

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| SPECTRUM ANALYZER | FSEK30 | 100049 | Aug. 12, 2005 |

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

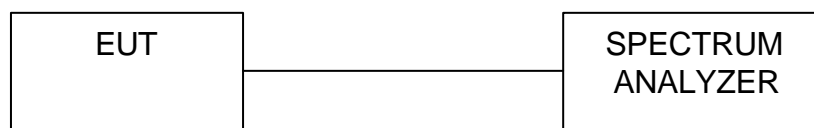
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6

4.5.7 TEST RESULTS (A)

| | | | |
|-----------------------------|---------------------------|---------------------------------|----------------------------|
| EUT | Wireless-G Range Expander | MODEL | WRE54G ver. 2 |
| INPUT POWER (SYSTEM) | 120 Vac, 60 Hz | ENVIRONMENTAL CONDITIONS | 23 deg. C, 67% RH, 991 hPa |
| TESTED BY | Leo Hung | | |

| CHANNEL NUMBER | CHANNEL FREQUENCY (MHz) | RF POWER LEVEL IN 3KHz BW (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|-----------------------|---------------------------------|--|----------------------------|------------------|
| 1 | 2412 | -10.20 | 8 | PASS |
| 6 | 2437 | -10.68 | 8 | PASS |
| 11 | 2462 | -9.26 | 8 | PASS |

Marker 1 [T1]
-10.20 dBm
2.411328294 GHz

Ref Lvl
20.5 dBm

RBW
3 kHz

VBW
30 kHz

SWT
500 s

Unit
dBm

0.5 dB Offset

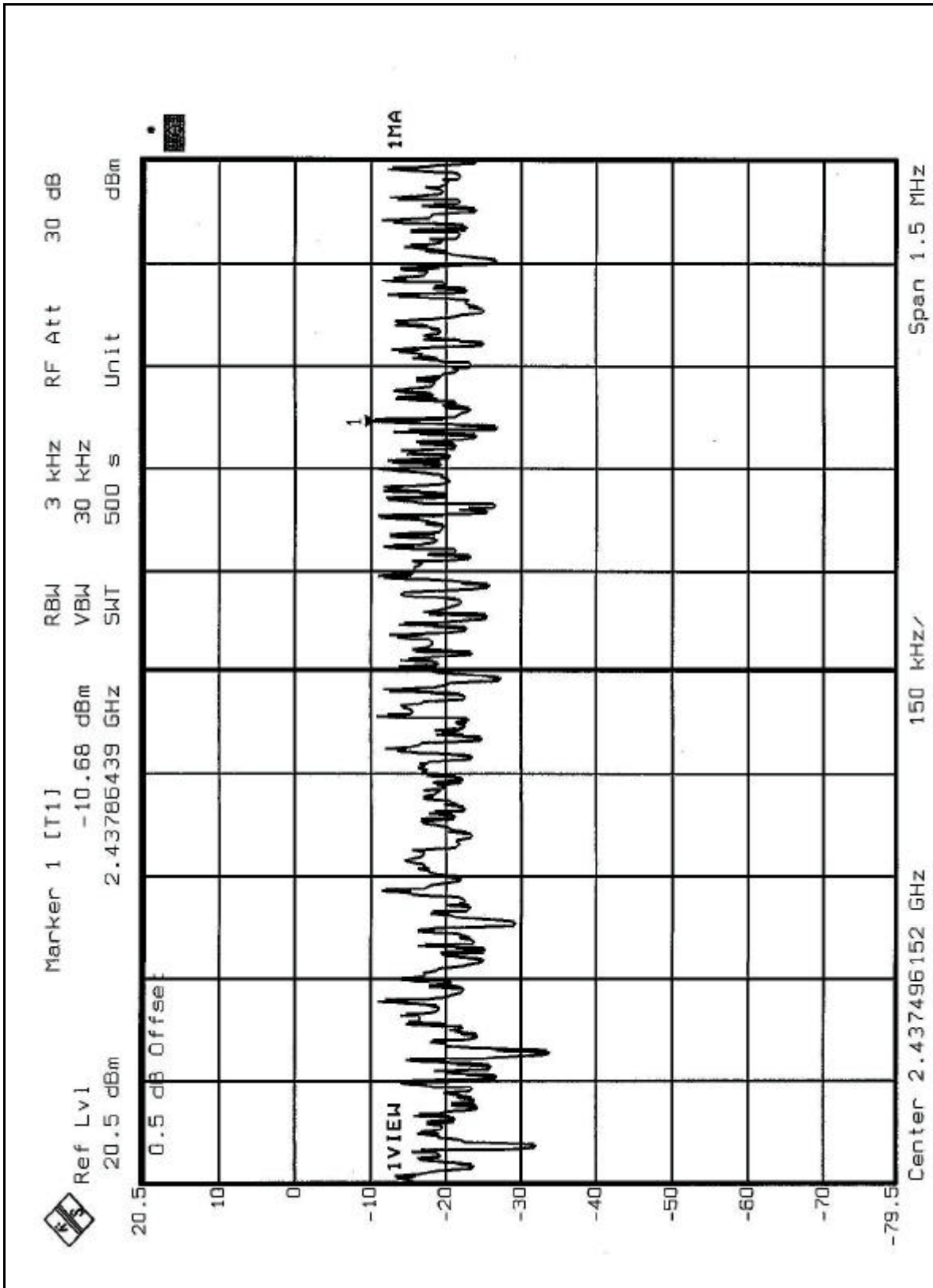
1V VIEW

1MA

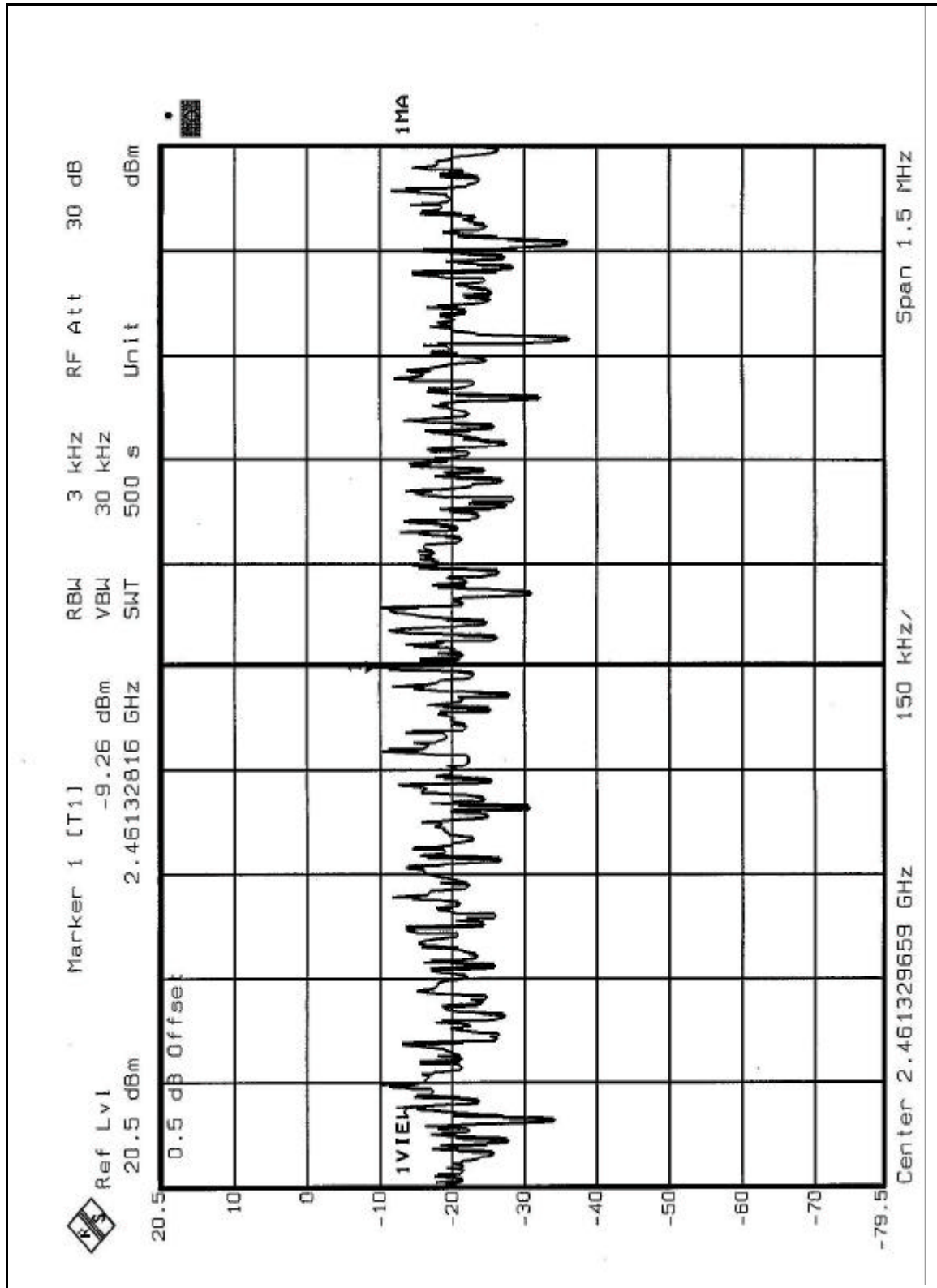
Center 2.411328294 GHz

Span 1.5 MHz

CH 6



CH 11

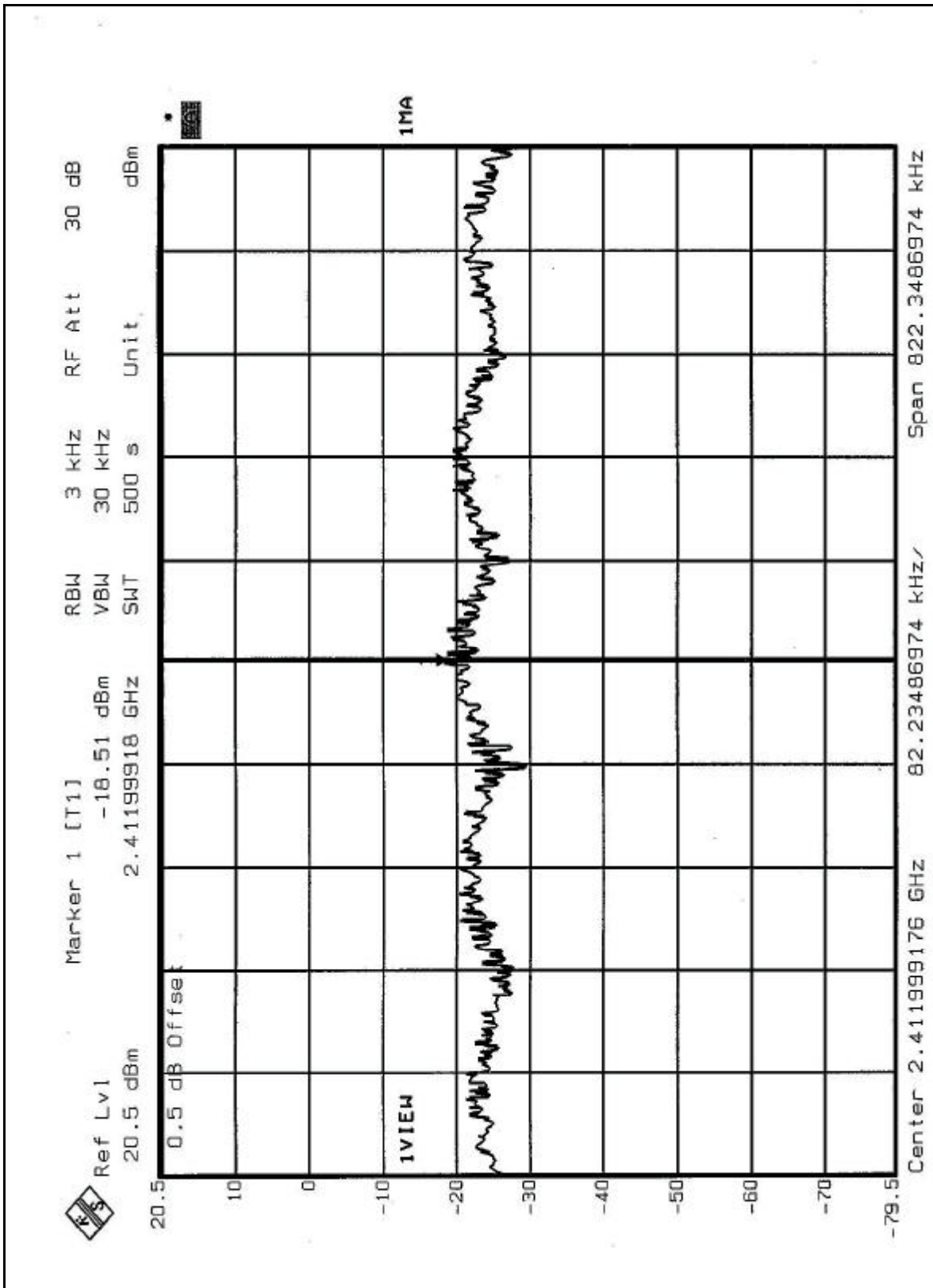


4.5.8 TEST RESULTS (B)

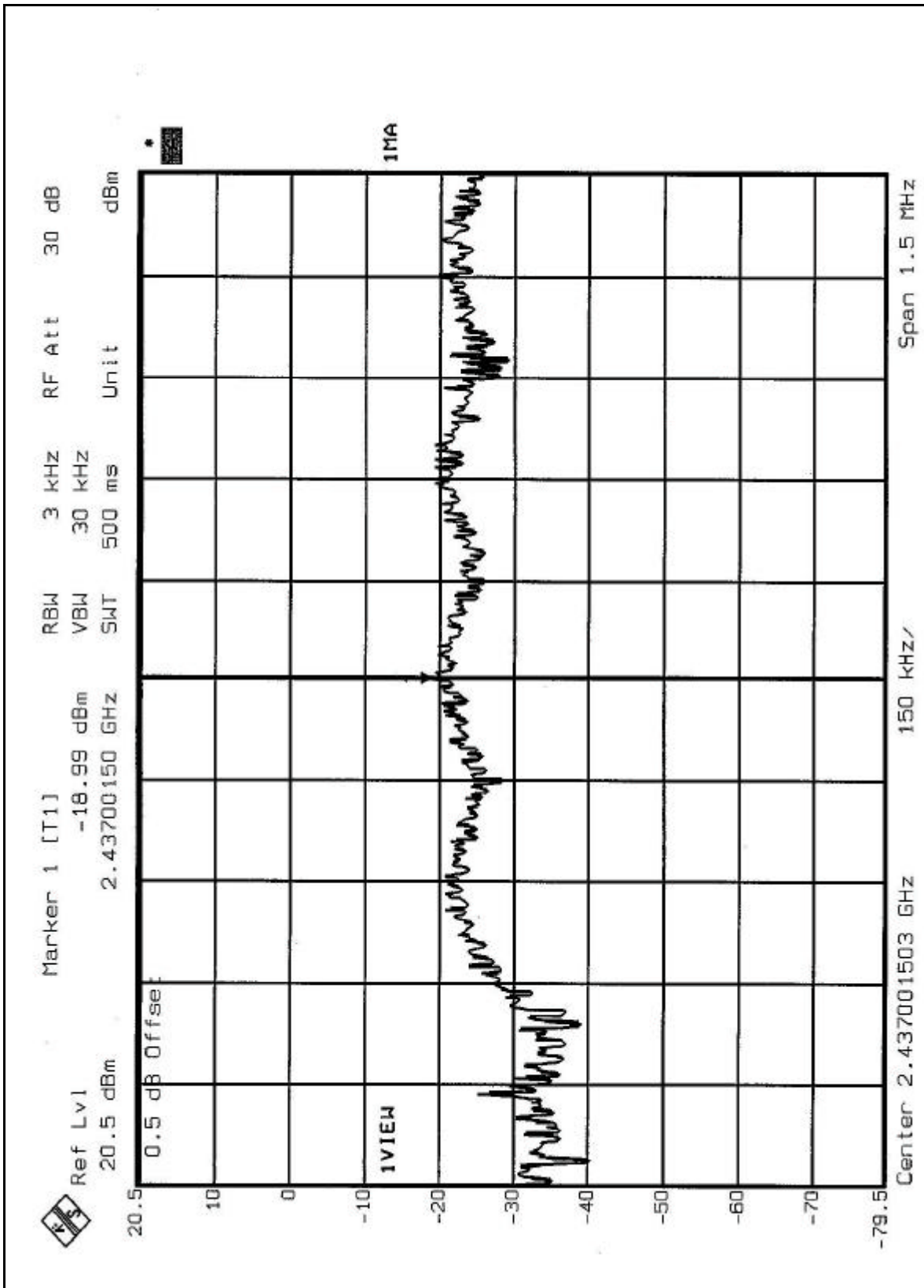
| | | | |
|-----------------------------|---------------------------|---------------------------------|----------------------------|
| EUT | Wireless-G Range Expander | MODEL | WRE54G ver. 2 |
| INPUT POWER (SYSTEM) | 120 Vac, 60 Hz | ENVIRONMENTAL CONDITIONS | 23 deg. C, 67% RH, 991 hPa |
| TESTED BY | Leo Hung | | |

| CHANNEL NUMBER | CHANNEL FREQUENCY (MHz) | RF POWER LEVEL IN 3KHz BW (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|-----------------------|---------------------------------|--|----------------------------|------------------|
| 1 | 2412 | -18.51 | 8 | PASS |
| 6 | 2437 | -18.99 | 8 | PASS |
| 11 | 2462 | -18.45 | 8 | PASS |

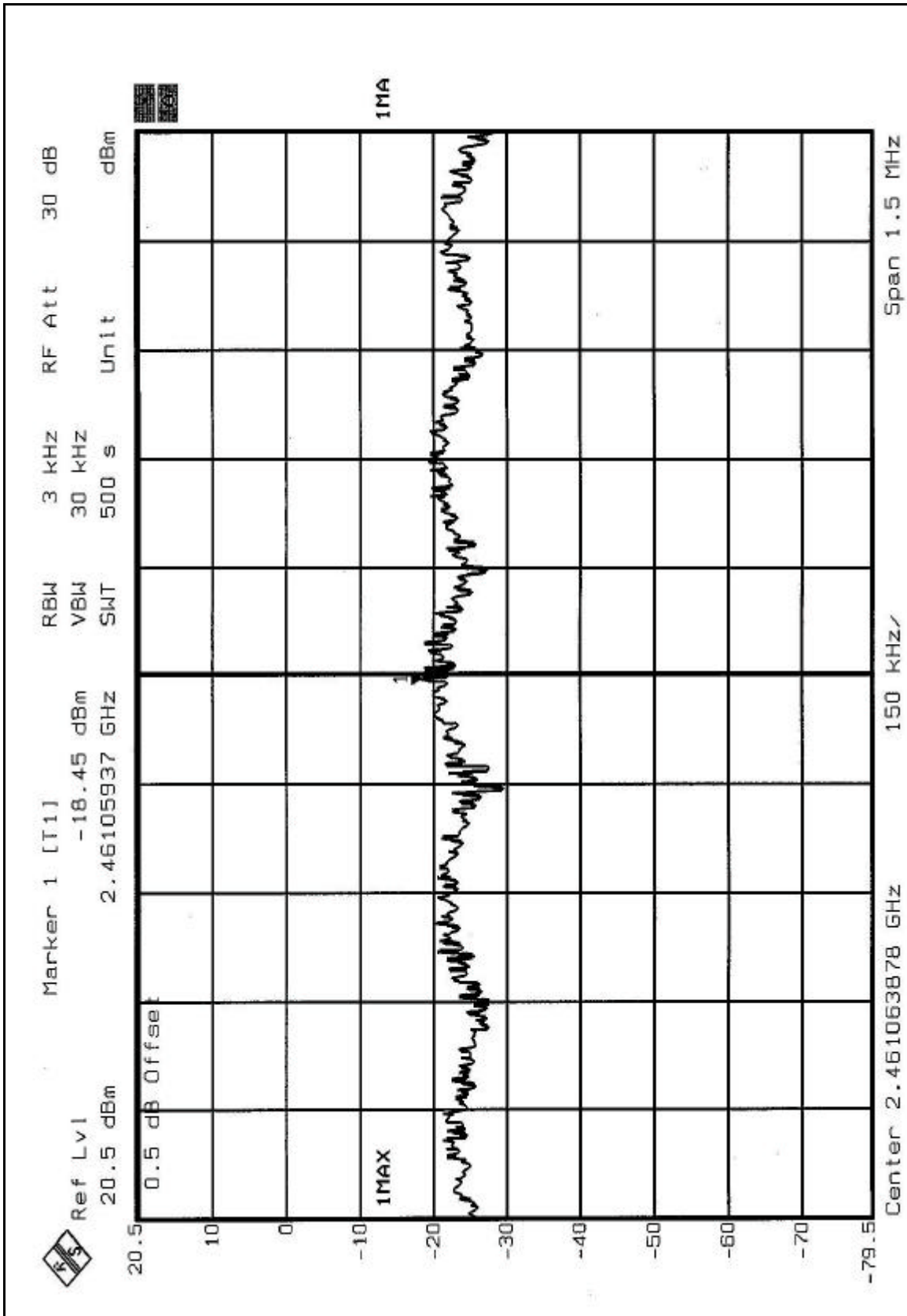
CH 1



CH 6



CH 11



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| SPECTRUM ANALYZER | FSEK30 | 100049 | Aug. 12, 2005 |

NOTE: 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 both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

The spectrum plots are attached on the following 8 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

4.6.7 TEST RESULTS(A)

NOTE:

The band edge emission plot of CCK technique on the following 1~2 pages show 49.03dB delta between carrier maximum power and local maximum emission in restrict band (2.3541GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.8 is 100.84dBuV/m, so the maximum field strength in restrict band is $100.84 - 49.03 = 51.81$ dBuV/m which is under 54dBuV/m limit.

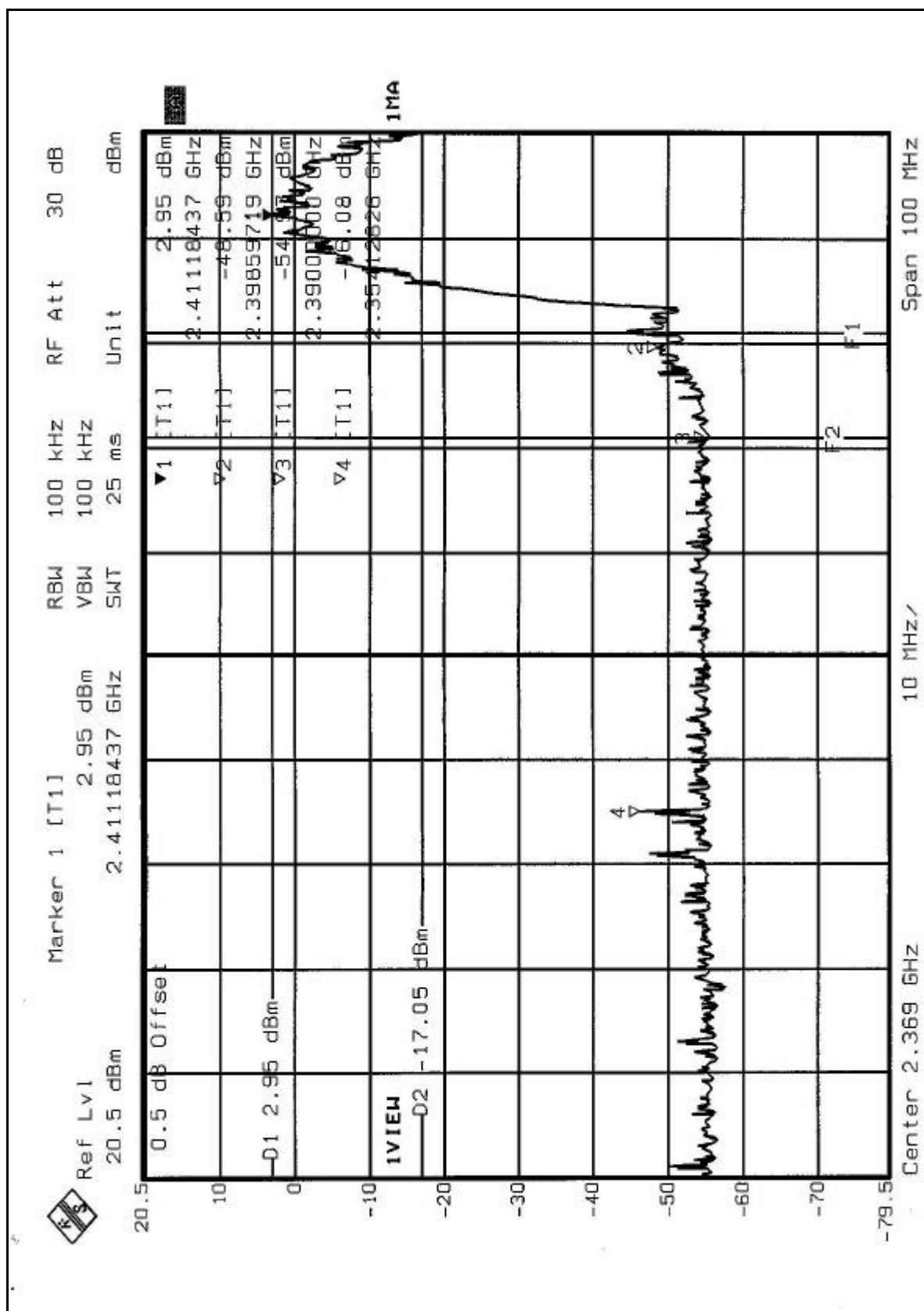
The band edge emission plot of CCK technique on the following 3~4 pages show 52.78dB delta between carrier maximum power and local maximum emission in restrict band (2.5000GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.8 is 101.20dBuV/m, so the maximum field strength in restrict band is $101.20 - 52.78 = 48.42$ dBuV/m which is under 54dBuV/m limit.

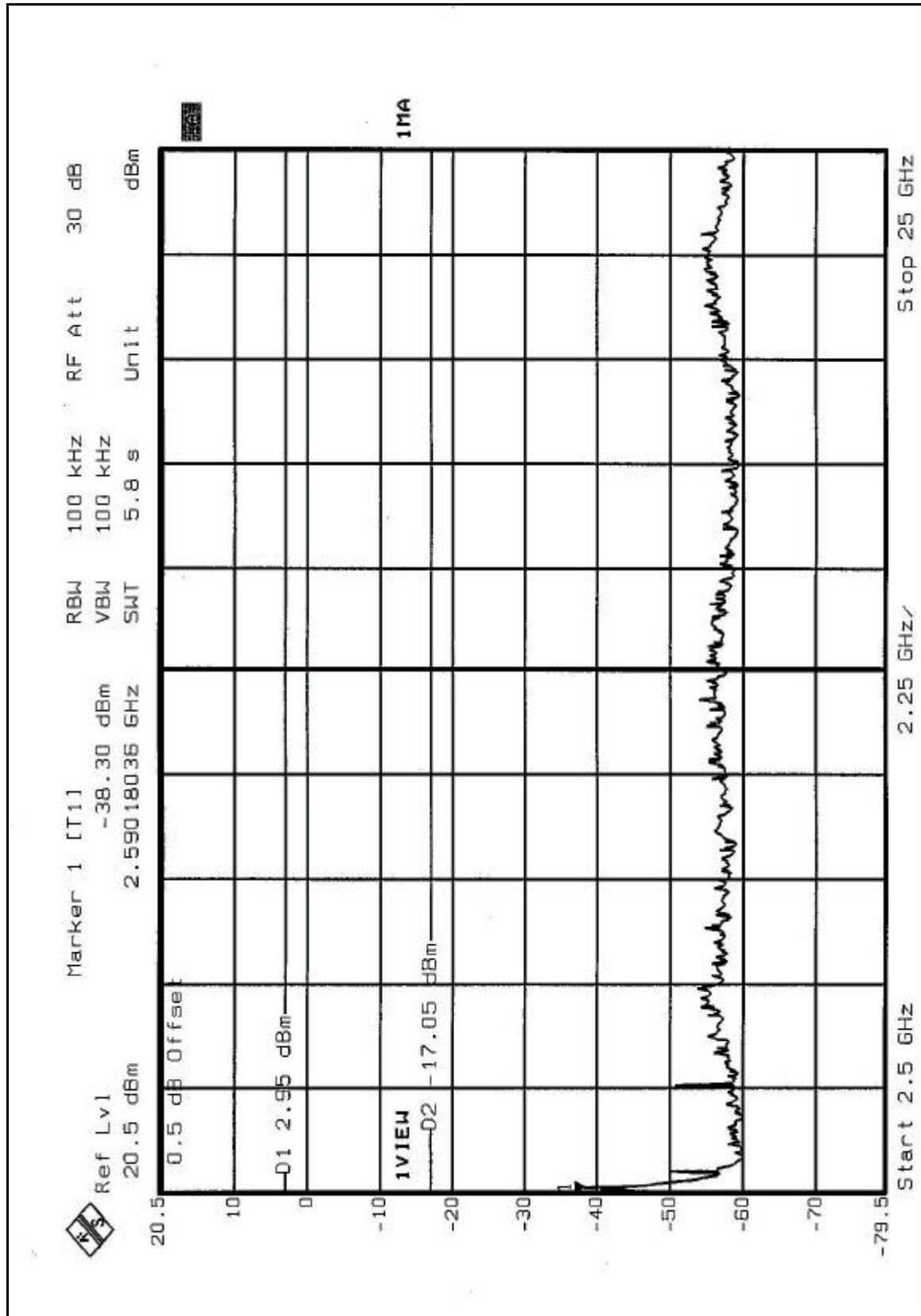
4.6.8 TEST RESULTS(B)

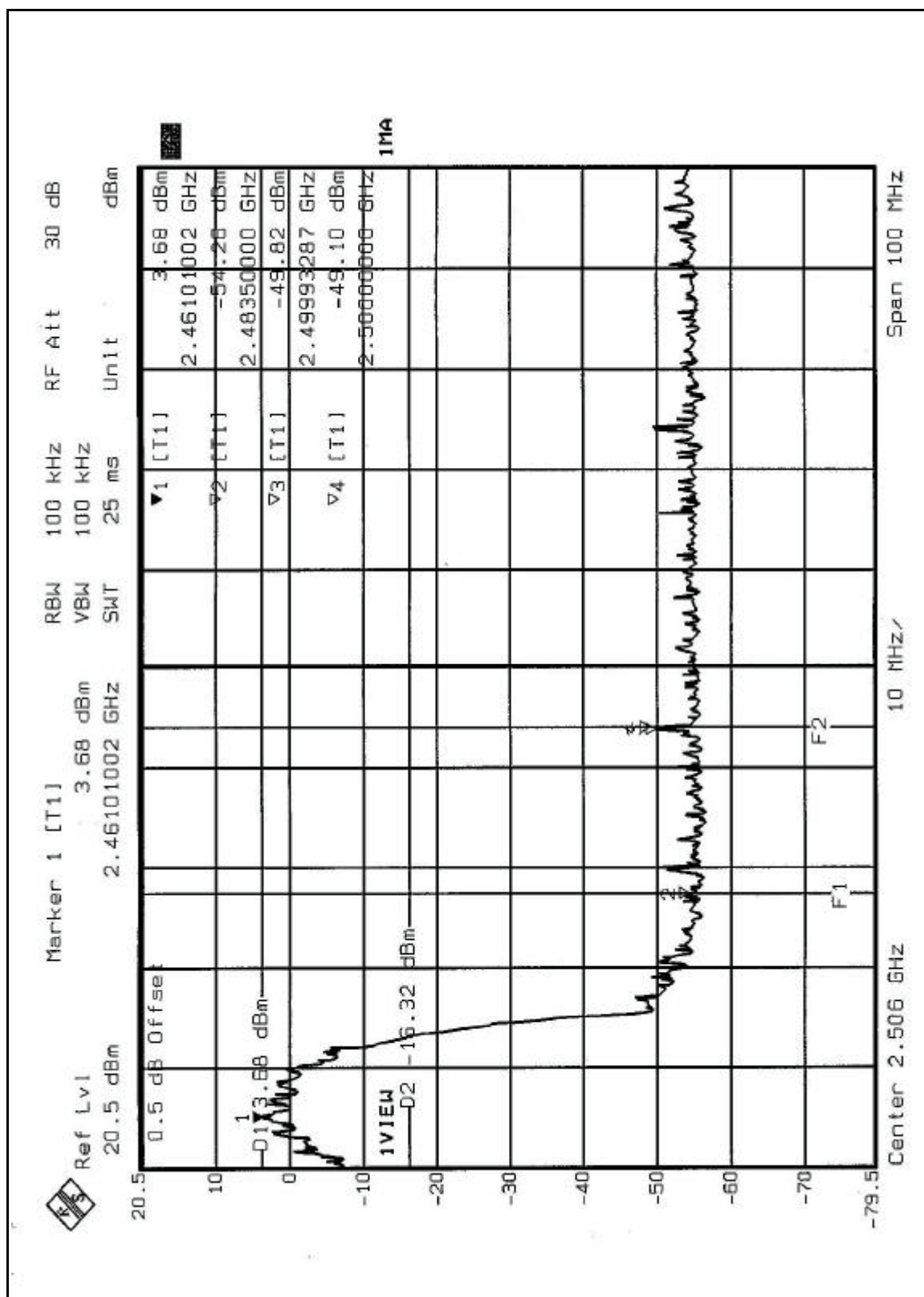
NOTE:

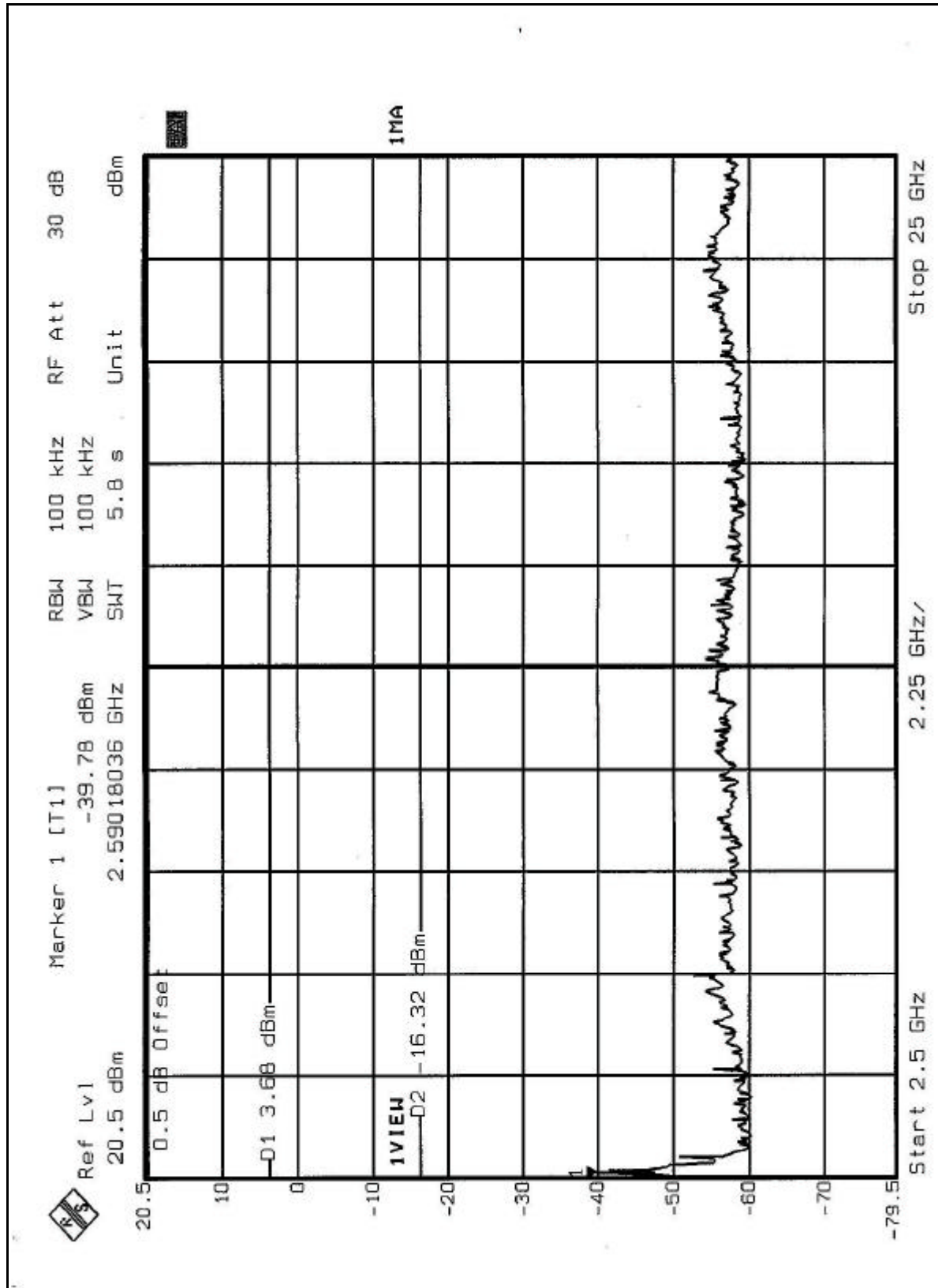
The band edge emission plot of OFDM technique on the following 5~6 pages show 42.65dB delta between carrier maximum power and local maximum emission in restrict band (2.3539GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.9 is 96.28dBuV/m, so the maximum field strength in restrict band is $96.28 - 42.65 = 53.63$ dBuV/m which is under 54dBuV/m limit.

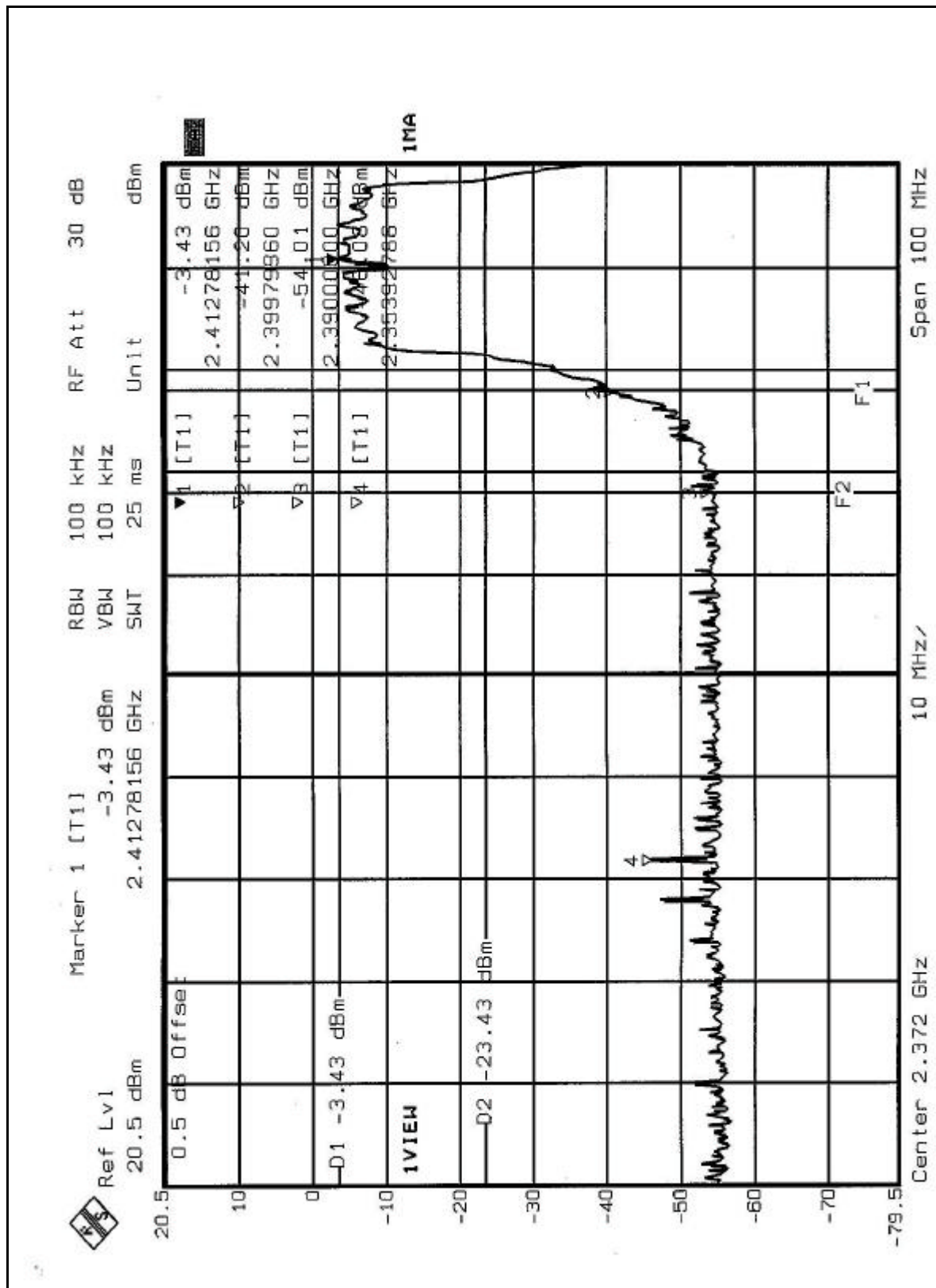
The band edge emission plot of OFDM technique on the following 7~8 pages show 45.01dB delta between carrier maximum power and local maximum emission in restrict band (2.5000GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.9 is 95.16dBuV/m, so the maximum field strength in restrict band is $95.16 - 45.01 = 50.15$ dBuV/m which is under 54dBuV/m limit.

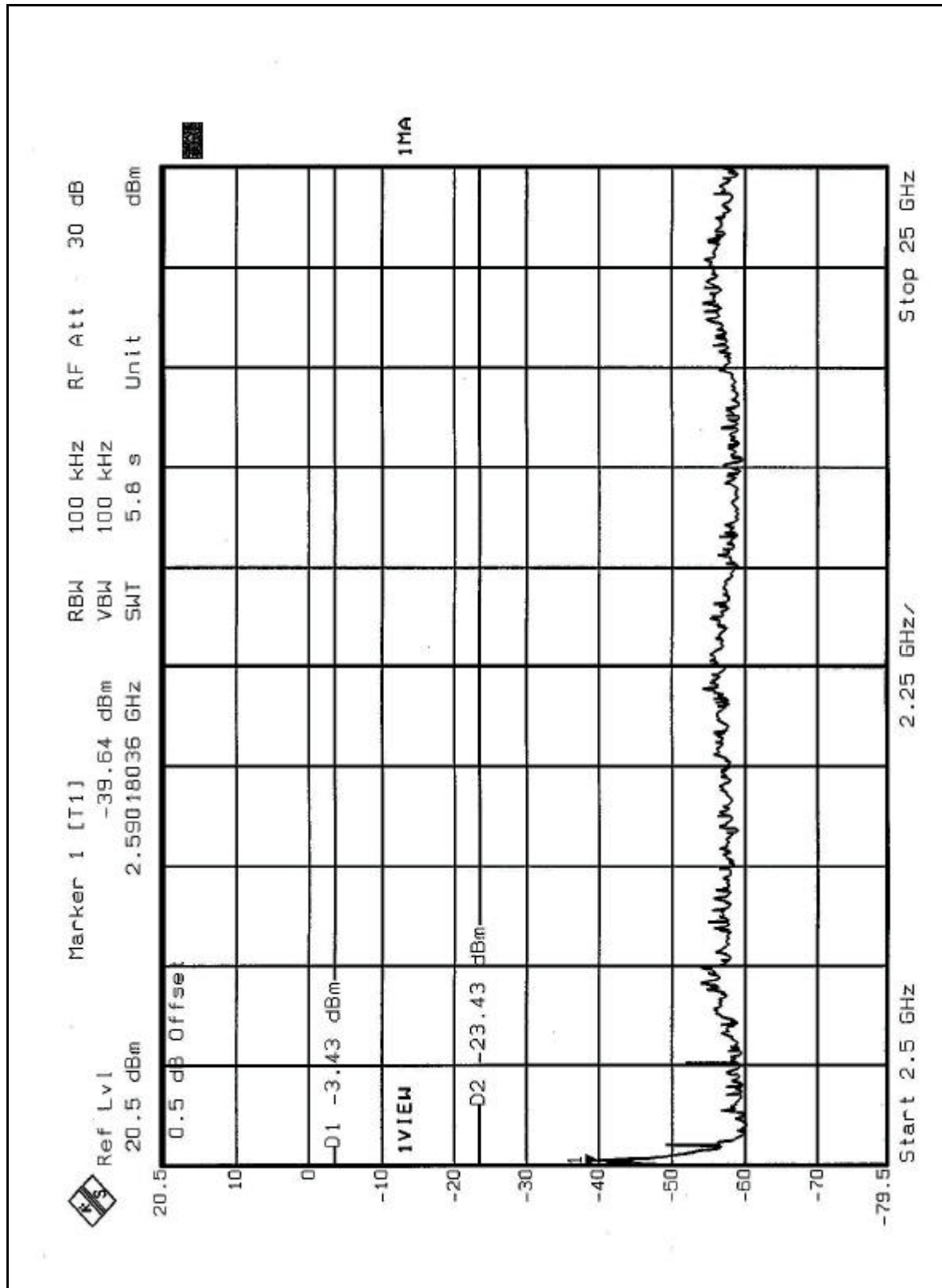


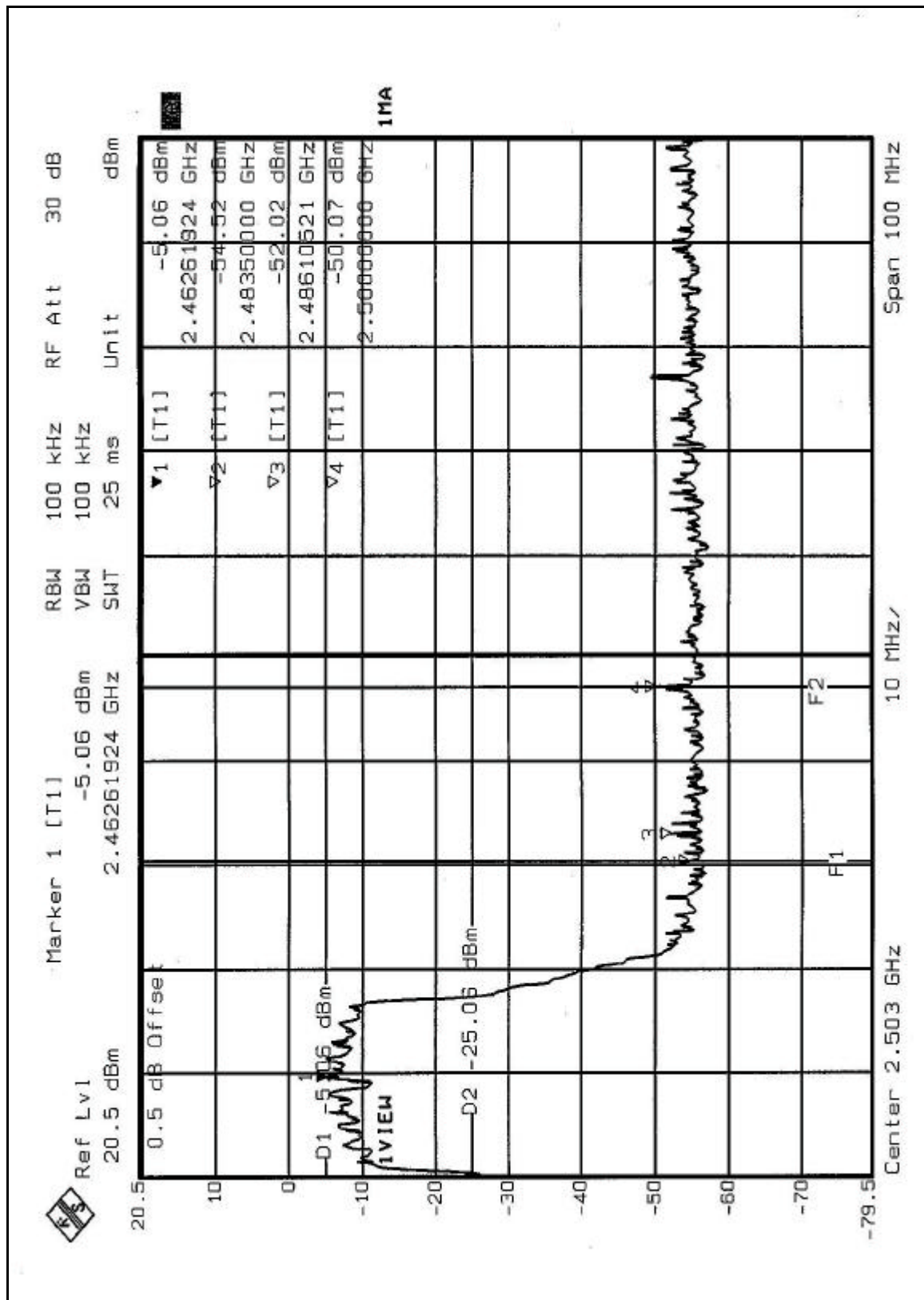


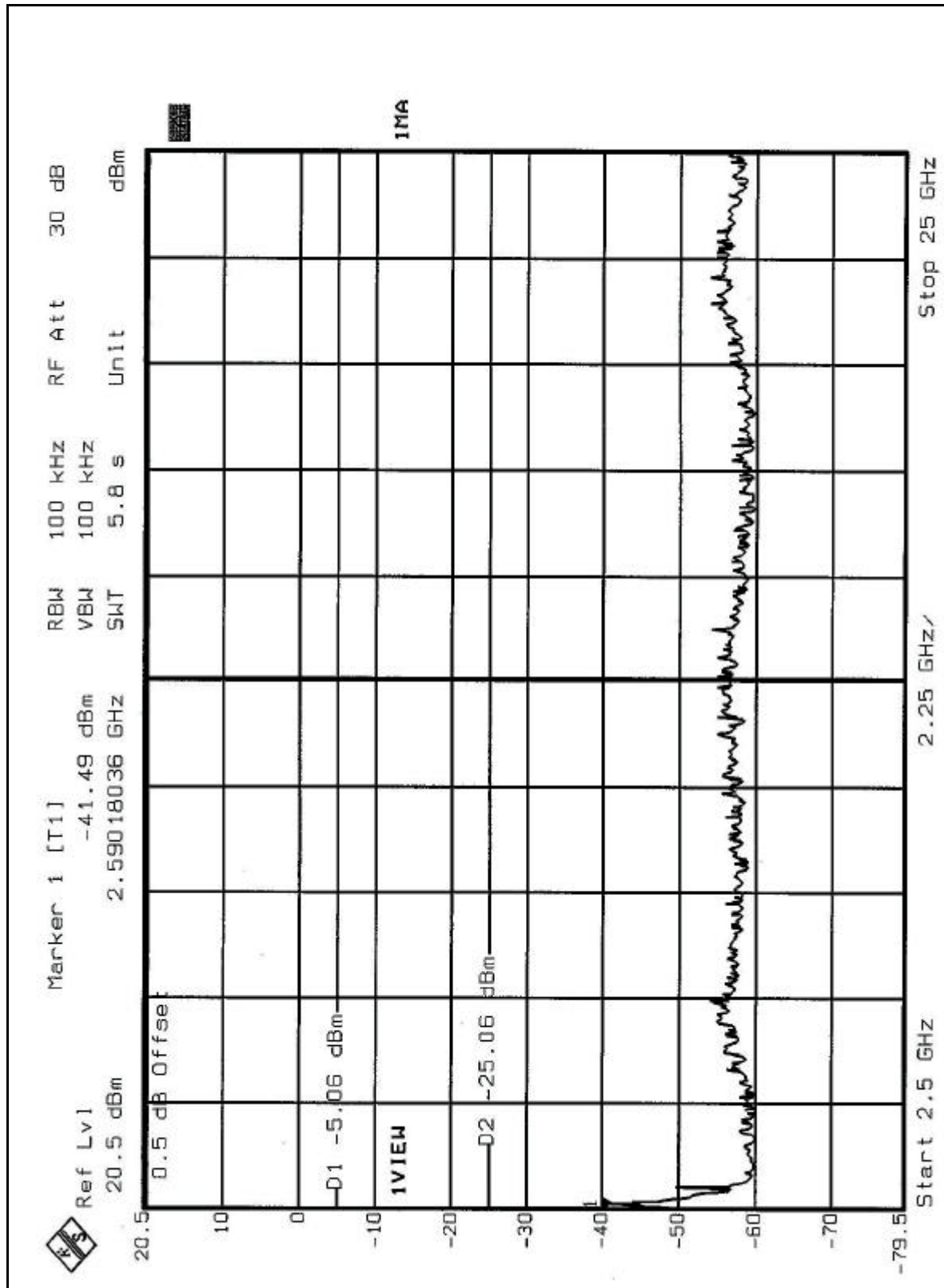














4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

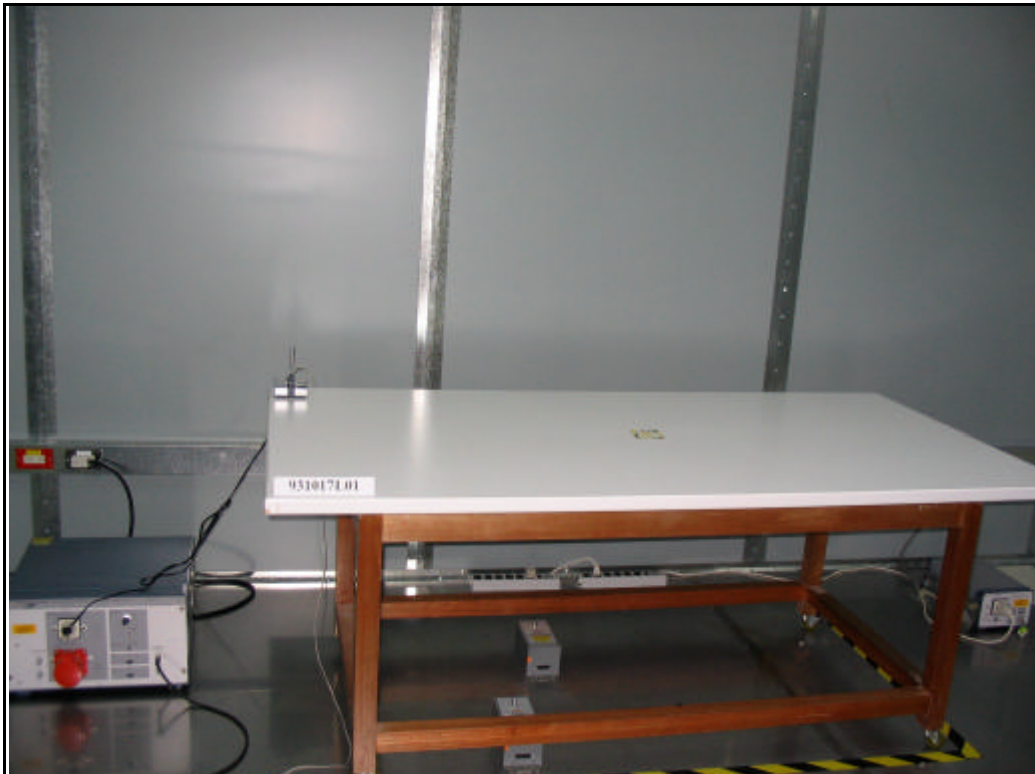
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

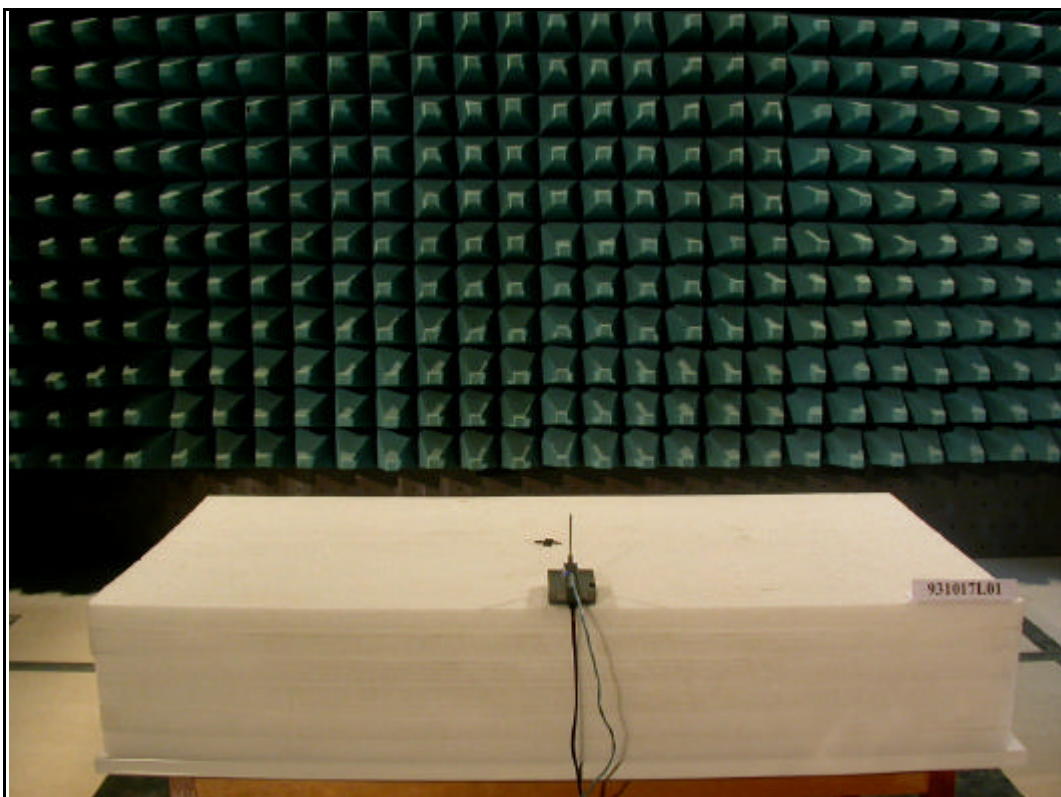
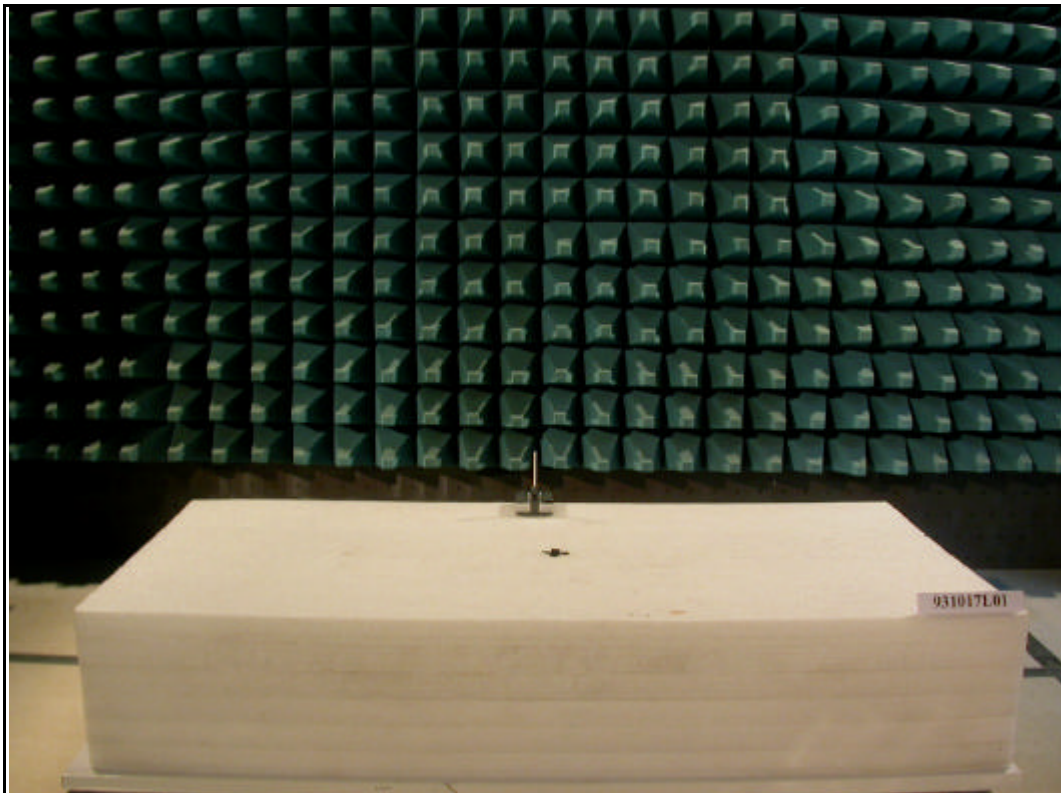
The antenna used in this product is Dipole antenna without connector. And the maximum Gain of this antenna is 2dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST





6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

| | |
|--------------------|-----------------------|
| USA | FCC, NVLAP, UL, A2LA |
| Germany | TUV Rheinland |
| Japan | VCCI |
| Norway | NEMKO |
| Canada | INDUSTRY CANADA , CSA |
| R.O.C. | CNLA, BSMI, DGT |
| Netherlands | Telefication |
| Singapore | PSB , GOST-ASIA(MOU) |
| Russia | CERTIS(MOU) |

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

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Fax: 886-3-3270892

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The address and road map of all our labs can be found in our web site also.

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