



**4.6 BAND EDGES MEASUREMENT**

**4.6.1 LIMITS OF BAND EDGES MEASUREMENT**

Below -20dB of the highest emission level of operating band (in 1MHz Resolution Bandwidth).

**4.6.2 TEST INSTRUMENTS**

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

**NOTE:**

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

**4.6.3 TEST PROCEDURE**

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW spectrum analyzer to 1 MHz and set VBW spectrum analyzer to 10 Hz with suitable frequency span including 1 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=VBW=100kHz ; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

**4.6.4 EUT OPERATING CONDITION**

Same as Item 4.3.5



#### 4.6.5 TEST RESULTS (ANTENNA 1 – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

##### **NOTE (Peak):**

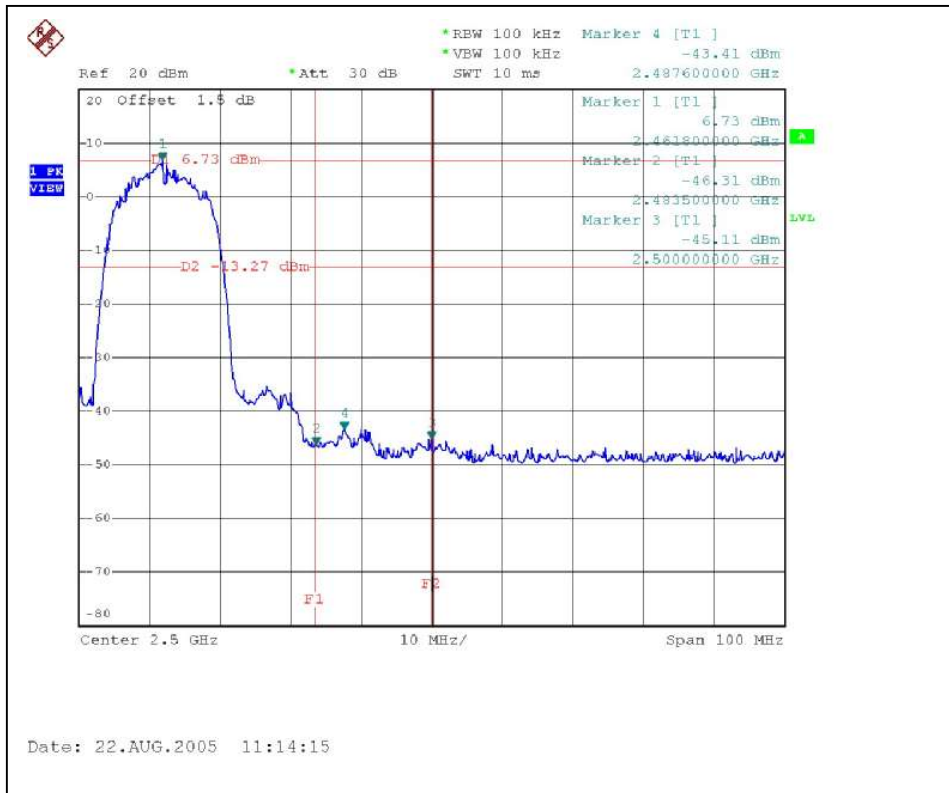
The band edge emission plot of DSSS technique on the following first page show 54.05dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 113.5dBuV/m, so the maximum field strength in restrict band is  $113.5-54.05=59.45$ dBuV/m which is under 74 dBuV/m limit.

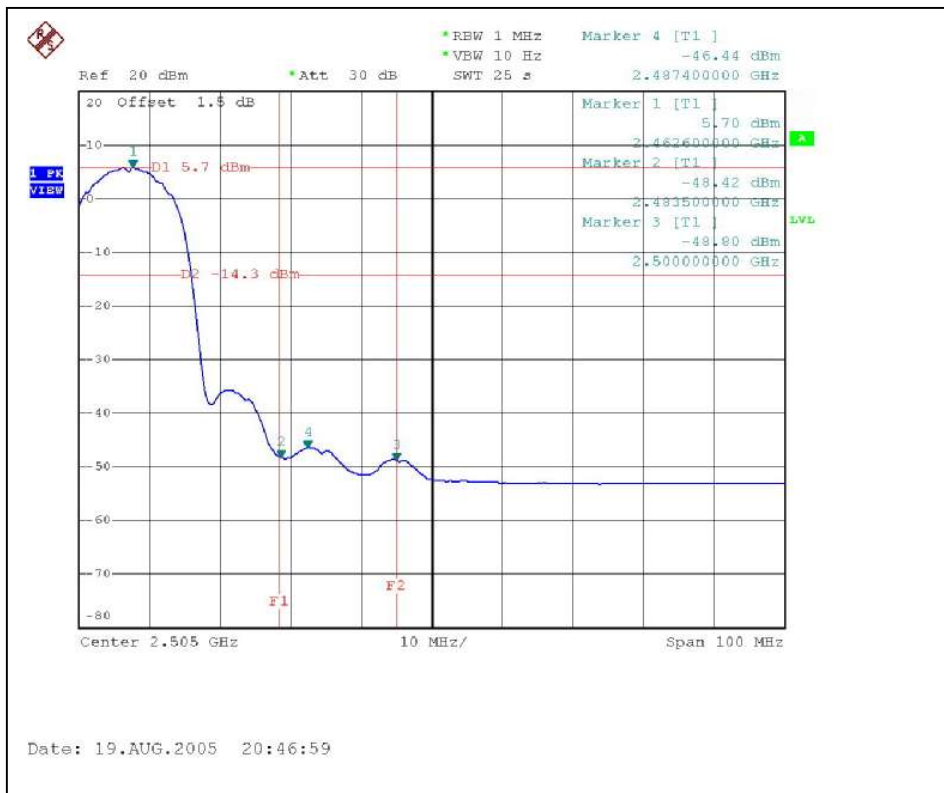
The band edge emission plot of DSSS technique on the following first page shows 53.04dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 112.0dBuV/m, so the maximum field strength in restrict band is  $112.0-53.04=58.96$ dBuV/m which is under 74 dBuV/m limit.

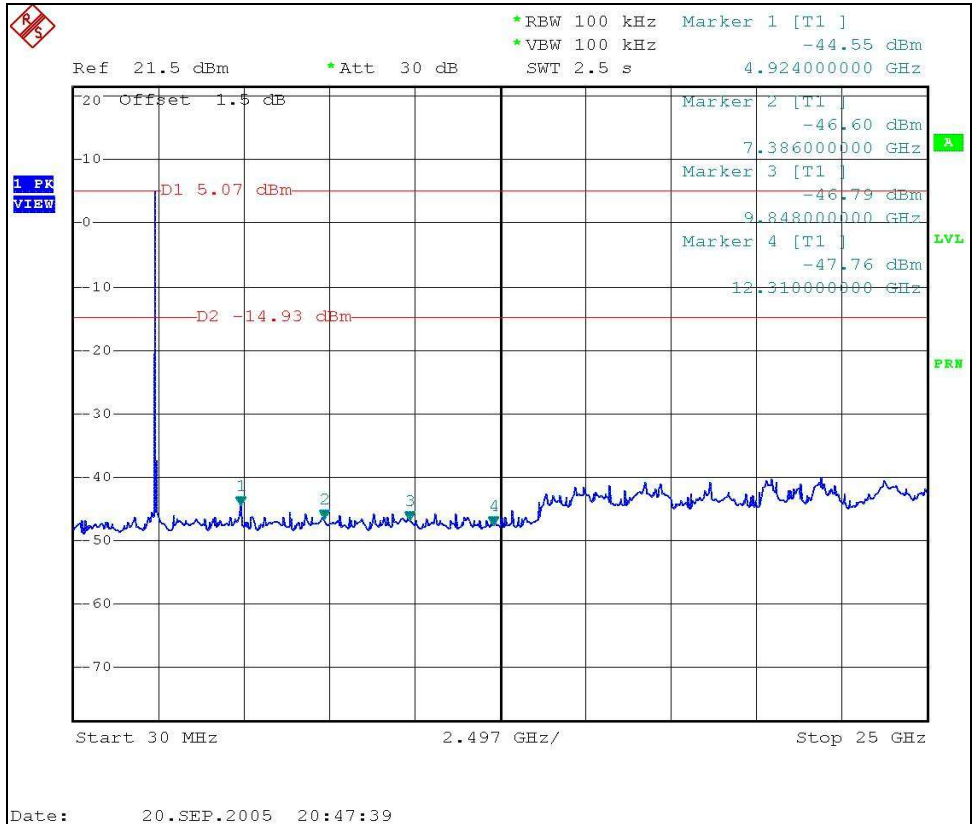
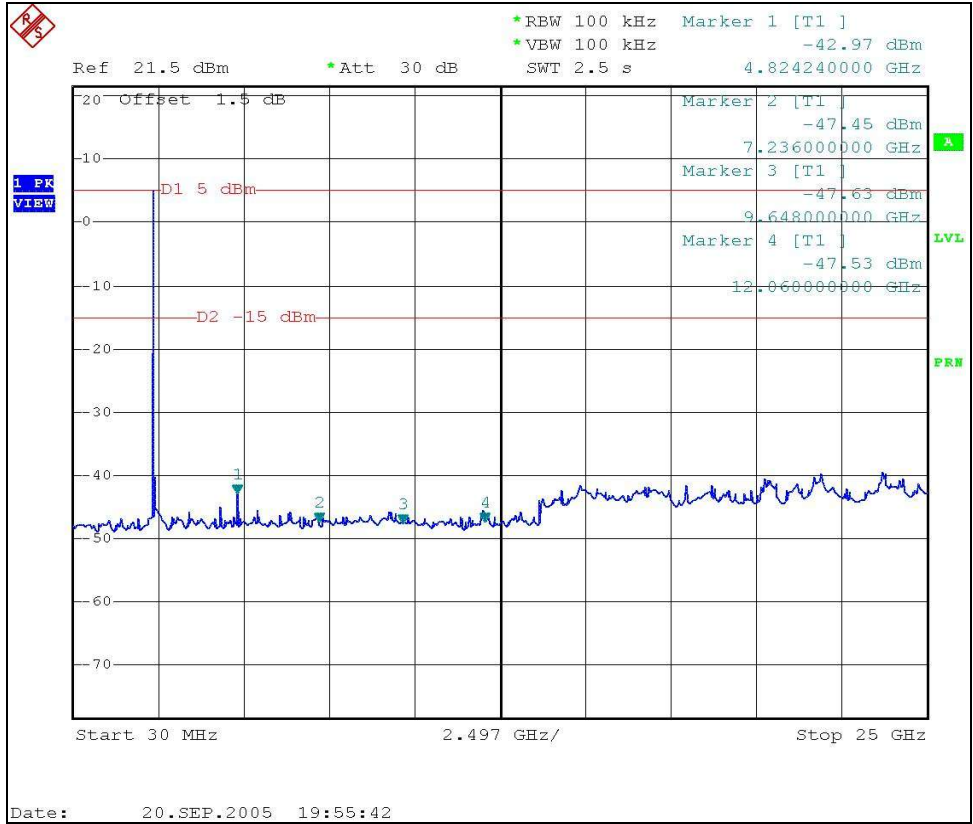
##### **NOTE (Average):**

The band edge emission plot of DSSS technique on the following second page shows 54.98dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 105.9dBuV/m, so the maximum field strength in restrict band is  $105.9-54.98=50.92$ dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 54.12dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 104.7dBuV/m, so the maximum field strength in restrict band is  $104.7-54.12=50.58$ dBuV/m which is under 54 dBuV/m limit.







#### 4.6.6 TEST RESULTS (ANTENNA 1 – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

#### **NOTE (Peak) :**

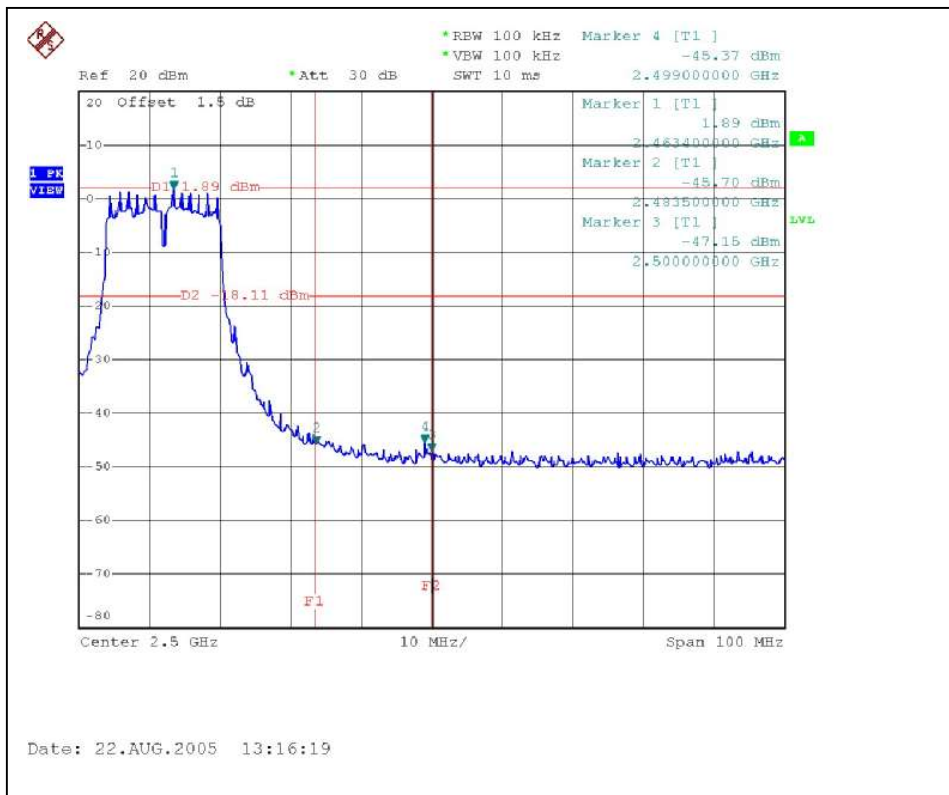
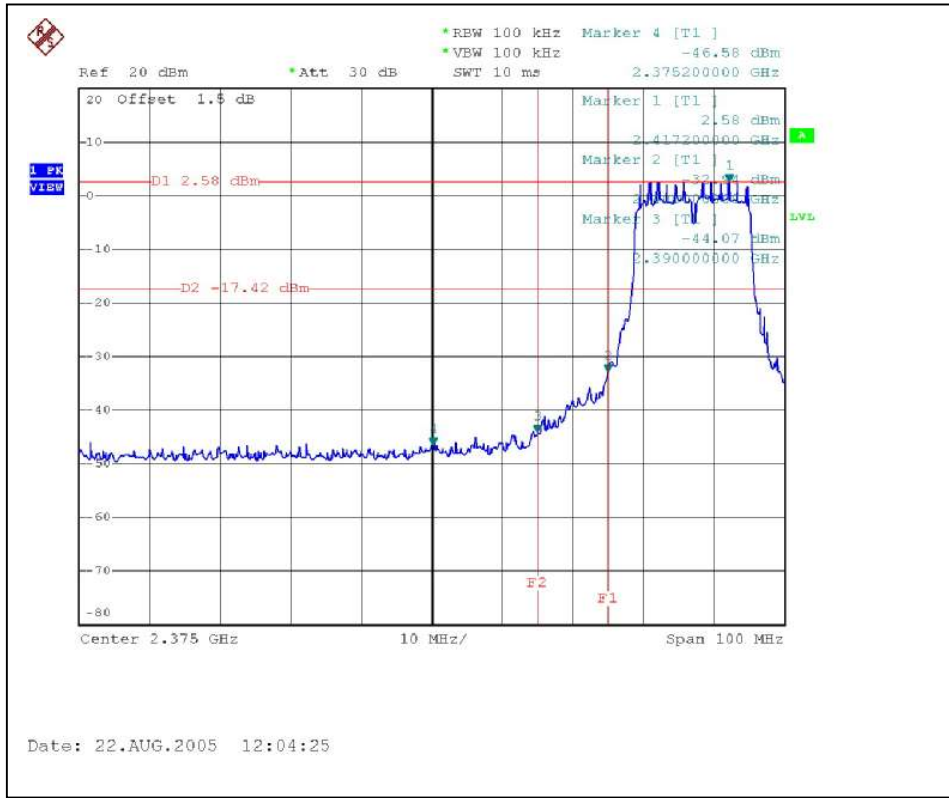
The band edge emission plot of OFDM technique on the following first page show 47.28dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 109.5dBuV/m, so the maximum field strength in restrict band is  $109.5-47.28=62.22$ dBuV/m which is under 74 dBuV/m limit.

The band edge emission plot of OFDM technique on the following first page shows 47.59dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 107.2dBuV/m, so the maximum field strength in restrict band is  $107.2-47.59=59.61$ dBuV/m which is under 74 dBuV/m limit.

#### **NOTE (Average):**

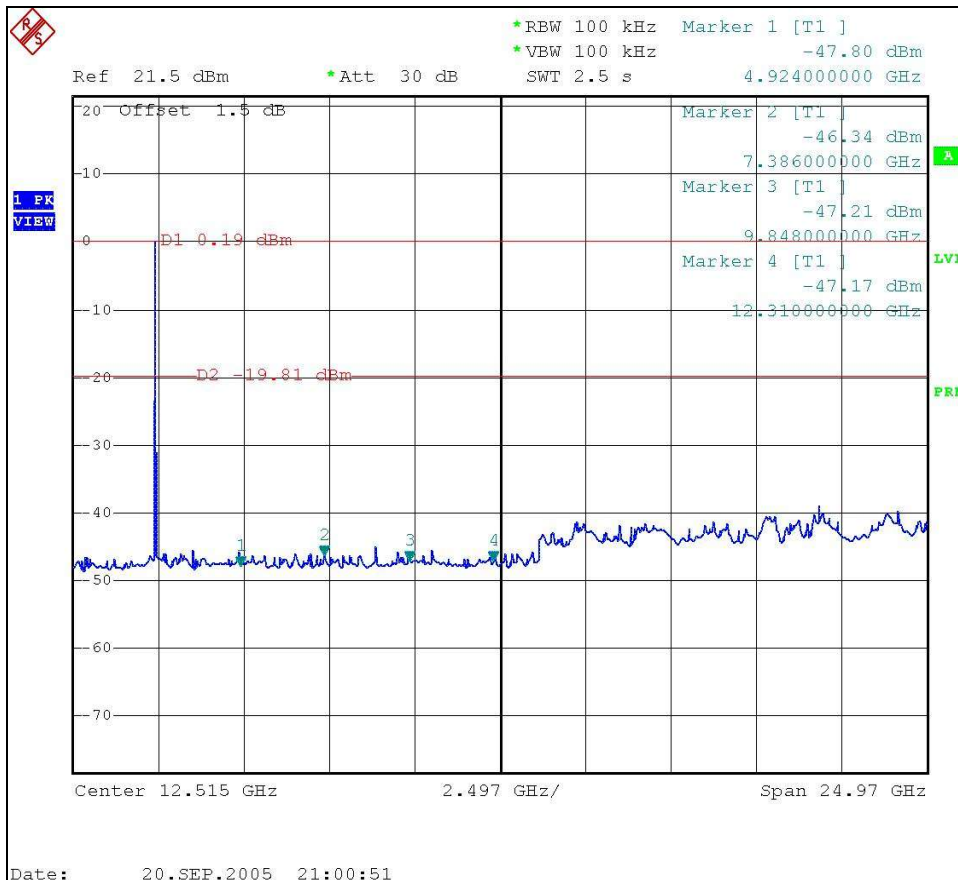
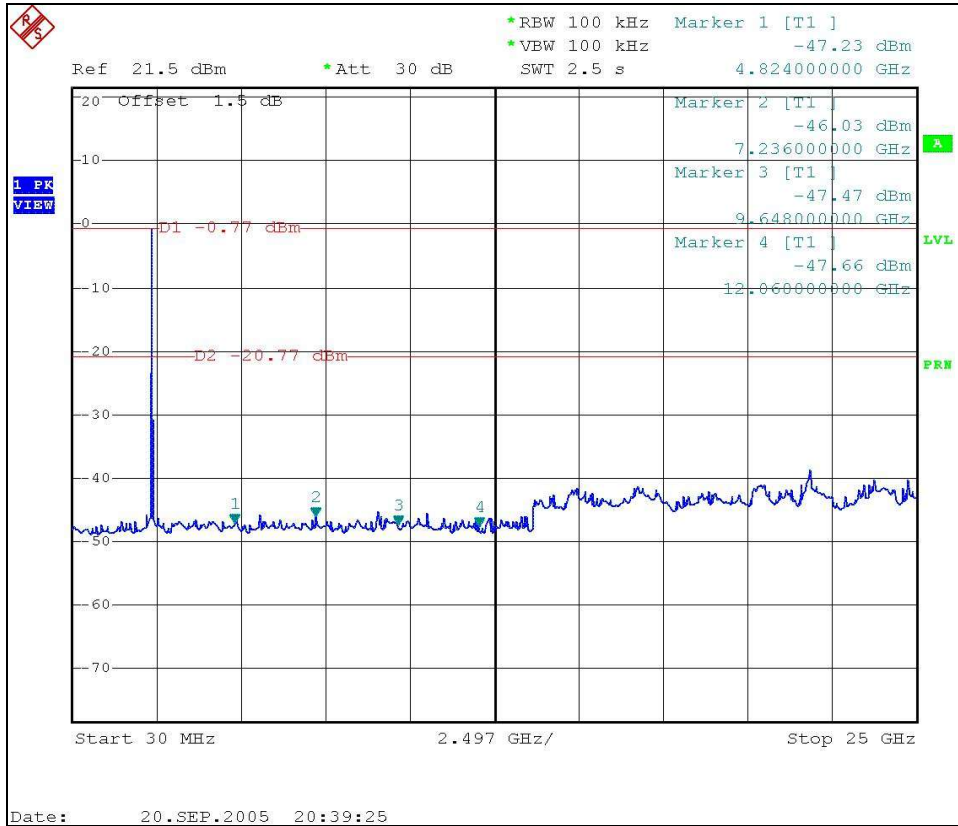
The band edge emission plot of OFDM technique on the following second page shows 48.18dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 101.2dBuV/m, so the maximum field strength in restrict band is  $101.2-48.18=53.02$ dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 47.85dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 99.4dBuV/m, so the maximum field strength in restrict band is  $99.4-47.85=51.55$ dBuV/m which is under 54 dBuV/m limit.











#### 4.6.7 TEST RESULTS (ANTENNA 2 – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

##### **NOTE (Peak):**

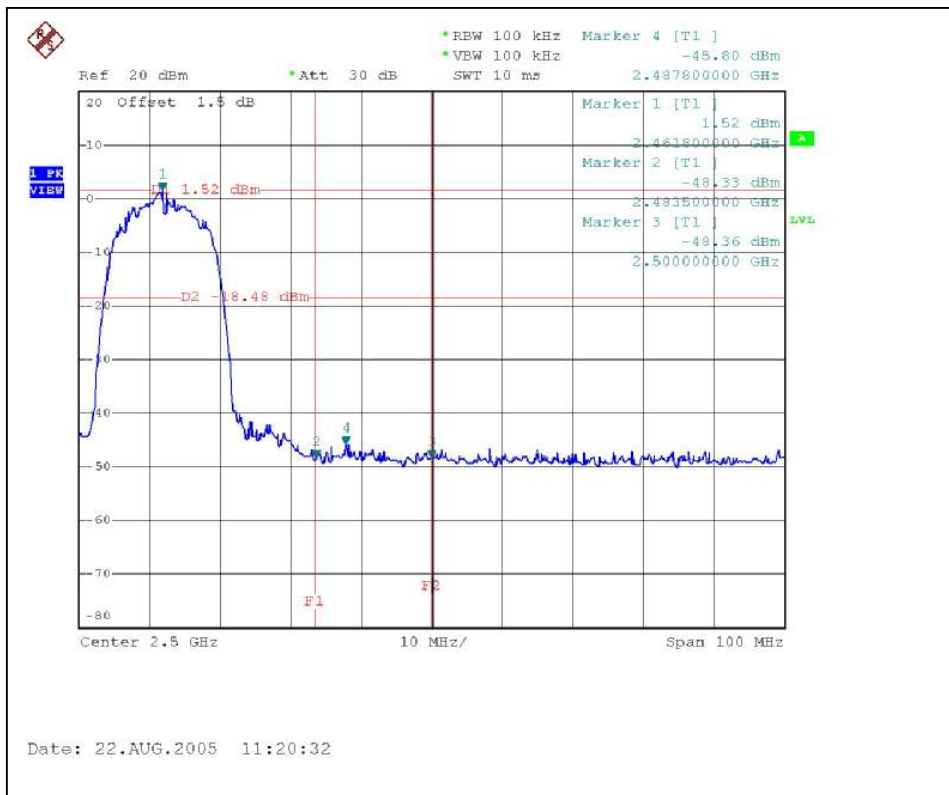
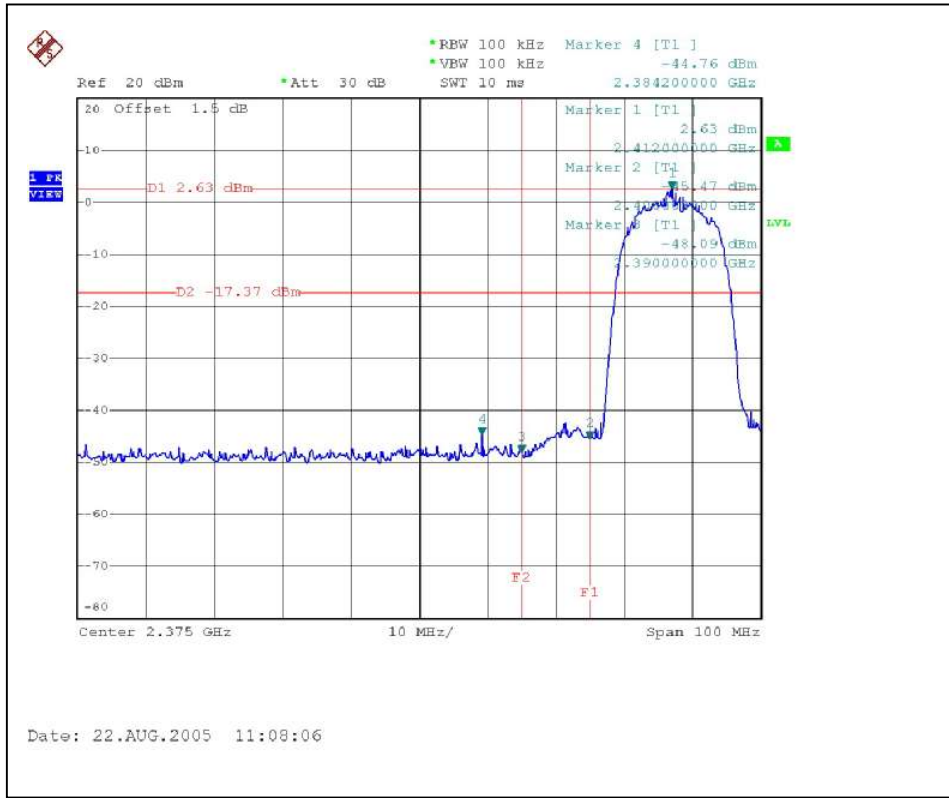
The band edge emission plot of DSSS technique on the following first page show 50.72dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 112.7dBuV/m, so the maximum field strength in restrict band is  $112.7-50.72=61.96$ dBuV/m which is under 74 dBuV/m limit.

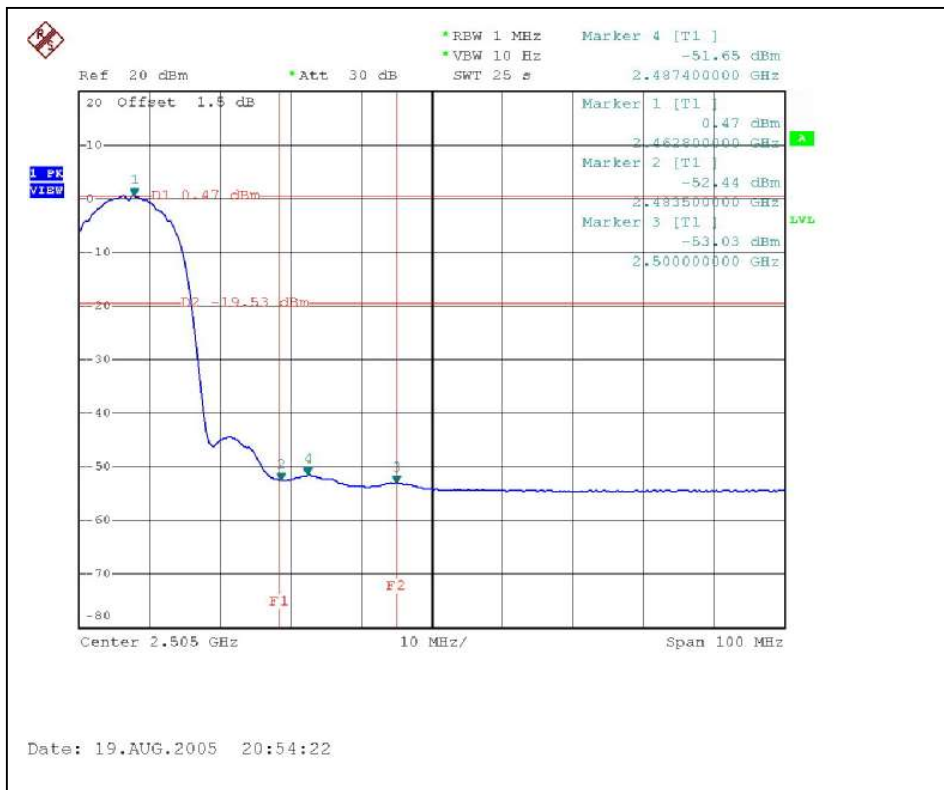
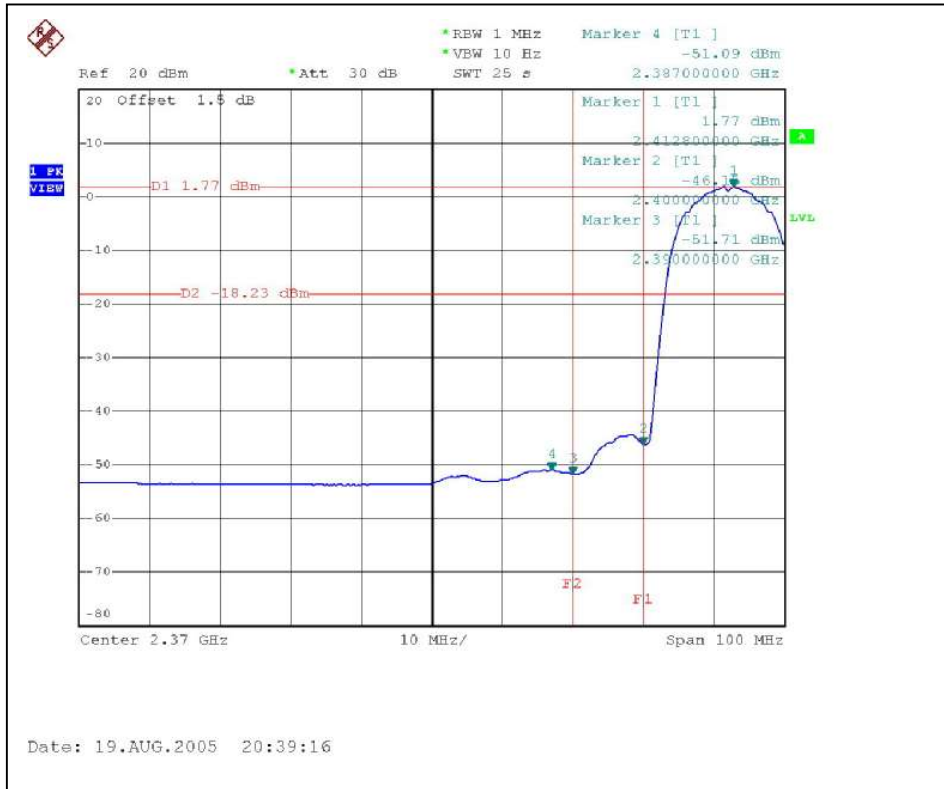
The band edge emission plot of DSSS technique on the following first page shows 49.85dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 111.7dBuV/m, so the maximum field strength in restrict band is  $111.7-49.85=61.85$ dBuV/m which is under 74 dBuV/m limit.

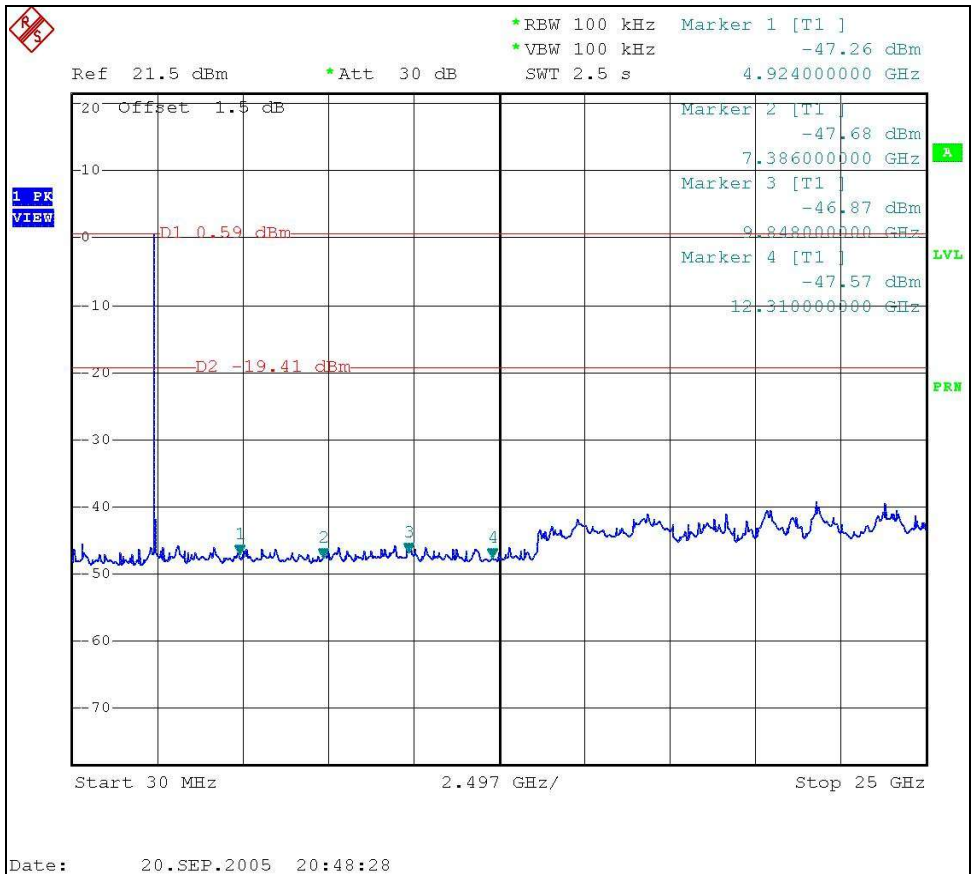
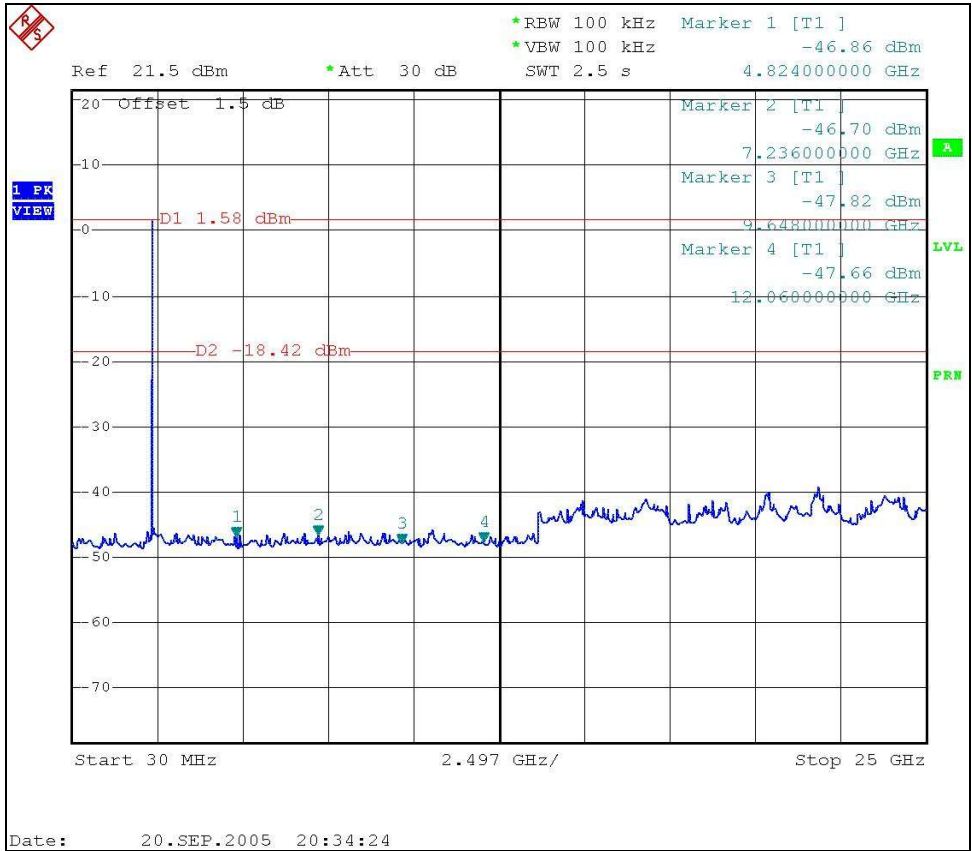
##### **NOTE (Average):**

The band edge emission plot of DSSS technique on the following second page shows 53.48dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 105.5dBuV/m, so the maximum field strength in restrict band is  $105.5-53.48=52.02$ dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 52.91dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 104.5dBuV/m, so the maximum field strength in restrict band is  $104.5-52.91=51.59$ dBuV/m which is under 54 dBuV/m limit.









#### 4.6.8 TEST RESULTS (ANTENNA 2 – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

#### **NOTE (Peak) :**

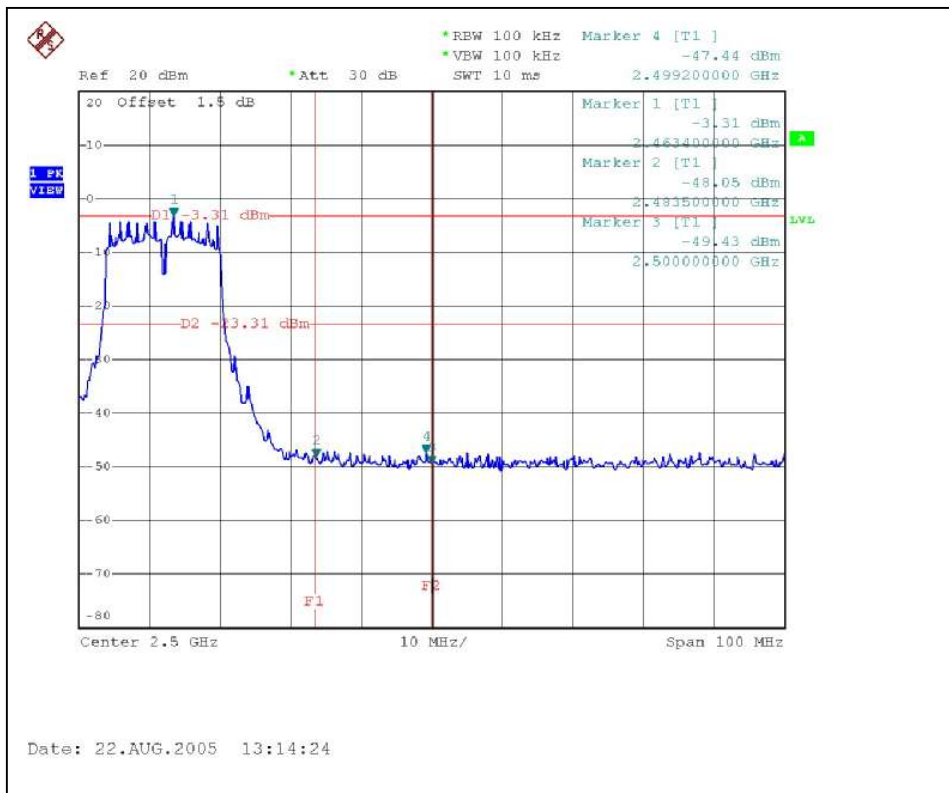
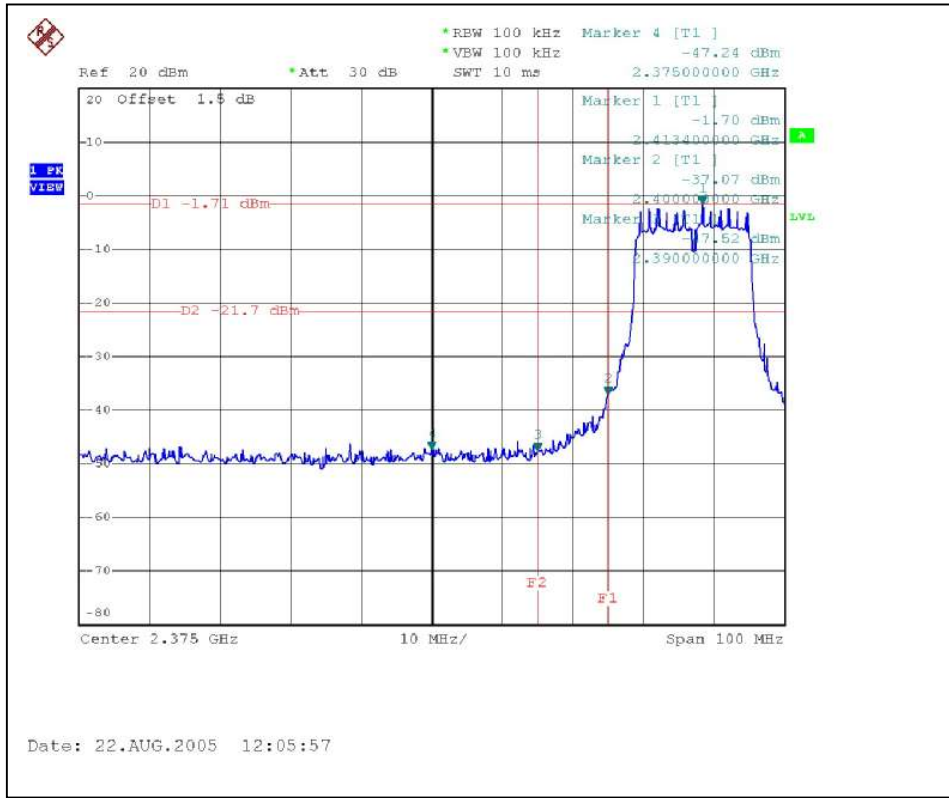
The band edge emission plot of OFDM technique on the following first page show 45.81dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 109.7dBuV/m, so the maximum field strength in restrict band is  $109.7-45.81=63.89$ dBuV/m which is under 74 dBuV/m limit.

The band edge emission plot of OFDM technique on the following first page shows 44.74dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 108.1dBuV/m, so the maximum field strength in restrict band is  $108.1-44.74=63.36$ dBuV/m which is under 74 dBuV/m limit.

#### **NOTE (Average):**

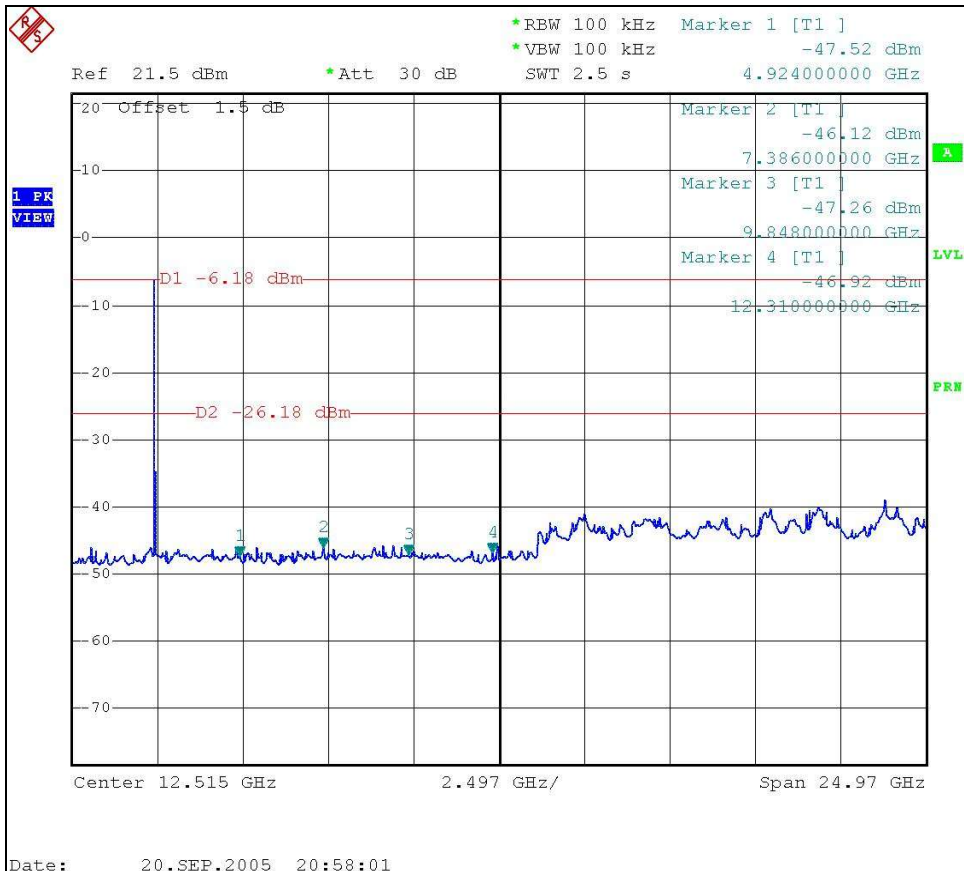
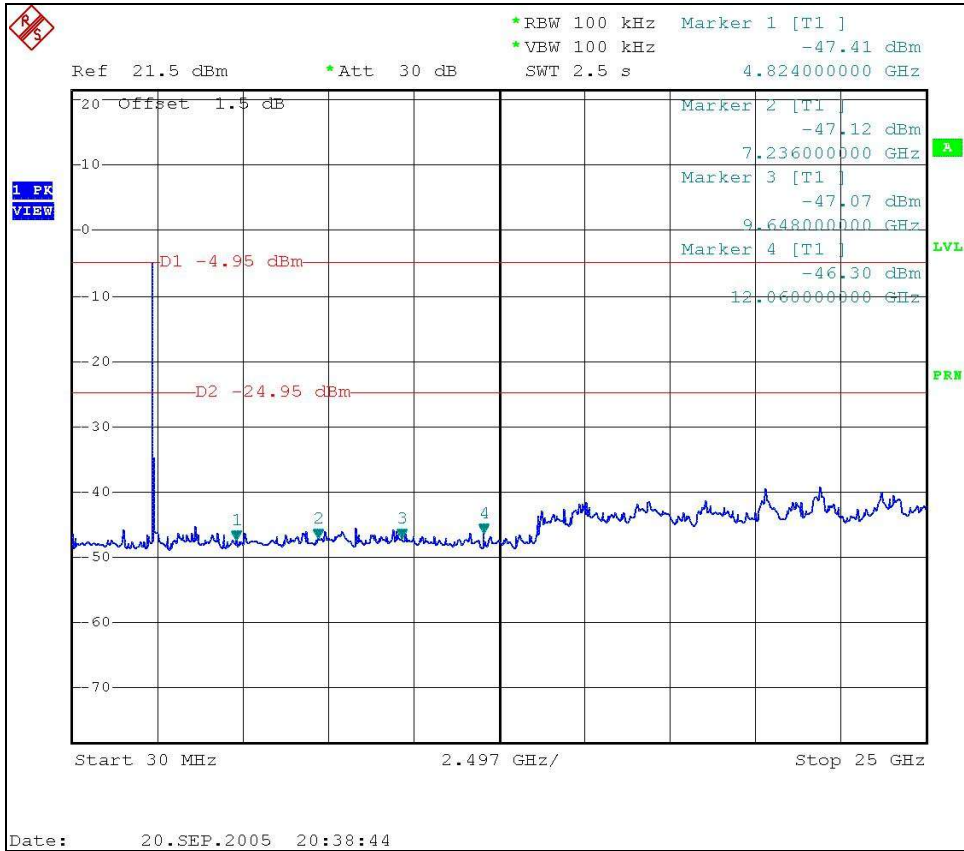
The band edge emission plot of OFDM technique on the following second page shows 47.88dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 100.4dBuV/m, so the maximum field strength in restrict band is  $100.4-47.88=52.52$ dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 46.63dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 99.3dBuV/m, so the maximum field strength in restrict band is  $99.3-46.63=52.67$ dBuV/m which is under 54 dBuV/m limit.









#### 4.6.9 TEST RESULTS (ANTENNA 3 – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

##### **NOTE (Peak):**

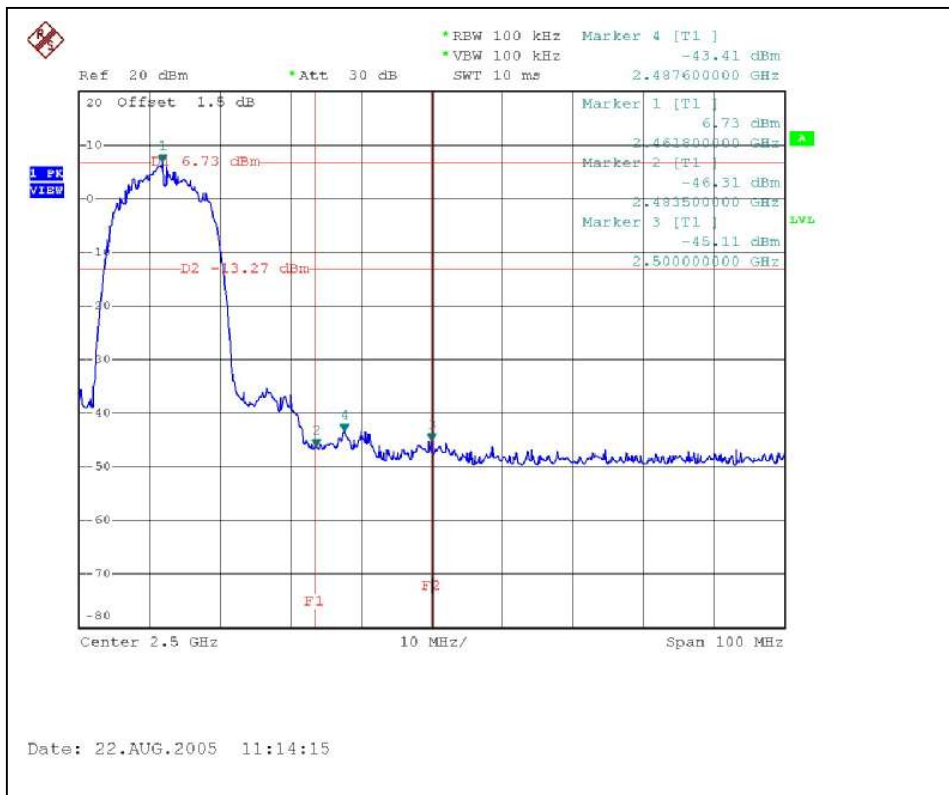
The band edge emission plot of DSSS technique on the following first page show 54.05dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 112.1dBuV/m, so the maximum field strength in restrict band is  $112.1-54.05=58.05$ dBuV/m which is under 74 dBuV/m limit.

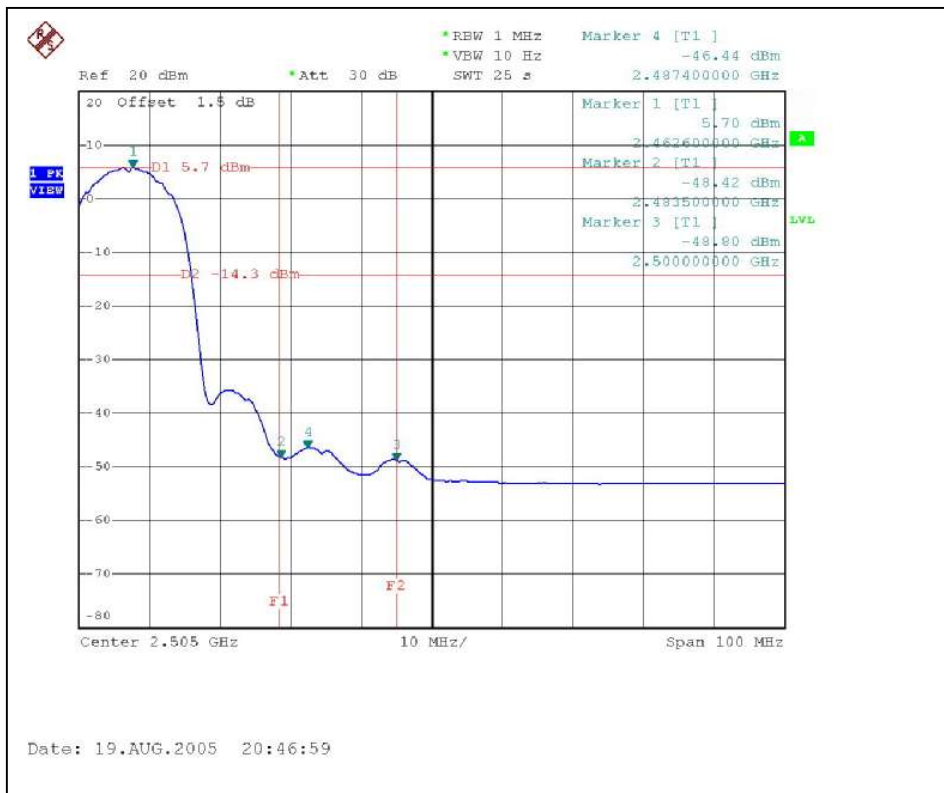
The band edge emission plot of DSSS technique on the following first page shows 53.04dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 111.2dBuV/m, so the maximum field strength in restrict band is  $111.2-53.04=58.16$ dBuV/m which is under 74 dBuV/m limit.

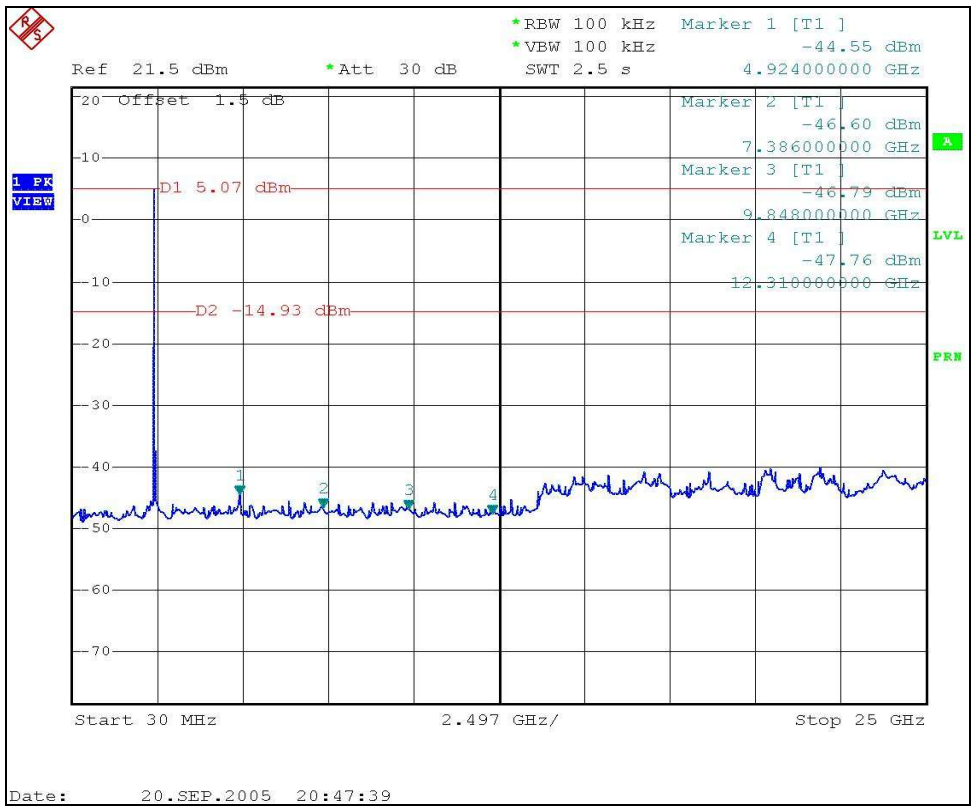
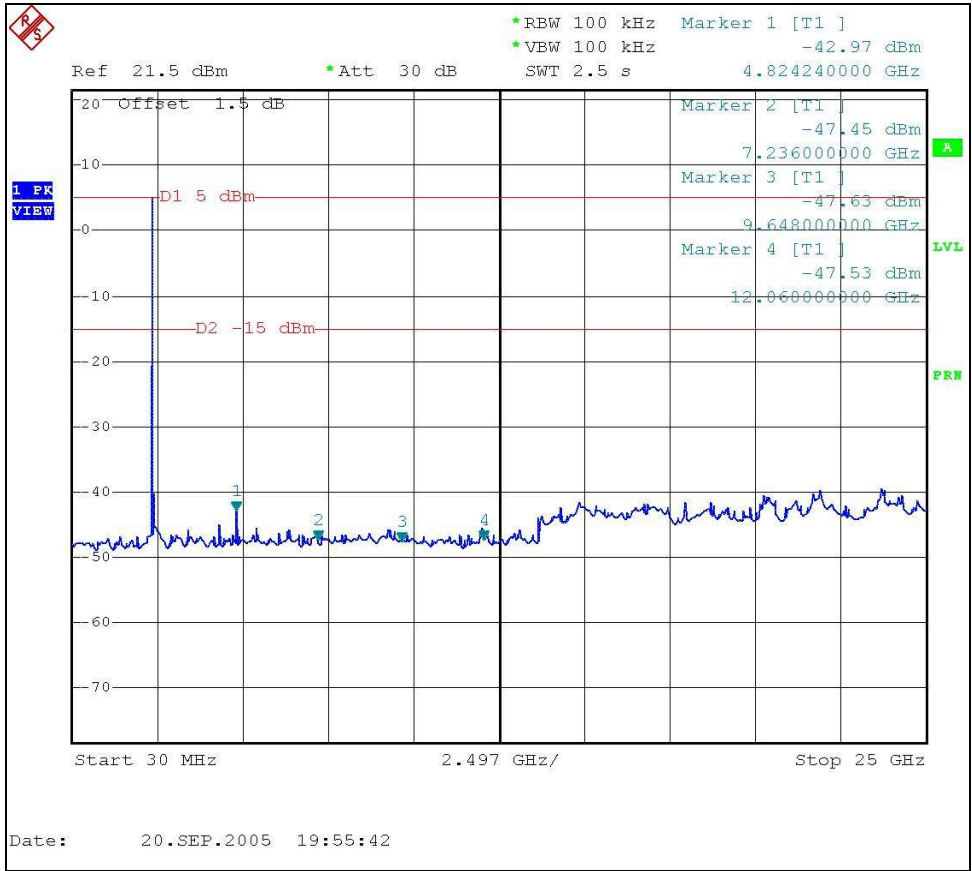
##### **NOTE (Average):**

The band edge emission plot of DSSS technique on the following second page shows 54.98dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 105.1dBuV/m, so the maximum field strength in restrict band is  $105.1-54.98=50.12$ dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 54.12dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 104.4dBuV/m, so the maximum field strength in restrict band is  $104.4-54.12=50.28$ dBuV/m which is under 54 dBuV/m limit.







#### 4.6.10 TEST RESULTS (ANTENNA 3 – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

**NOTE (Peak) :**

The band edge emission plot of OFDM technique on the following first page show 46.65dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 109.2dBuV/m, so the maximum field strength in restrict band is  $109.2-46.65=62.55$ dBuV/m which is under 74 dBuV/m limit.

The band edge emission plot of OFDM technique on the following first page shows 47.59dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 107.5dBuV/m, so the maximum field strength in restrict band is  $107.5-47.59=59.91$ dBuV/m which is under 74 dBuV/m limit.

**NOTE (Average):**

The band edge emission plot of OFDM technique on the following second page shows 48.18dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 100.4dBuV/m, so the maximum field strength in restrict band is  $100.4-48.18=52.22$ dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 47.85dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 98.9dBuV/m, so the maximum field strength in restrict band is  $98.9-47.85=51.05$ dBuV/m which is under 54 dBuV/m limit.

