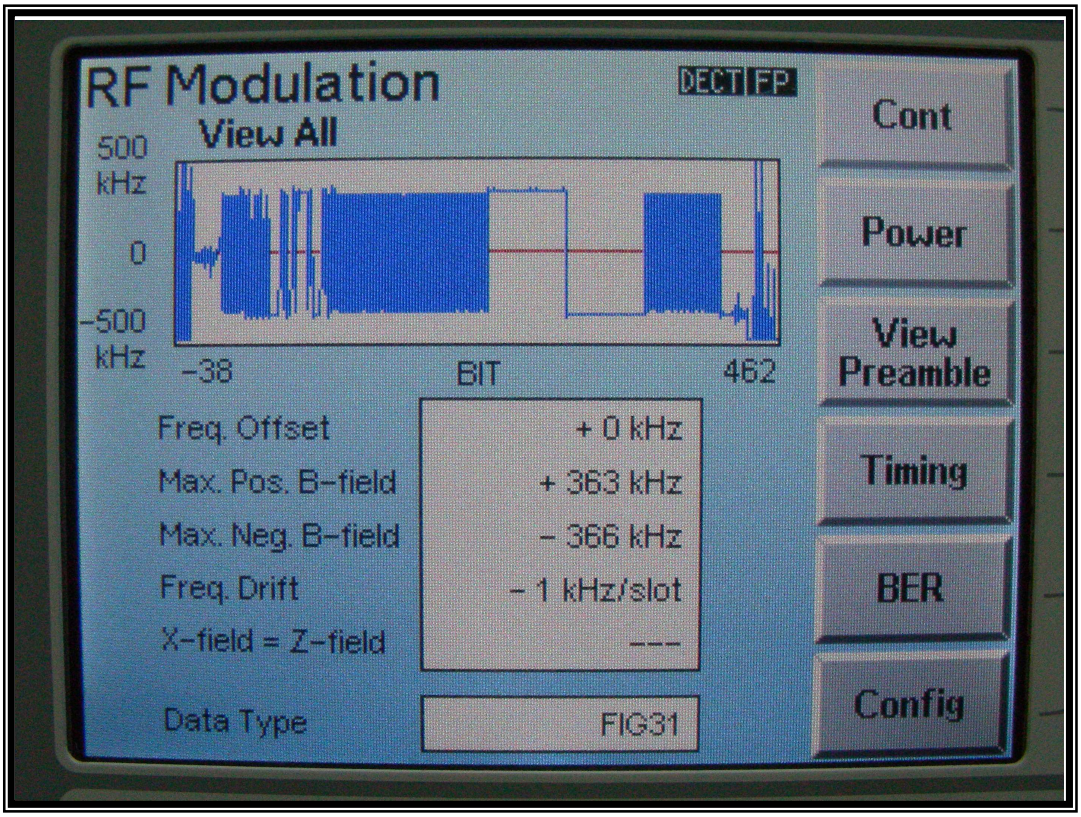
## 6.27.3 Test Results: Complies

## Measurement Data:

### a) Carrier Frequency Stability with Supply voltage

| Channel No. | Frequency Offset (kHz) | | | Limit (kHz) |
|---|---|---|---|---|
| | Voltage x 85% | Normal voltage | Voltage x 115% | |
| $F_L$ | 0 | 0 | 0 | ±19.2 |
| $F_M$ | 0 | 0 | 0 | ±19.2 |
| $F_H$ | 0 | 0 | 0 | ±19.2 |

**b) Carrier Frequency Stability with Temperature and Time**

| Channel No. | Frequency Offset (kHz) | | | Limit (kHz) |
|---|---|---|---|---|
| | 0 ℃ | 20 ℃ | 40 ℃ | |
| $F_L$ | 0 | 0 | 0 | ±19.2 |
| $F_M$ | 0 | 0 | 0 | ±19.2 |
| $F_H$ | 0 | 0 | 0 | ±19.2 |

Test was conducted for duration longer than 1 hour. Photo of worst-case display follows: