

FCC TEST REPORT

REPORT NO.: RF930730L03

MODEL NO.: ME-101

OEM MODEL NO.: MAX H-01

RECEIVED: Jul. 15, 2004

TESTED: Aug. 31 ~ Sep. 02, 2004

APPLICANT: ADD-ON TECHNOLOGY CO., LTD.

ADDRESS: 1F, No.11, Lane 206, Da-An Road, Sec.1,
Taipei, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: 47 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang
244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen,
Kwei Shan Hsiang, Taoyuan Hsien 333,
Taiwan, R.O.C.

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0528
ILAC MRA



No. 2177-01

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1 CERTIFICATION

PRODUCT : Bluetooth Headset
MODEL NO. : ME-101 (for Brand name: MobileEar)
OEM MODEL NO.: MAX H-01 (for Brand name: maxfield)
APPLICANT : ADD-ON TECHNOLOGY CO., LTD.
TESTED DATE: Aug. 31 ~ Sep. 02, 2004
TEST ITEM : Engineering Sample
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2001

The above equipment (Model: ME-101) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Windy Chou , **DATE:** Sep. 09, 2004
(Windy Chou)

TECHNICAL

ACCEPTANCE : Gary Chang , **DATE:** Sep. 09, 2004
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang , **DATE:** Sep. 09, 2004
(Cody Chang,
Deputy Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 15, Subpart C | | | |
|--|---|--------|--|
| Standard Section | Test Type and Limit | Result | REMARK |
| 15.207 | AC Power Conducted Emission | PASS | Meet the requirement of limit Minimum passing margin is -18.67dB at 0.232 MHz |
| 15.247(a)(1)(I)-(ii) | Number of Hopping Frequency Used Spec.: At least 15 channels | PASS | Meet the requirement of limit |
| 15.247(a)(1)(ii) | Dwell Time on Each Channel Spec. : Max. 0.4 second within 31.6 second | PASS | Meet the requirement of limit |
| 15.247(a)(1)(I)-(ii) | Hopping Channel Separation Spec. : Min. 25 kHz or 20 dB bandwidth, which ever is greater | PASS | Meet the requirement of limit |
| 15.247(a)(2) | Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System Spec.: Max. 1 MHz | PASS | Meet the requirement of limit |
| 15.247(b) | Maximum Peak Output Power Spec.: max. 30dBm | PASS | Meet the requirement of limit |
| 15.247(c) | Transmitter Radiated Emissions Spec.: Table 15.209 | PASS | Meet the requirement of limit Minimum passing margin is -2.38dB at 35.83MHz |
| 15.247(c) | Band Edge Measurement | PASS | Meet the requirement of limit |

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

| Measurement | Frequency | Uncertainty |
|---------------------|-----------------|-------------|
| Conducted emissions | 9k~30MHz | 2.44 dB |
| Radiated emissions | 30MHz ~ 200MHz | 3.73 dB |
| | 200MHz ~1000MHz | 3.74 dB |
| | 1GHz ~ 18GHz | 2.20 dB |
| | 18GHz ~ 40GHz | 1.88 dB |

3 GENERAL INFORMATION

3.0 GENERAL DESCRIPTION OF EUT

| | |
|------------------------------|---|
| PRODUCT | Bluetooth Headset |
| MODEL NO. | ME-101 (for Brand name: MobileEar) |
| OEM MODEL NO. | MAX H-01 (for Brand name: maxfield) |
| POWER SUPPLY | 4.2Vdc from battery 5.0Vdc from AC Adapter 5.0Vdc from host equipment |
| MODULATION TYPE | FHSS |
| MODULATION TECHNOLOGY | GFSK |
| FREQUENCY RANGE | 2402MHz ~ 2480MHz |
| NUMBER OF CHANNEL | 79 |
| OUTPUT POWER | 2.77dBm |
| ANTENNA TYPE | Printed Antenna with -2.53dBi Antenna gain |
| DATA CABLE | USB 50cm unshielded cable |
| I/O PORTS | USB |
| ASSOCIATED DEVICES | NA |

NOTE:

1. Bluetooth technology is used for the EUT.
2. The models as below are identical to each other except for their model no. and brand name due to marketing requirement.

| Brand | Model |
|-----------|----------|
| MobileEar | ME-101 |
| maxfield | MAX H-01 |

3. The EUT was tested with the following adapters:

| | |
|-----------------|--------------------|
| BRAND : | Pro-technology |
| MODEL : | MKD-350500150 |
| INPUT : | 120Vac, 60Hz, 55mA |
| OUTPUT : | 5Vdc, 150mA |

4. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.1 DESCRIPTION OF TEST MODES

Seventy-nine channels are provided to this EUT.

| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| 0 | 2402 | 20 | 2422 | 40 | 2442 | 60 | 2462 |
| 1 | 2403 | 21 | 2423 | 41 | 2443 | 61 | 2463 |
| 2 | 2404 | 22 | 2424 | 42 | 2444 | 62 | 2464 |
| 3 | 2405 | 23 | 2425 | 43 | 2445 | 63 | 2465 |
| 4 | 2406 | 24 | 2426 | 44 | 2446 | 64 | 2466 |
| 5 | 2407 | 25 | 2427 | 45 | 2447 | 65 | 2467 |
| 6 | 2408 | 26 | 2428 | 46 | 2448 | 66 | 2468 |
| 7 | 2409 | 27 | 2429 | 47 | 2449 | 67 | 2469 |
| 8 | 2410 | 28 | 2430 | 48 | 2450 | 68 | 2470 |
| 9 | 2411 | 29 | 2431 | 49 | 2451 | 69 | 2471 |
| 10 | 2412 | 30 | 2431 | 50 | 2452 | 70 | 2472 |
| 11 | 2413 | 31 | 2433 | 51 | 2453 | 71 | 2473 |
| 12 | 2414 | 32 | 2434 | 52 | 2454 | 72 | 2474 |
| 13 | 2415 | 33 | 2435 | 53 | 2455 | 73 | 2475 |
| 14 | 2416 | 34 | 2436 | 54 | 2456 | 74 | 2476 |
| 15 | 2417 | 35 | 2437 | 55 | 2457 | 75 | 2477 |
| 16 | 2418 | 36 | 2438 | 56 | 2458 | 76 | 2478 |
| 17 | 2419 | 37 | 2439 | 57 | 2459 | 77 | 2479 |
| 18 | 2420 | 38 | 2440 | 58 | 2460 | 78 | 2480 |
| 19 | 2421 | 39 | 2441 | 59 | 2461 | | |

NOTE:

1. Below 1 GHz, the channel 0, 39, and 78 were pre-tested in chamber. The channel 78, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 0, 39, and 78 were tested individually.
3. For Conducted Emission Measurement and Radiated Emission Measurement, there are several test modes presented in following section. Please refer to the table as below:

| Test Item | Description | Test Mode |
|------------------------------|---------------------------------------|-----------|
| Conducted Emission | Powered by AC Adapter (charger mode) | A |
| | Powered by USB Cable (charger mode) | B |
| Radiated Emission Below 1GHz | Powered by AC Adapter (charger mode) | A |
| | Powered by USB Cable (charger mode) | B |
| | Powered by Car Charger (charger mode) | C |
| | Powered by batteries (Tx & Rx Mode) | D |

3.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Bluetooth Headset. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)
ANSI C63.4 : 2001

All test items have been performed and recorded as per the above standards.

3.3 DESCRIPTION OF SUPPORT UNITS

For Test Mode A

NA

For Test Mode B

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|-------------------|-------|-----------|-------------|---------------------|
| 1 | NOTEBOOK COMPUTER | DELL | PP05L | 12130898320 | E2K24CLNS |
| 2 | PRINTER | EPSON | LQ-300+ | DCGY054147 | FCC DoC Approved |
| 3 | MODEM | ACEEX | 1414V/3 | 0401008269 | IFAXDM1414 |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|--|
| 1 | NA |
| 2 | 1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core |
| 3 | 1.2 m braid shielded w/o core. |

NOTE: All power cords of the above support units are non shielded (1.8m).

For Test Mode C

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|-----------------------------|---------|-----------|------------|--------|
| 1 | DC POWER SUPPLY // TF-6306A | Topward | TF-6306A | 727263 | NA |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|---|
| 1 | NA |

NOTE: All power cords of the above support units are non shielded (1.8m).

For Test Mode D

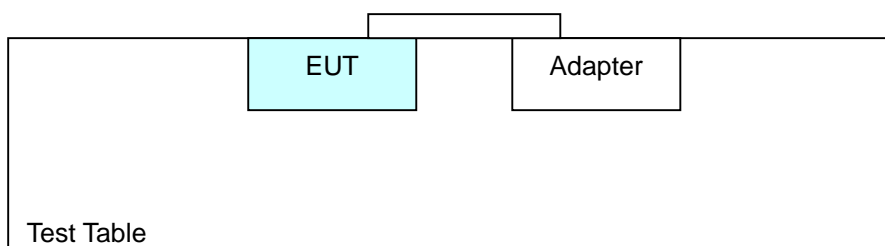
| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|-------------------|-------|-----------|-------------|---------------------|
| 1 | NOTEBOOK COMPUTER | DELL | PP05L | 12130898320 | E2K24CLNS |
| 2 | PRINTER | EPSON | LQ-300+ | DCGY054147 | FCC DoC Approved |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|--|
| 1 | NA |
| 2 | 1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core |

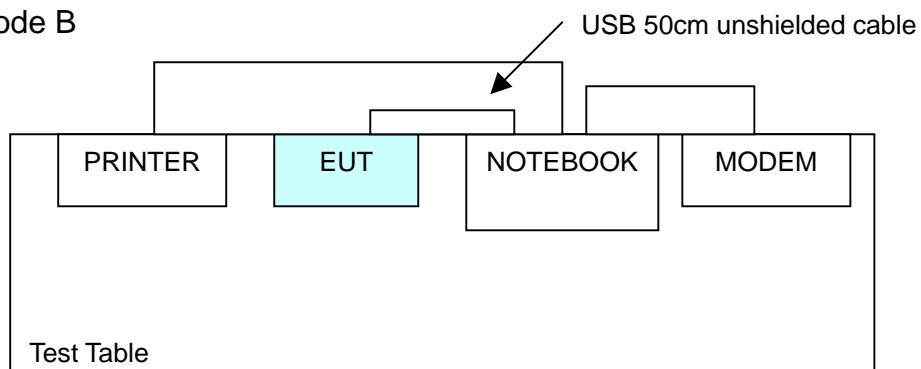
NOTE: All power cords of the above support units are non shielded (1.8m).

3.4 CONFIGURATION OF SYSTEM UNDER TEST

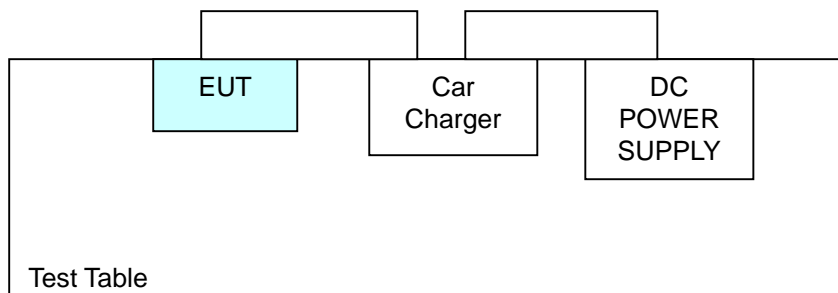
For Test Mode A



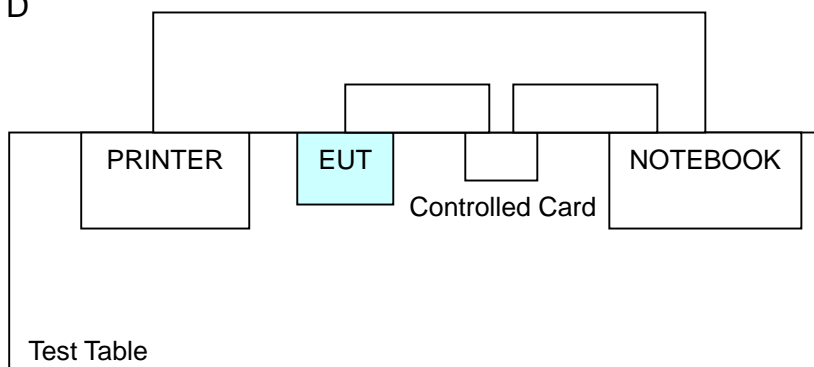
For Test Mode B



For Test Mode C



For Test Mode D



4 TEST PROCEDURES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dB μ V) | |
|-----------------------------|------------------------------|----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 | 56 to 46 |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

Notes:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|----------------------------------|-------------|----------------|------------------|
| Test Receiver ROHDE & SCHWARZ | ESCS30 | 100288 | Dec. 11, 2004 |
| RF signal cable Woken | 5D-FB | Cable-HyC02-01 | Mar. 07, 2005 |
| LISN ROHDE & SCHWARZ | ESH2-Z5 | 100100 | Mar. 10, 2005 |
| LISN ROHDE & SCHWARZ | ESH3-Z5 | 100311 | Mar. 04, 2005 |
| Software ADT | ADT_Cond_V3 | NA | NA |

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2.
 3. The VCCI Site Registration No. is C-2047.

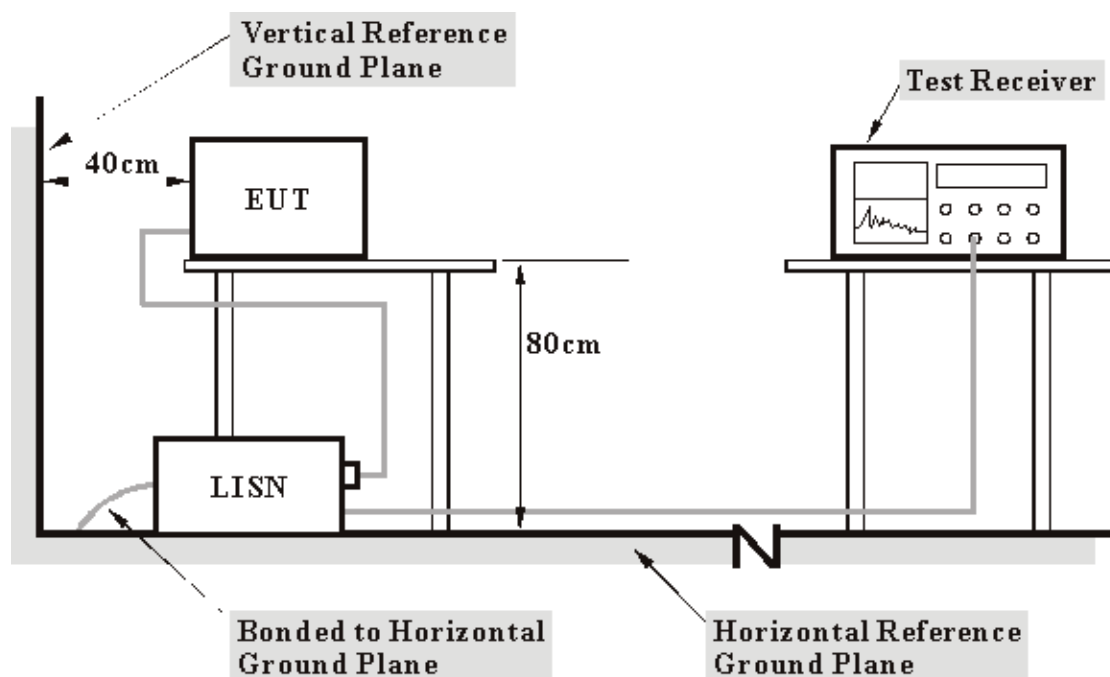
4.1.3 TEST PROCEDURES

- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under Limit - 20dB was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



- Note:**
- Support units were connected to second LISN.
 - Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

For Test Mode A

- a. Place the EUT on the test table.
- b. The EUT was connected to the adapter and it was charge condition.

For Test Mode B

- a. Connect EUT into the Notebook system via USB placed on a testing table.
- b. The EUT was powered 5Vdc from the Notebook via USB and it was charge condition.
- c. The computer system sent "H" messages to its screen.
- d. The computer system sent "H" messages to modem.
- e. The computer system sent "H" messages to printer, and the printer printed them on paper.
- f. Steps c ~ e were repeated.

For Test Mode C

- a. Place the EUT on the test table.
- b. The EUT was connected to Car charger and powered 5Vdc from the DC power supply (12Vdc). The EUT was charge condition.

For Test Mode D

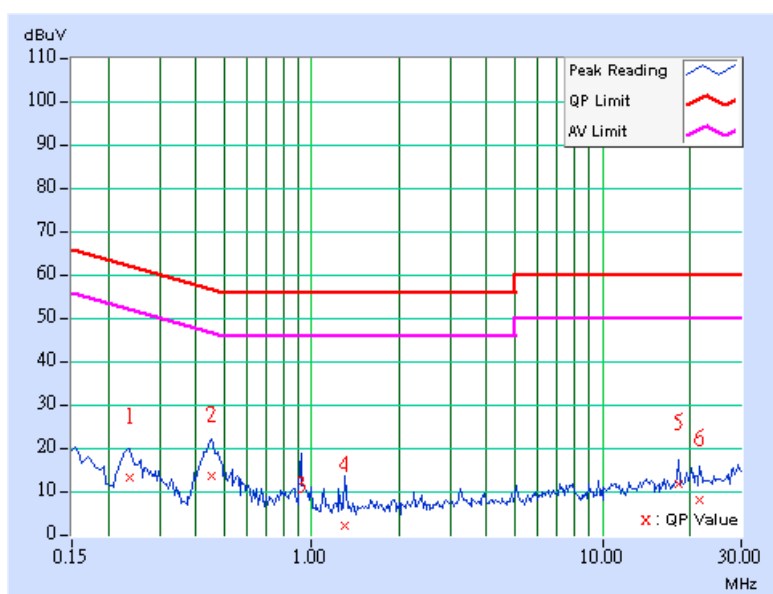
- a. Connected the EUT to the Notebook system via the controlled card placed on a testing table.
- b. The Notebook system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- c. Batteries powered the EUT.
- d. The computer system sent "H" messages to its screen.
- e. The computer system sent "H" messages to printer, and the printer printed them on paper.
- f. Steps d ~ e were repeated.

4.1.7 TEST RESULTS

| | | | |
|---------------------------------|---------------------------|----------------------|----------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| TEST MODE | A | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | PHASE | Line (L) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65%RH, 991 hPa | TESTED BY | Rush Kao |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|----------------|-------------------------|----------------------------|-----|-----------------------------|-----|--------------------|-------|----------------|-----|
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| | | | | | | | | | | |
| 1 | 0.236 | 0.10 | 12.41 | - | 12.51 | - | 62.24 | 52.24 | -49.73 | - |
| 2 | 0.451 | 0.13 | 12.79 | - | 12.92 | - | 56.86 | 46.86 | -43.95 | - |
| 3 | 0.920 | 0.23 | -3.42 | - | -3.19 | - | 56.00 | 46.00 | -59.19 | - |
| 4 | 1.305 | 0.25 | 1.16 | - | 1.41 | - | 56.00 | 46.00 | -54.59 | - |
| 5 | 18.367 | 0.85 | 10.76 | - | 11.61 | - | 60.00 | 50.00 | -48.39 | - |
| 6 | 21.660 | 1.00 | 7.12 | - | 8.12 | - | 60.00 | 50.00 | -51.88 | - |

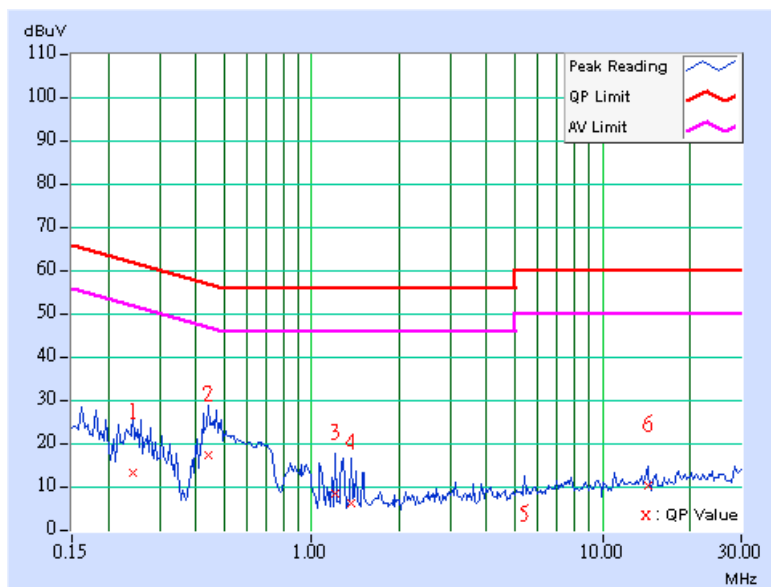
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---------------------------|----------------------|-------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| TEST MODE | A | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | PHASE | Neutral (N) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65%RH, 991 hPa | TESTED BY | Rush Kao |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----|----------------|-------------------------|---------------|-----|----------------|-----|-----------|-------|--------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.244 | 0.10 | 12.82 | - | 12.92 | - | 61.97 | 51.97 | -49.04 | - |
| 2 | 0.443 | 0.12 | 16.71 | - | 16.83 | - | 57.01 | 47.01 | -40.17 | - |
| 3 | 1.211 | 0.24 | 8.02 | - | 8.26 | - | 56.00 | 46.00 | -47.74 | - |
| 4 | 1.363 | 0.24 | 5.76 | - | 6.00 | - | 56.00 | 46.00 | -50.00 | - |
| 5 | 5.402 | 0.36 | -10.93 | - | -10.57 | - | 60.00 | 50.00 | -70.57 | - |
| 6 | 14.273 | 0.55 | 9.68 | - | 10.23 | - | 60.00 | 50.00 | -49.77 | - |

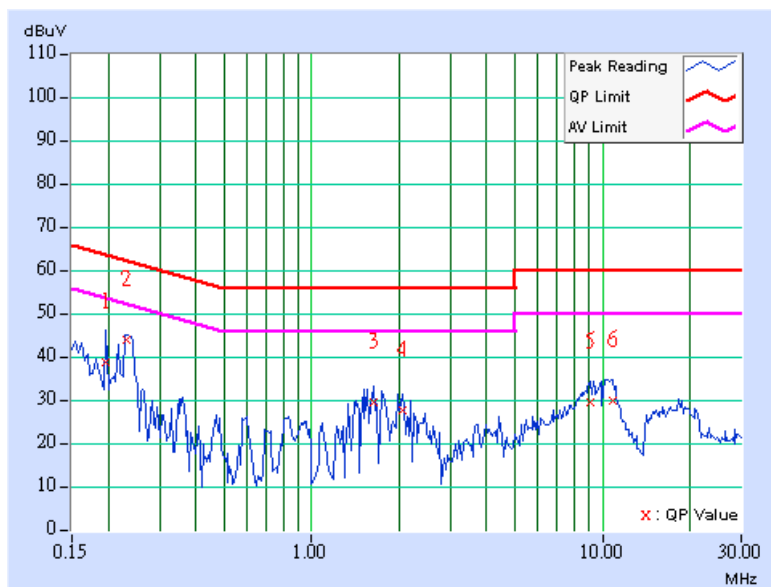
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---------------------------|----------------------|----------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| TEST MODE | B | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | PHASE | Line (L) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65%RH, 991 hPa | TESTED BY | Rush Kao |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----------|----------------|-------------------------|---------------|-----|----------------|-----|--------------|--------------|---------------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.197 | 0.10 | 38.28 | - | 38.38 | - | 63.74 | 53.74 | -25.36 | - |
| 2 | 0.232 | 0.10 | 43.60 | - | 43.70 | - | 62.38 | 52.38 | -18.67 | - |
| 3 | 1.630 | 0.26 | 29.07 | - | 29.33 | - | 56.00 | 46.00 | -26.67 | - |
| 4 | 2.047 | 0.26 | 27.10 | - | 27.36 | - | 56.00 | 46.00 | -28.64 | - |
| 5 | 9.105 | 0.50 | 29.13 | - | 29.63 | - | 60.00 | 50.00 | -30.37 | - |
| 6 | 10.816 | 0.56 | 29.31 | - | 29.87 | - | 60.00 | 50.00 | -30.13 | - |

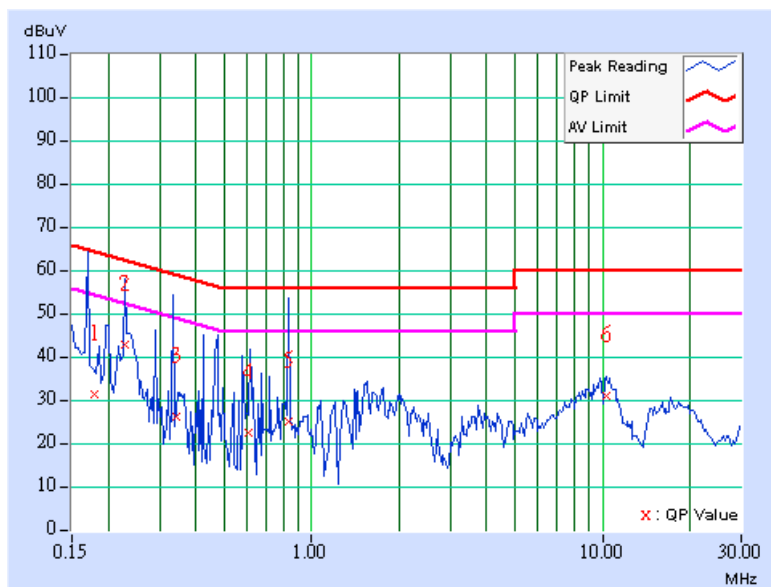
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---------------------------|----------------------|-------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| TEST MODE | B | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | PHASE | Neutral (N) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65%RH, 991 hPa | TESTED BY | Rush Kao |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----|----------------|-------------------------|---------------|-----|----------------|-----|-----------|-------|--------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.179 | 0.10 | 31.09 | - | 31.19 | - | 64.55 | 54.55 | -33.36 | - |
| 2 | 0.228 | 0.10 | 42.39 | - | 42.49 | - | 62.52 | 52.52 | -20.03 | - |
| 3 | 0.343 | 0.11 | 25.79 | - | 25.90 | - | 59.14 | 49.14 | -33.24 | - |
| 4 | 0.606 | 0.15 | 22.14 | - | 22.29 | - | 56.00 | 46.00 | -33.71 | - |
| 5 | 0.830 | 0.20 | 24.86 | - | 25.06 | - | 56.00 | 46.00 | -30.94 | - |
| 6 | 10.320 | 0.49 | 30.66 | - | 31.15 | - | 60.00 | 50.00 | -28.85 | - |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 NUMBER OF HOPPING FREQUENCY USED

4.2.1 LIMIT OF HOPPING FREQUENCY USED

At least 15 hopping frequencies, and should be equally spaced.

4.2.2 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.

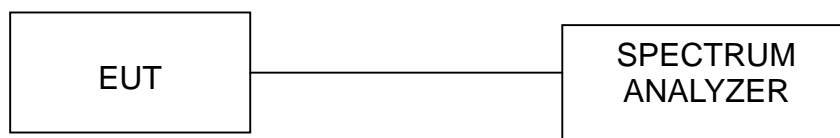
4.2.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement 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 MaxHold 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.

4.2.4 DEVIATION FROM TEST STANDARD

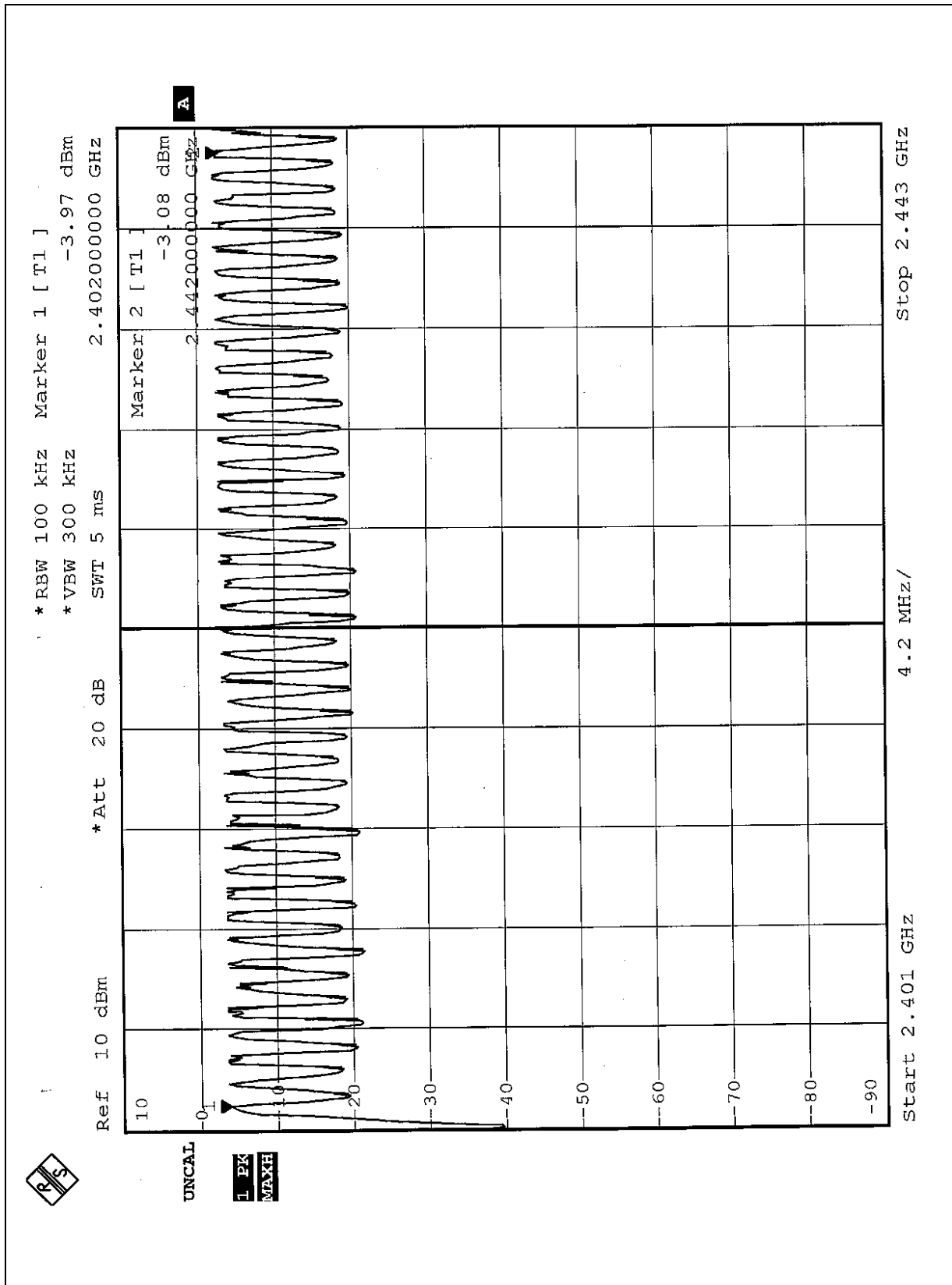
No deviation

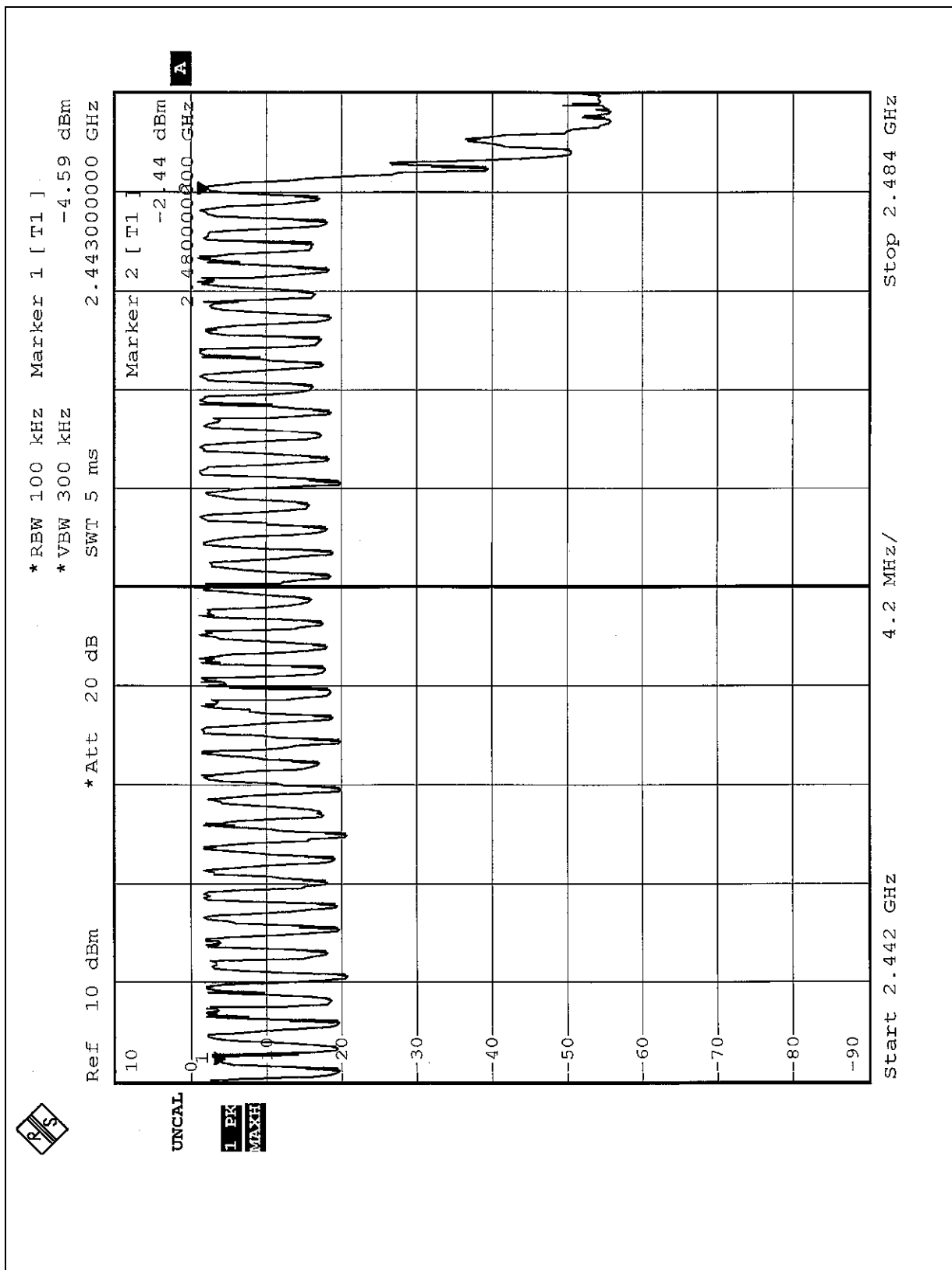
4.2.5 TEST SETUP



4.2.6 TEST RESULTS

There are 79 hopping frequencies in the hopping mode. Please refer to next two pages for the test result. On the plots, it shows that the hopping frequencies are equally spaced.





4.3 DWELL TIME ON EACH CHANNEL

4.3.1 LIMIT OF DWELL TIME USED

For FHSS, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 31.6 second period. For hybrid systems, the average time of occupancy on any frequency should not exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

4.3.2 TEST INSTRUMENTS

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

NOTES:

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

4.3.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement 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.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP

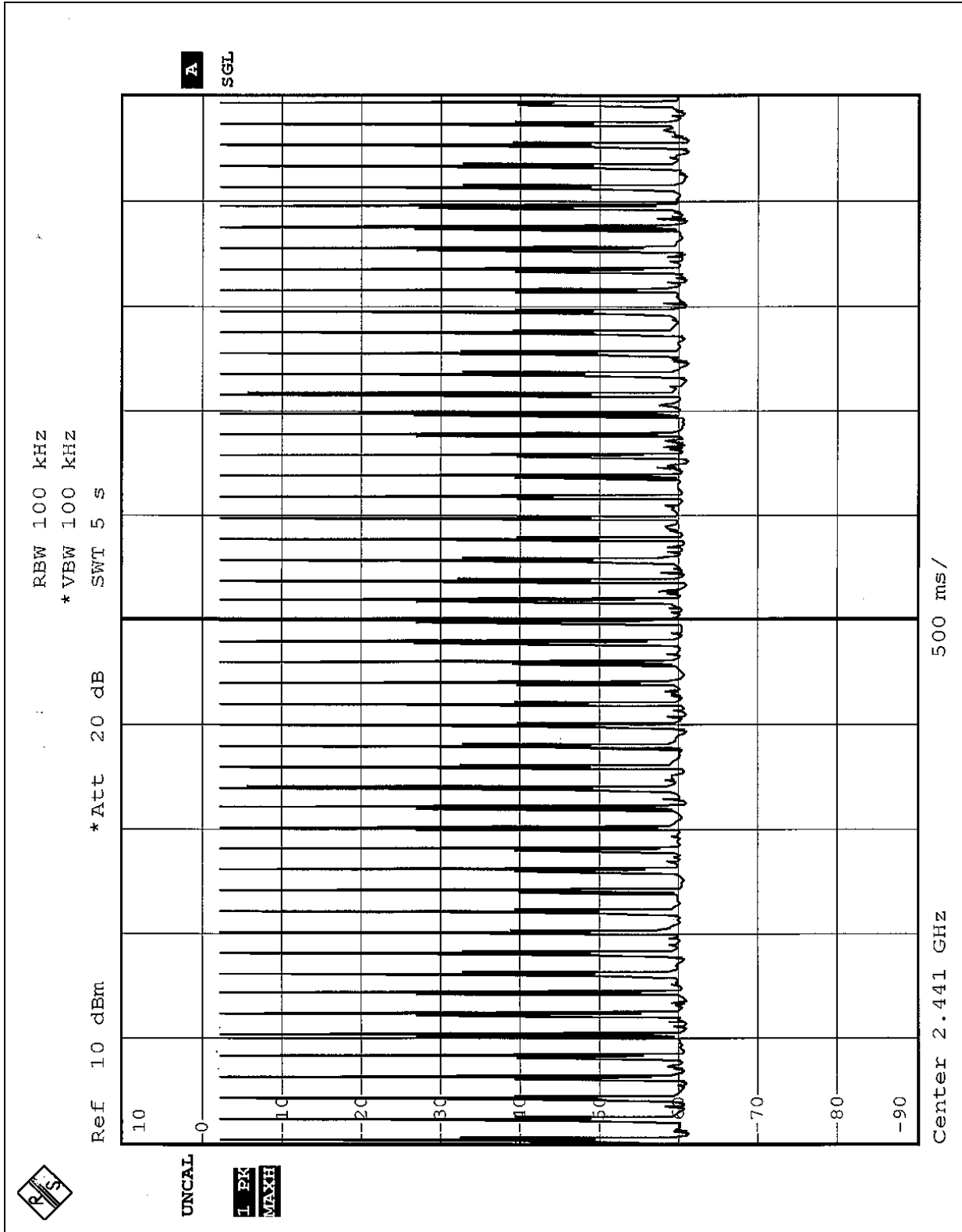


4.3.6 TEST RESULTS

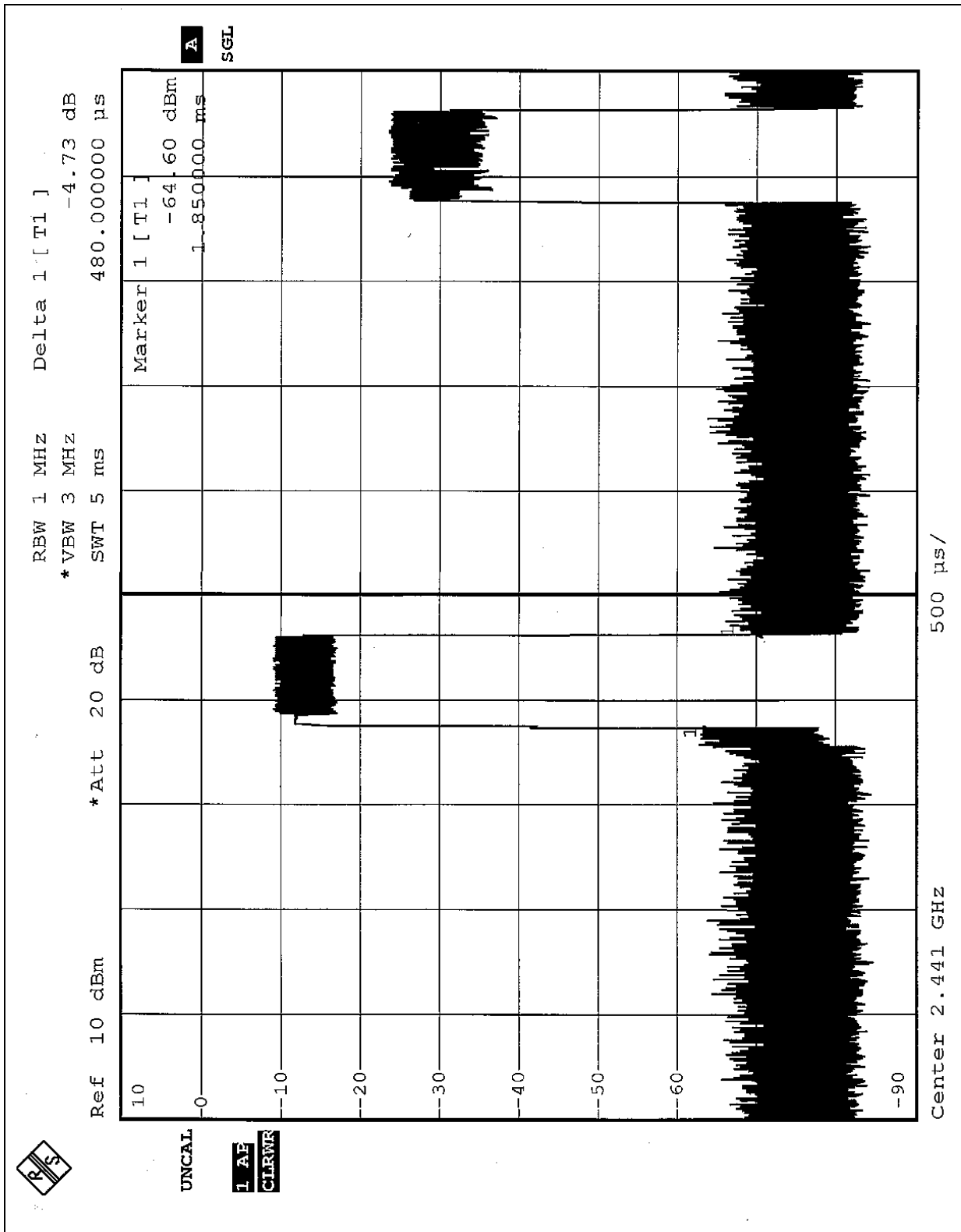
| Mode | Number of transmission in a 31.6 (79Hopping*0.4) | Length of transmission time (msec) | Result (msec) | Limit (msec) |
|------|---|--|------------------|-----------------|
| DH1 | 51 (times / 5 sec) *6.32=322.32 times | 0.481 | 155.03 | 400 |
| DH3 | 25 (times / 5 sec) *6.32=158.00 times | 1.721 | 271.92 | 400 |
| DH5 | 17 (times / 5 sec) *6.32=107.44 times | 2.997 | 322.00 | 400 |

Test plots of the transmitting time slot are shown on next six pages.

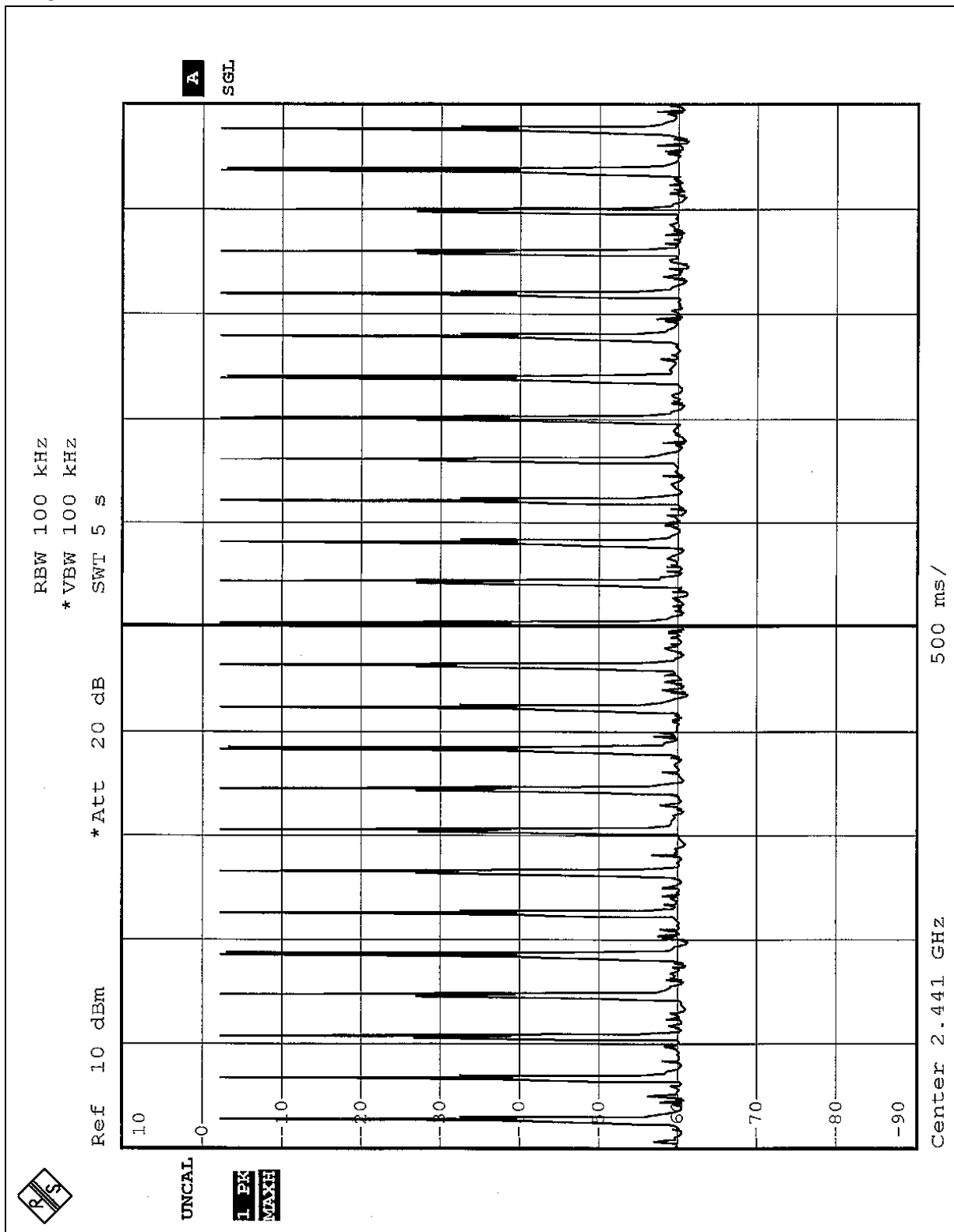
DH1



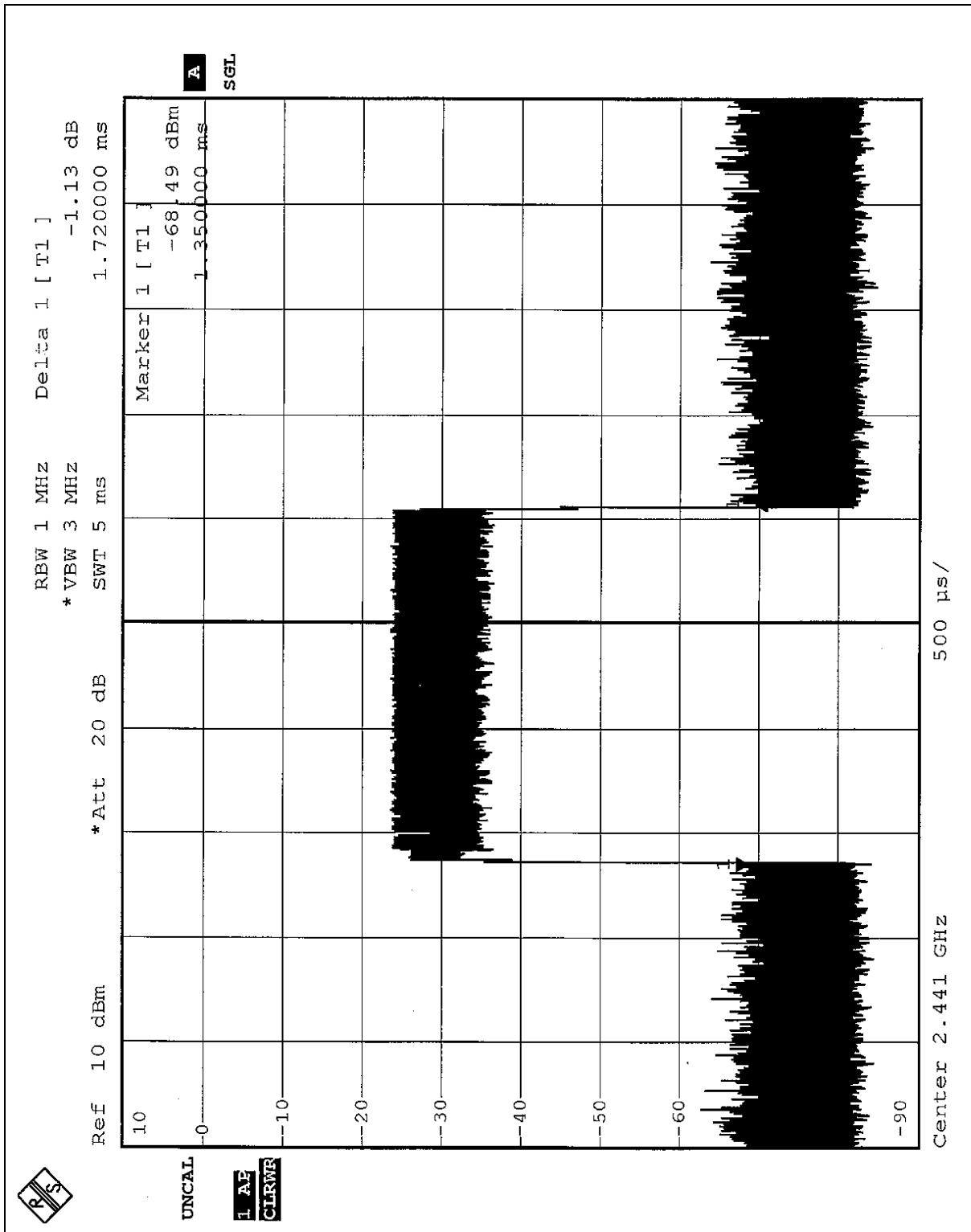
DH1



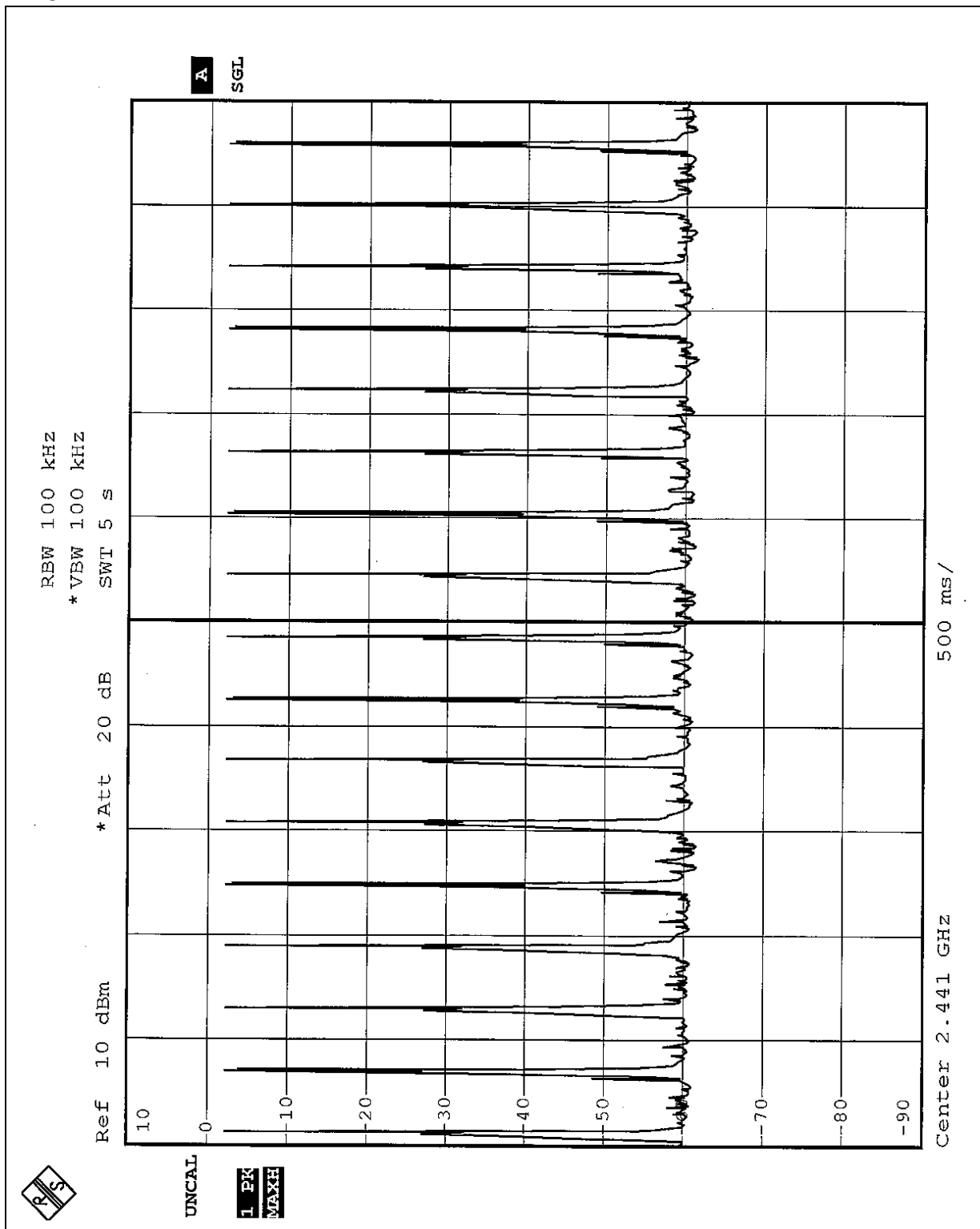
DH3



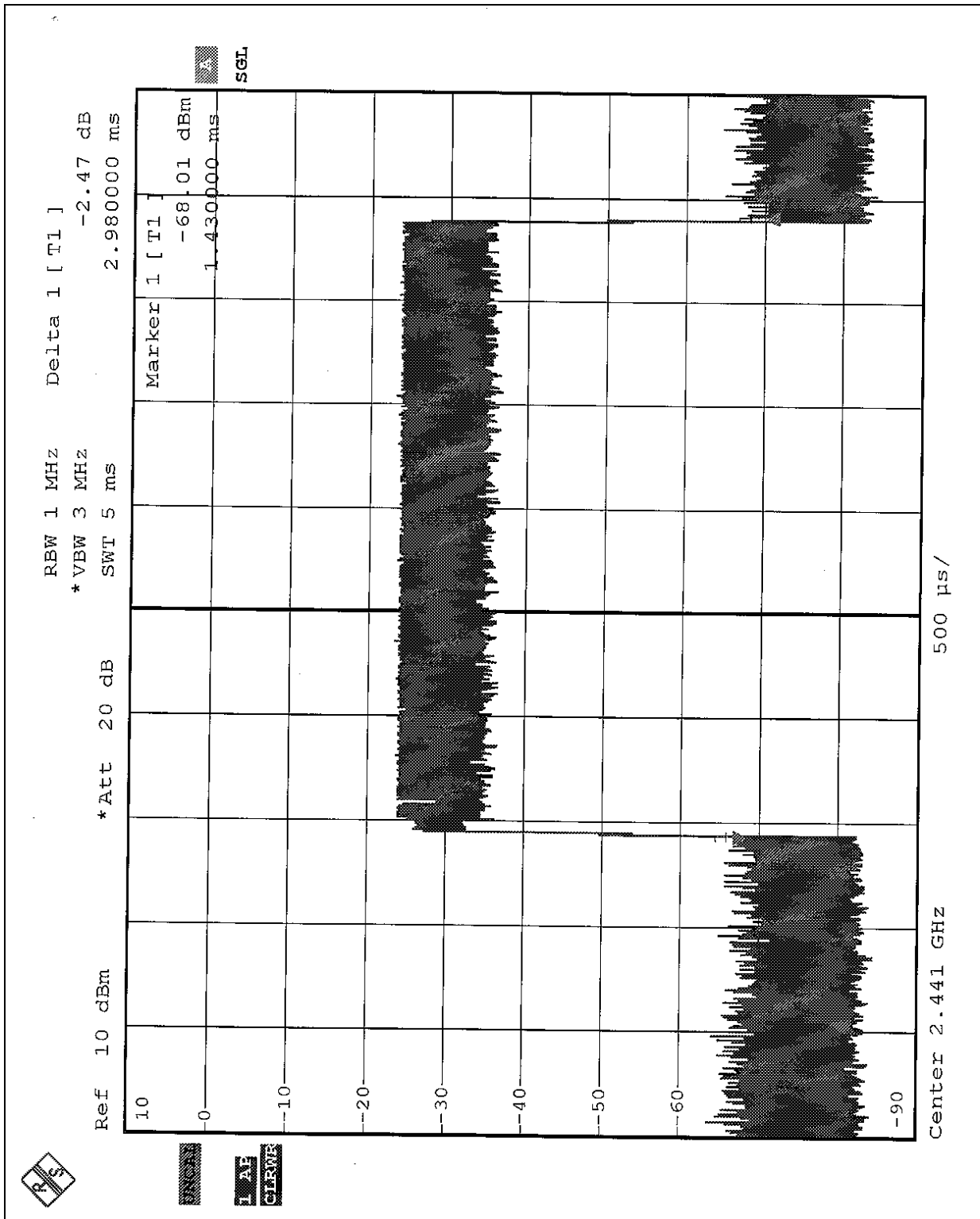
DH3



DH5



DH5



4.4 CHANNEL BANDWIDTH

4.4.1 LIMITS OF CHANNEL BANDWIDTH

For frequency hopping system operating in the 2400-2483.5 MHz and 5725-5850 MHz bands, the maximum 20dB bandwidth of the hopping channel is 1 MHz.

4.4.2 TEST INSTRUMENTS

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

NOTES:

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

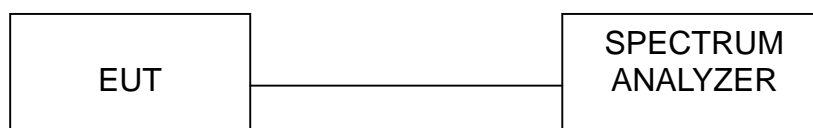
4.4.3 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITION

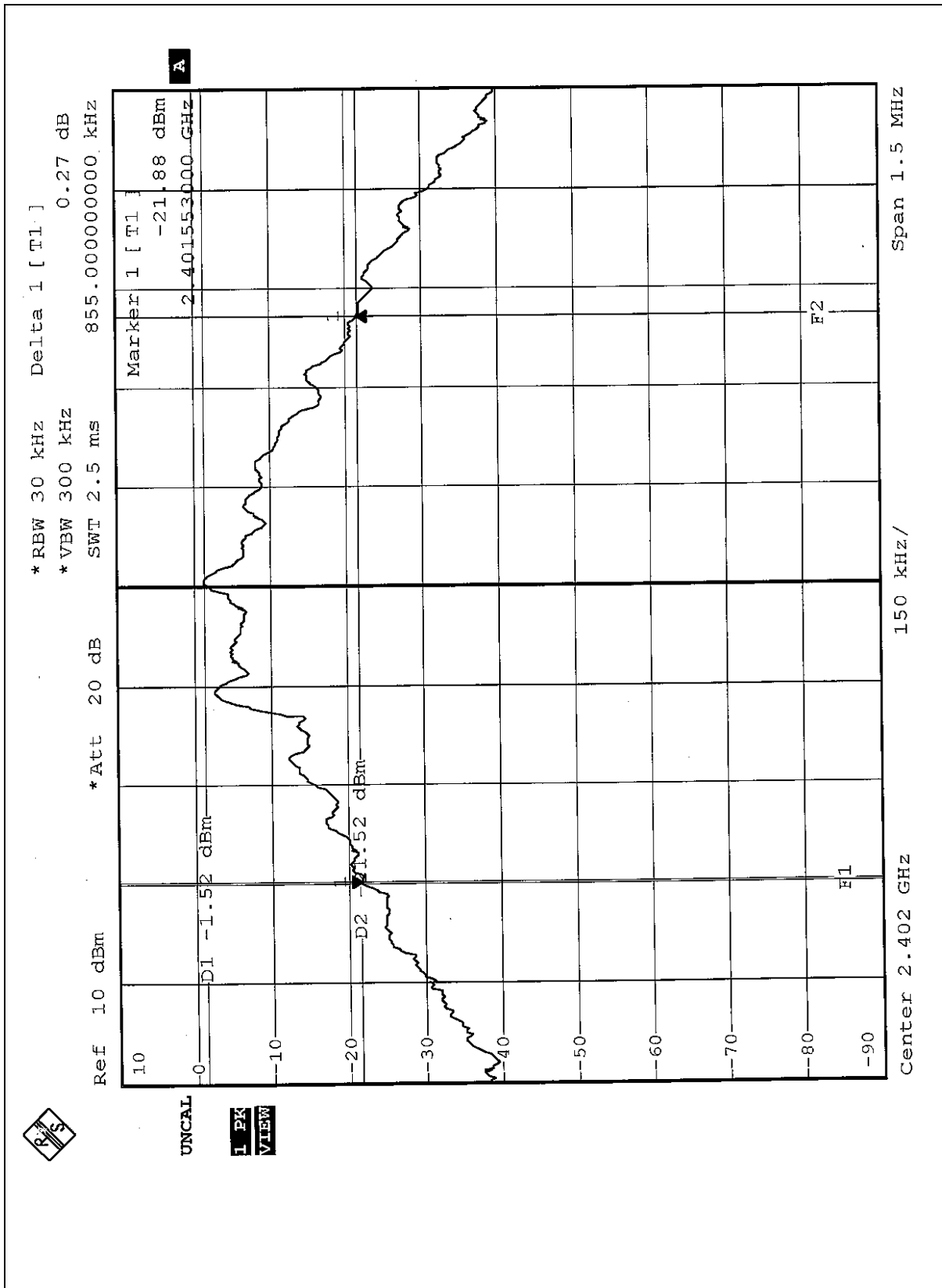
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.4.7 TEST RESULTS

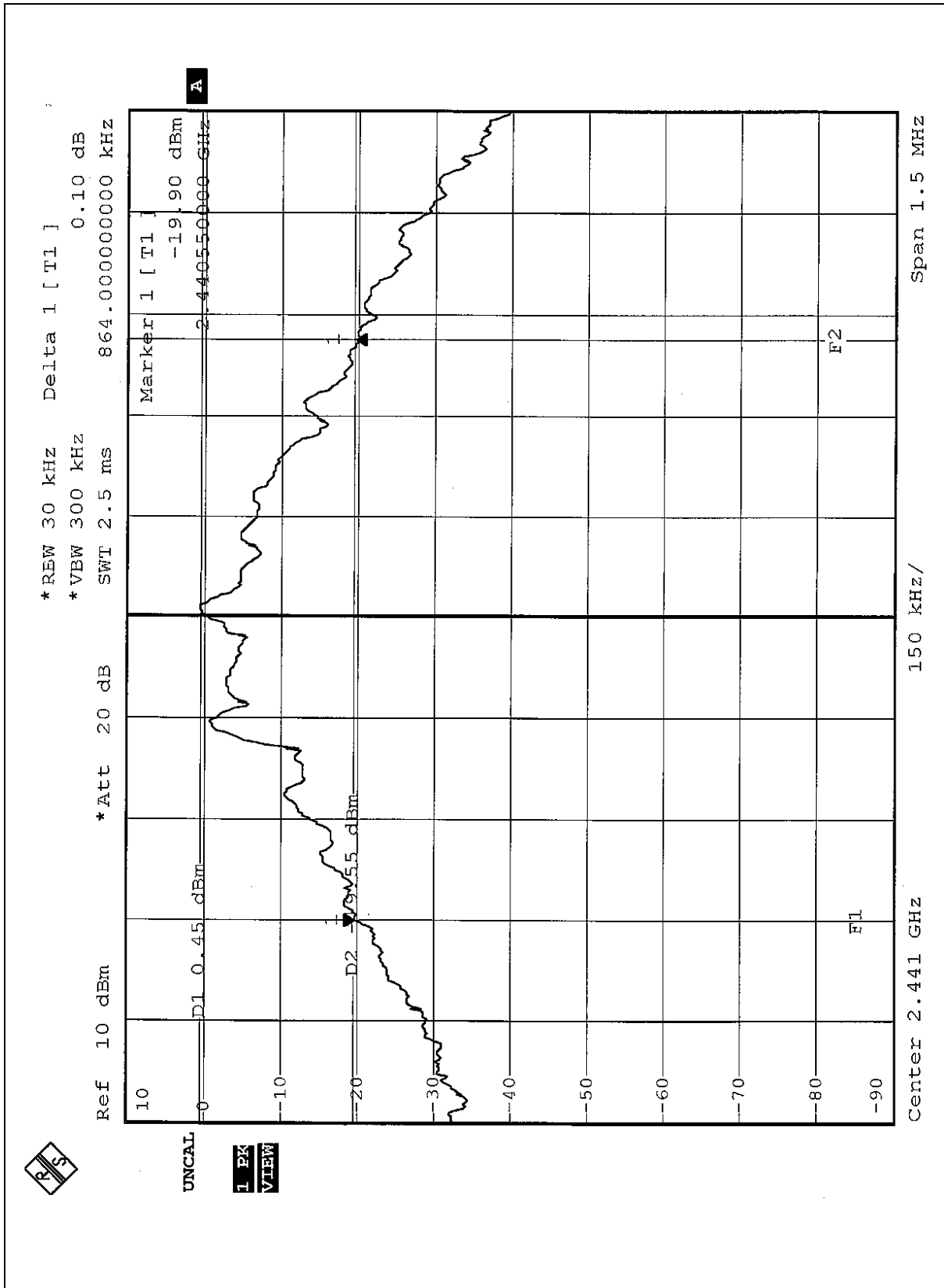
| | | | |
|---------------------------------|-----------------------------|-----------------------------|---------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 65%RH, 991 hPa | INPUT POWER (SYSTEM) | 120Vac, 60 Hz |
| TESTED BY: Jamison Chan | | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | 20dB BANDWIDTH (kHz) | MAXIMUM LIMIT (MHz) | PASS/FAIL |
|----------------|--------------------------------|-----------------------------|----------------------------|------------------|
| 0 | 2402 | 855 | 1 | PASS |
| 39 | 2441 | 864 | 1 | PASS |
| 78 | 2480 | 855 | 1 | PASS |

Channel 0



Channel 39



*RBW 30 kHz Delta 1 [T1] 0.27 dB
 *VBW 300 kHz
 *Att 20 dB SWT 2.5 ms
 Ref 10 dBm 855.00000000 kHz
 Center 2.48 GHz 150 kHz/ Span 1.5 MHz
 Marker 1 [T1]
 -19.23 dBm
 2.479559000 GHz
 D1 1.07 dBm
 D2 8.93 dBm
 F1
 F2
 UNCAL
 1 PK
 VIEW

4.5 HOPPING CHANNEL SEPARATION

4.5.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25kHz or 20dB bandwidth (whichever is greater).

4.5.2 TEST INSTRUMENTS

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

NOTES:

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

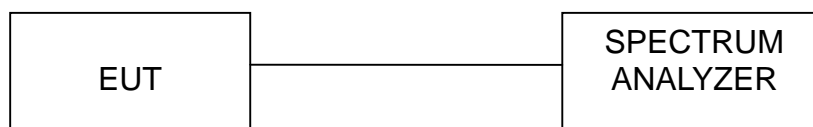
4.5.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. 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 MaxHold 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.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



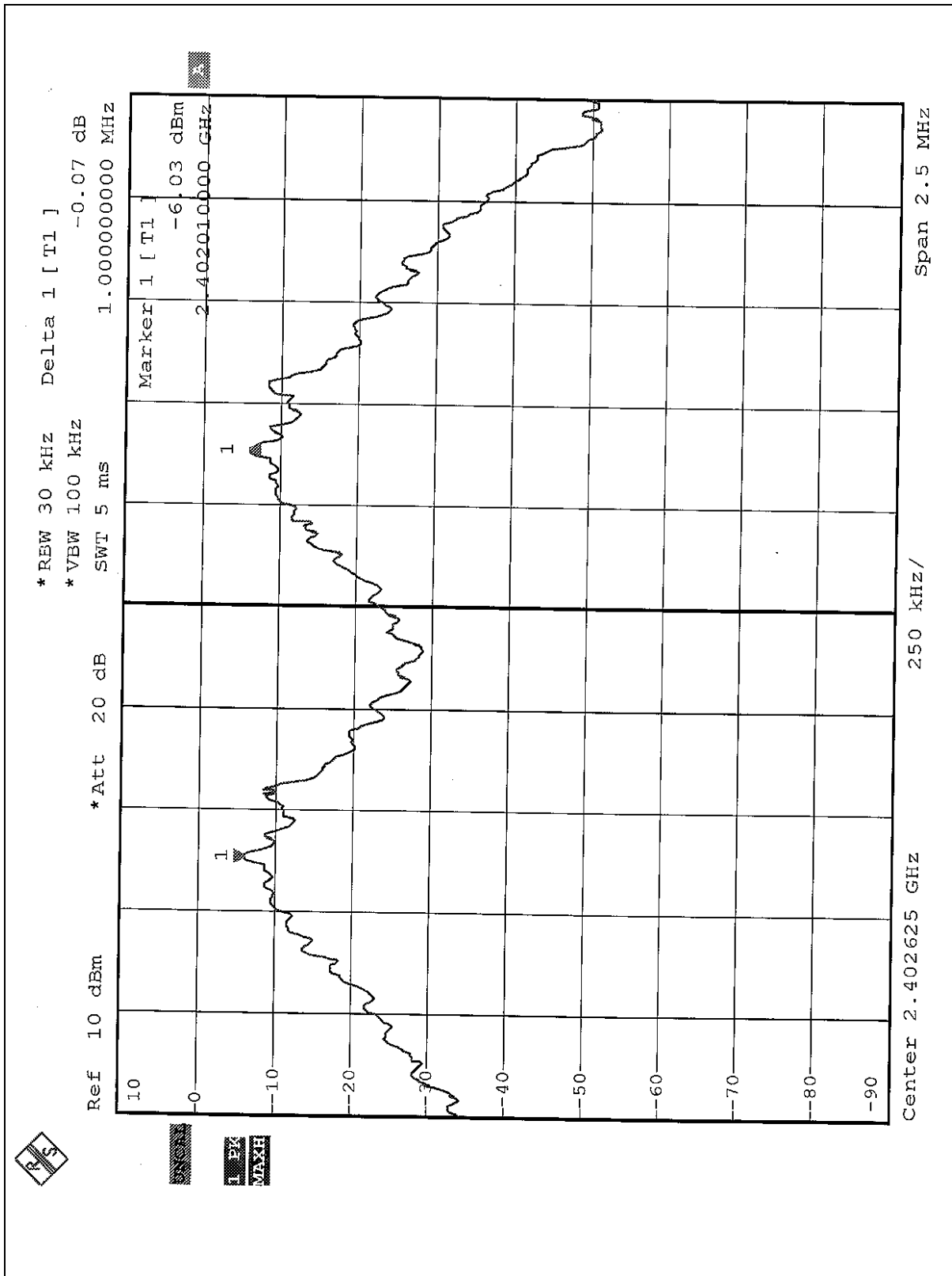
4.5.6 TEST RESULTS

| | | | |
|---------------------------------|-----------------------------|-----------------------------|---------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 65%RH, 991 hPa | INPUT POWER (SYSTEM) | 120Vac, 60 Hz |
| TESTED BY: Jamison Chan | | | |

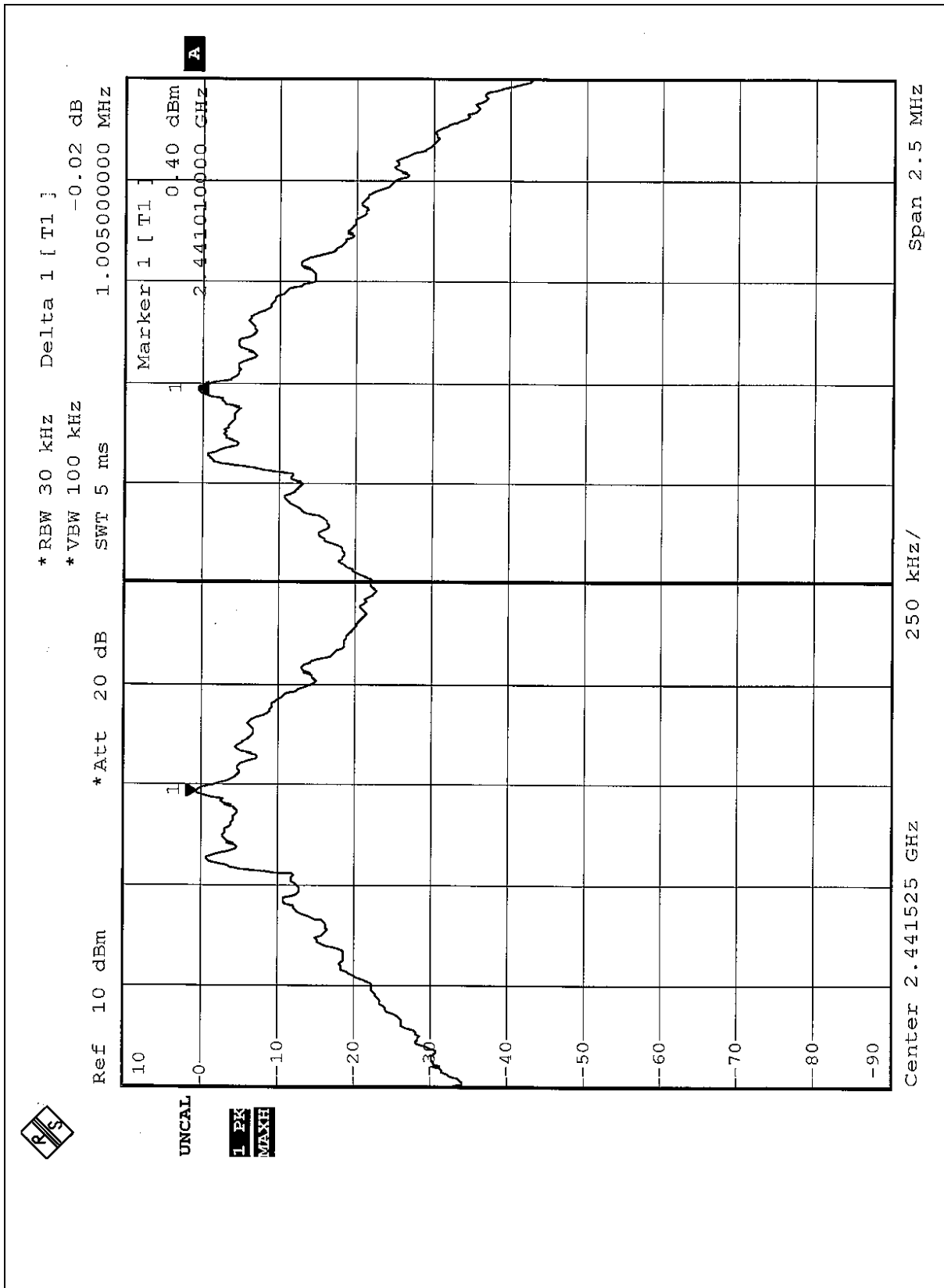
| Channel | Frequency (MHz) | Adjacent Channel Separation | Minimum Limit (kHz) | Pass / Fail |
|---------|-----------------|-----------------------------|---------------------|-------------|
| 0 | 2402 | 1.000MHz | 855 | PASS |
| 39 | 2441 | 1.005MHz | 864 | PASS |
| 78 | 2480 | 1.005MHz | 855 | PASS |

The minimum limit is 20dB bandwidth. Test results please refer to next three pages.

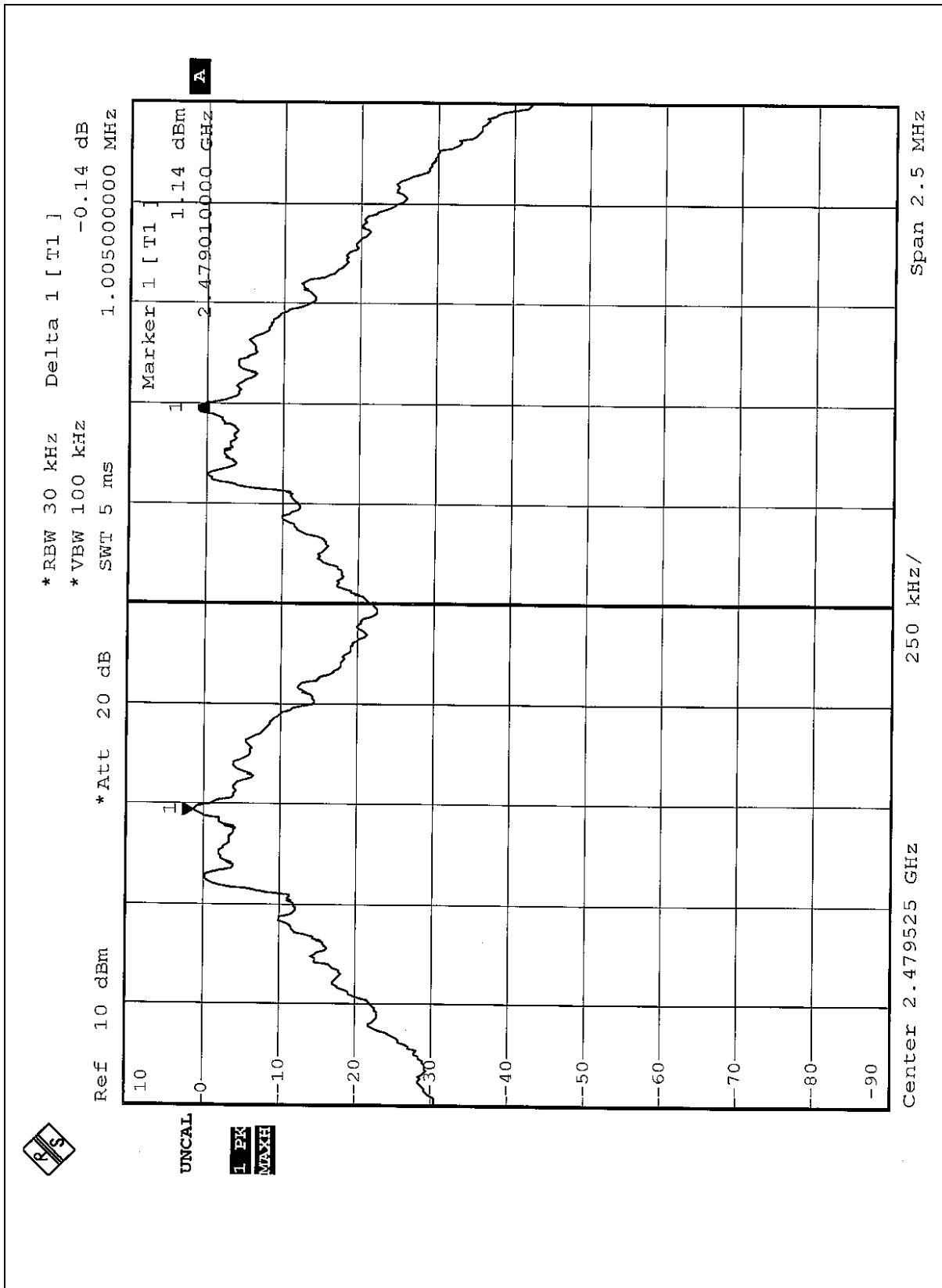
Channel 0



Channel 39



Channel 78



4.6 MAXIMUM PEAK OUTPUT POWER

4.6.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.6.2 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 PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3 MHz RBW and 3 MHz VBW.
4. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
5. Repeat above procedures until all frequencies measured were complete.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.6.6 EUT OPERATING CONDITION

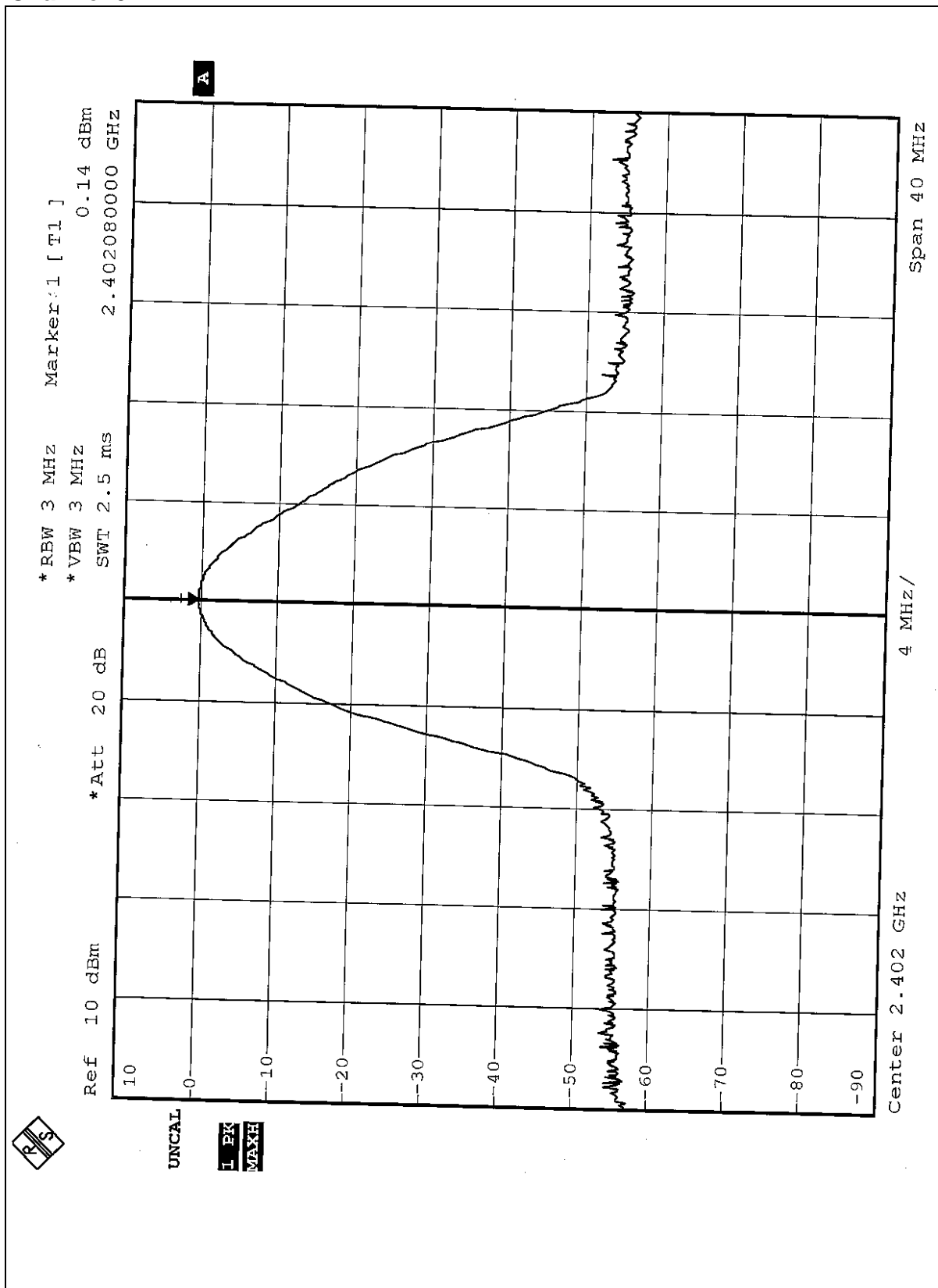
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.6.7 TEST RESULTS

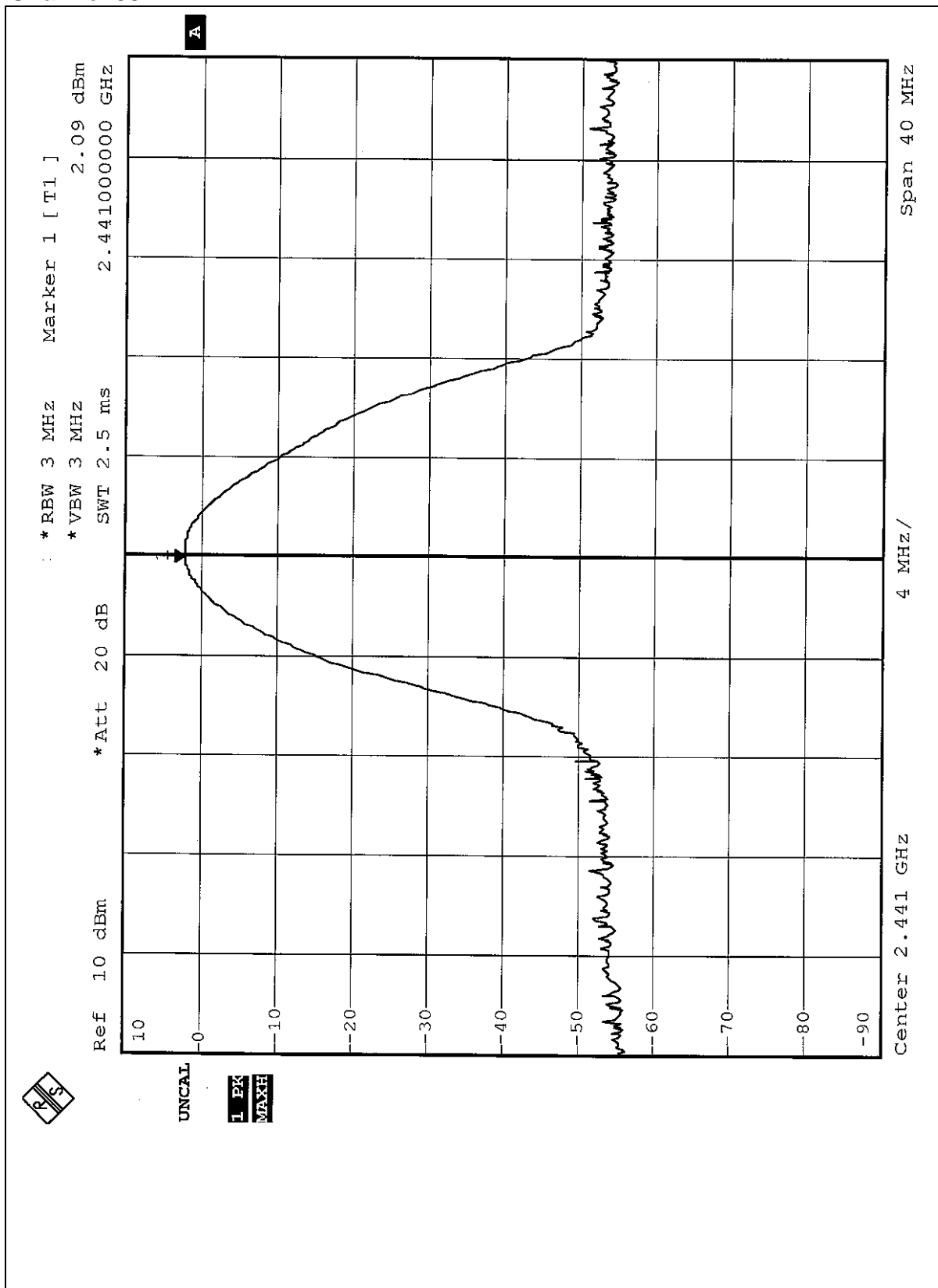
| | | | |
|---------------------------------|-----------------------------|-----------------------------|---------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 65%RH, 991 hPa | INPUT POWER (SYSTEM) | 120Vac, 60 Hz |
| TESTED BY: Jamison Chan | | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | PEAK POWER OUTPUT (dBm) | PEAK POWER LIMIT (dBm) | PASS/FAIL |
|----------------|--------------------------------|--------------------------------|-------------------------------|------------------|
| 0 | 2402 | 0.14 | 30 | PASS |
| 39 | 2441 | 2.09 | 30 | PASS |
| 78 | 2480 | 2.77 | 30 | PASS |

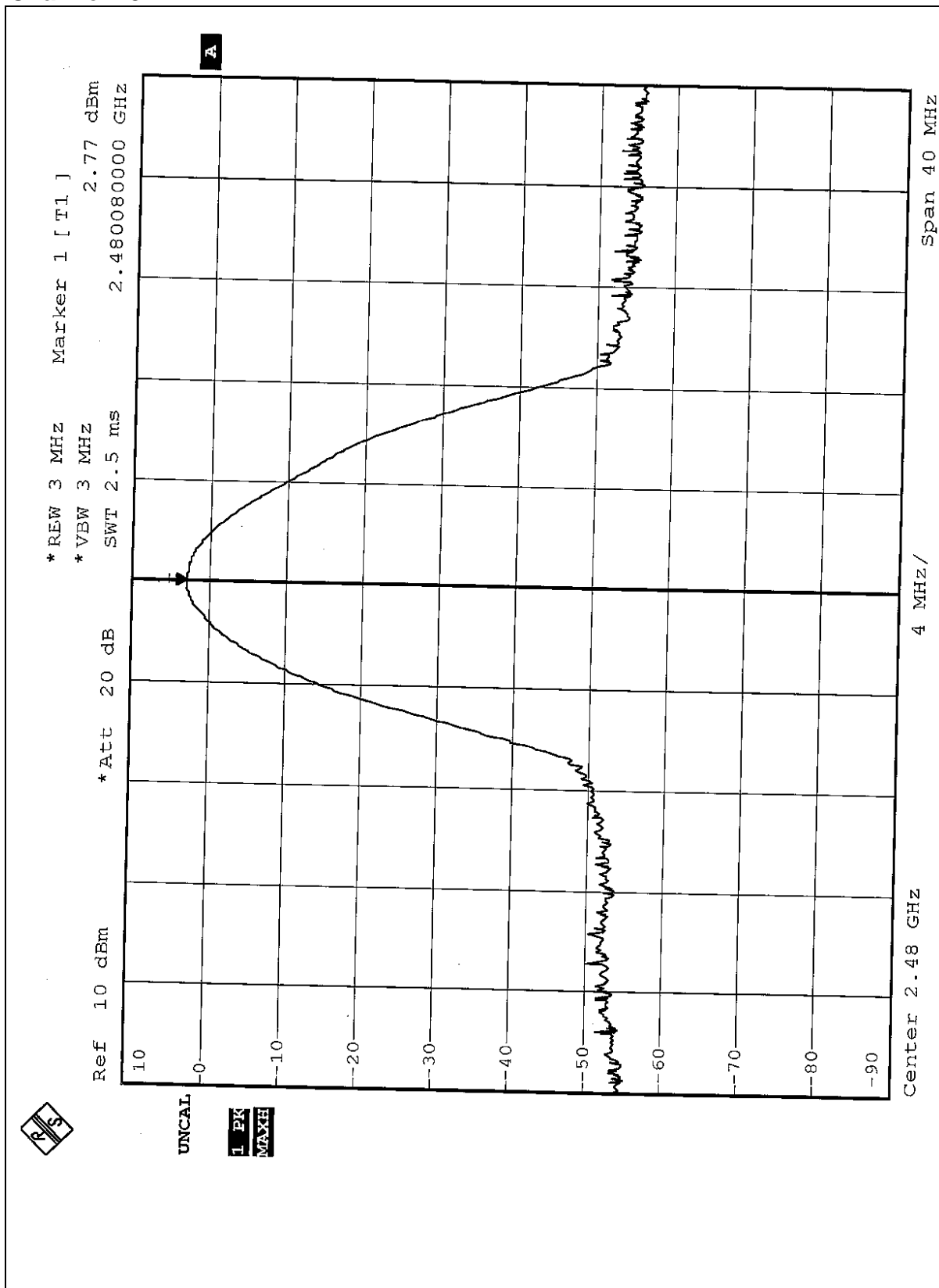
Channel 0



Channel 39



Channel 78



4.7 RADIATED EMISSION MEASUREMENT

4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

| Frequencies (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.7.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|--------------------------------------|--------------------|--------------|------------------|
| Test Receiver ROHDE & SCHWARZ | ESIB7 | 100188 | Jan. 13, 2005 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100039 | Dec. 15, 2004 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-157 | Feb. 03, 2005 |
| HORN Antenna SCHWARZBECK | BBHA 9120 D | 9120D-407 | Feb. 03, 2005 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA 9170241 | Feb. 23, 2005 |
| Preamplifier Agilent | 8449B | 3008A01961 | Jan. 22, 2005 |
| Preamplifier Agilent | 8447D | 2944A10629 | Jan. 14, 2005 |
| RF signal cable HUBER+SUHNER | SUCOFLEX 104 | 218182/4 | Mar. 04, 2005 |
| RF signal cable HUBER+SUHNER | SUCOFLEX 104 | 218194/4 | Mar. 04, 2005 |
| Software ADT. | ADT_Radiated_V5.14 | NA | NA |
| Antenna Tower ADT. | AT100 | AT93021702 | NA |
| Turn Table ADT. | TT100. | TT93021702 | NA |
| Controller ADT. | SC100. | SC93021702 | NA |

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 1.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The IC Site Registration No. is IC4924-2.

4.7.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

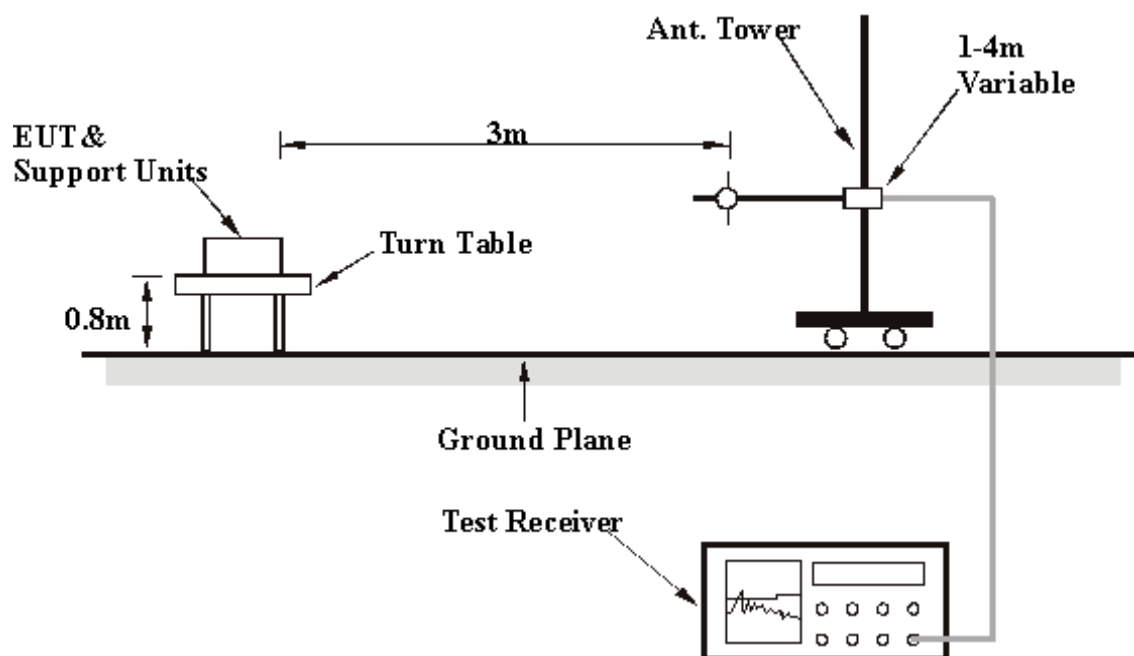
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.7.6 TEST RESULTS

| | | | |
|---------------------------------|----------------------------|--------------------------|------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | 78 | FREQUENCY RANGE | Below 1GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TEST MODE | A |
| TESTED BY | Rush Kao | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 59.16 | 21.40 QP | 40.00 | -18.60 | 1.75 H | 82 | 7.61 | 13.79 |
| 2 | 113.59 | 18.58 QP | 43.50 | -24.92 | 1.50 H | 238 | 6.21 | 12.37 |
| 3 | 127.19 | 19.28 QP | 43.50 | -24.22 | 1.75 H | 274 | 5.75 | 13.53 |
| 4 | 142.75 | 21.99 QP | 43.50 | -21.51 | 2.00 H | 94 | 7.51 | 14.48 |
| 5 | 228.28 | 20.23 QP | 46.00 | -25.77 | 1.50 H | 310 | 7.89 | 12.35 |
| 6 | 286.59 | 23.37 QP | 46.00 | -22.63 | 1.00 H | 244 | 9.07 | 14.29 |
| 7 | 751.18 | 25.11 QP | 46.00 | -20.89 | 1.75 H | 169 | 1.57 | 23.54 |
| 8 | 815.33 | 25.03 QP | 46.00 | -20.97 | 2.50 H | 34 | 1.09 | 23.93 |
| 9 | 860.04 | 25.29 QP | 46.00 | -20.71 | 2.50 H | 289 | 0.91 | 24.37 |
| 10 | 904.75 | 38.19 QP | 46.00 | -7.81 | 1.00 H | 229 | 13.02 | 25.16 |
| 11 | 957.23 | 26.51 QP | 46.00 | -19.49 | 2.00 H | 64 | 0.85 | 25.66 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 59.16 | 33.13 QP | 40.00 | -6.87 | 1.00 V | 7 | 19.34 | 13.79 |
| 2 | 96.09 | 22.92 QP | 43.50 | -20.58 | 2.00 V | 115 | 12.25 | 10.68 |
| 3 | 129.14 | 30.95 QP | 43.50 | -12.55 | 1.00 V | 298 | 17.28 | 13.67 |
| 4 | 142.75 | 28.36 QP | 43.50 | -15.14 | 1.00 V | 316 | 13.88 | 14.48 |
| 5 | 228.28 | 24.23 QP | 46.00 | -21.77 | 2.00 V | 127 | 11.88 | 12.35 |
| 6 | 329.36 | 22.49 QP | 46.00 | -23.51 | 1.50 V | 346 | 7.31 | 15.18 |
| 7 | 856.15 | 25.47 QP | 46.00 | -20.53 | 1.50 V | 178 | 1.16 | 24.30 |
| 8 | 906.69 | 25.76 QP | 46.00 | -20.24 | 2.00 V | 67 | 0.58 | 25.18 |
| 9 | 943.63 | 25.95 QP | 46.00 | -20.05 | 2.00 V | 94 | 0.38 | 25.57 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

| | | | |
|---------------------------------|----------------------------|--------------------------|------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | 78 | FREQUENCY RANGE | Below 1GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TEST MODE | B |
| TESTED BY | Rush Kao | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 98.04 | 29.00 QP | 43.50 | -14.50 | 2.00 H | 190 | 18.17 | 10.83 |
| 2 | 129.14 | 32.69 QP | 43.50 | -10.81 | 1.75 H | 355 | 19.03 | 13.67 |
| 3 | 164.13 | 36.24 QP | 43.50 | -7.26 | 1.75 H | 49 | 21.75 | 14.49 |
| 4 | 199.12 | 29.21 QP | 43.50 | -14.29 | 1.50 H | 118 | 17.75 | 11.46 |
| 5 | 307.98 | 30.68 QP | 46.00 | -15.32 | 1.00 H | 133 | 16.00 | 14.68 |
| 6 | 344.91 | 34.72 QP | 46.00 | -11.28 | 1.00 H | 142 | 19.18 | 15.53 |
| 7 | 370.18 | 33.28 QP | 46.00 | -12.72 | 1.00 H | 148 | 17.19 | 16.09 |
| 8 | 395.45 | 31.90 QP | 46.00 | -14.10 | 1.00 H | 157 | 15.25 | 16.65 |
| 9 | 533.47 | 26.68 QP | 46.00 | -19.32 | 1.75 H | 208 | 7.31 | 19.37 |
| 10 | 599.56 | 29.48 QP | 46.00 | -16.52 | 1.50 H | 226 | 8.49 | 21.00 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 66.93 | 30.59 QP | 40.00 | -9.41 | 1.00 V | 235 | 17.66 | 12.93 |
| 2 | 84.43 | 30.58 QP | 40.00 | -9.42 | 1.25 V | 334 | 20.51 | 10.07 |
| 3 | 127.19 | 32.75 QP | 43.50 | -10.75 | 1.00 V | 184 | 19.22 | 13.53 |
| 4 | 158.30 | 29.32 QP | 43.50 | -14.18 | 2.00 V | 298 | 14.47 | 14.85 |
| 5 | 199.12 | 25.96 QP | 43.50 | -17.54 | 1.75 V | 145 | 14.50 | 11.46 |
| 6 | 228.28 | 24.78 QP | 46.00 | -21.22 | 2.00 V | 298 | 12.43 | 12.35 |
| 7 | 733.69 | 29.28 QP | 46.00 | -16.72 | 1.25 V | 97 | 6.15 | 23.13 |
| 8 | 863.93 | 29.99 QP | 46.00 | -16.01 | 1.25 V | 115 | 5.55 | 24.45 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

| | | | |
|---------------------------------|----------------------------|--------------------------|------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | 78 | FREQUENCY RANGE | Below 1GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TEST MODE | C |
| TESTED BY | Rush Kao | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 35.83 | 25.53 QP | 40.00 | -14.47 | 1.50 H | 307 | 10.96 | 14.57 |
| 2 | 84.43 | 17.54 QP | 40.00 | -22.46 | 1.50 H | 193 | 7.47 | 10.07 |
| 3 | 113.59 | 17.20 QP | 43.50 | -26.30 | 1.00 H | 358 | 4.82 | 12.37 |
| 4 | 142.75 | 20.36 QP | 43.50 | -23.14 | 1.75 H | 34 | 5.88 | 14.48 |
| 5 | 171.90 | 18.27 QP | 43.50 | -25.23 | 1.25 H | 211 | 4.53 | 13.74 |
| 6 | 228.28 | 19.69 QP | 46.00 | -26.31 | 1.25 H | 127 | 7.34 | 12.35 |
| 7 | 286.59 | 22.77 QP | 46.00 | -23.23 | 1.00 H | 163 | 8.47 | 14.29 |
| 8 | 329.36 | 20.08 QP | 46.00 | -25.92 | 1.00 H | 250 | 4.91 | 15.18 |
| 9 | 825.05 | 24.14 QP | 46.00 | -21.86 | 1.25 H | 16 | 0.14 | 24.01 |
| 10 | 856.15 | 24.54 QP | 46.00 | -21.46 | 1.25 H | 313 | 0.24 | 24.30 |
| 11 | 891.14 | 24.97 QP | 46.00 | -21.03 | 1.25 H | 46 | 0.02 | 24.95 |
| 12 | 922.24 | 25.50 QP | 46.00 | -20.50 | 1.00 H | 253 | 0.15 | 25.35 |
| 13 | 953.35 | 24.51 QP | 46.00 | -21.49 | 1.50 H | 175 | -1.14 | 25.65 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 35.83 | 37.62 QP | 40.00 | -2.38 | 1.00 V | 97 | 23.05 | 14.57 |
| 2 | 45.55 | 28.33 QP | 40.00 | -11.67 | 1.00 V | 91 | 13.09 | 15.23 |
| 3 | 66.93 | 30.94 QP | 40.00 | -9.06 | 1.00 V | 22 | 18.02 | 12.93 |
| 4 | 84.43 | 27.39 QP | 40.00 | -12.61 | 1.50 V | 157 | 17.32 | 10.07 |
| 5 | 113.59 | 25.22 QP | 43.50 | -18.28 | 1.00 V | 244 | 12.85 | 12.37 |
| 6 | 127.19 | 30.76 QP | 43.50 | -12.74 | 1.50 V | 268 | 17.23 | 13.53 |
| 7 | 142.75 | 26.23 QP | 43.50 | -17.27 | 1.25 V | 16 | 11.75 | 14.48 |
| 8 | 228.28 | 23.28 QP | 46.00 | -22.72 | 2.00 V | 88 | 10.94 | 12.35 |
| 9 | 286.59 | 23.72 QP | 46.00 | -22.28 | 1.50 V | 160 | 9.43 | 14.29 |
| 10 | 329.36 | 22.30 QP | 46.00 | -23.70 | 1.25 V | 193 | 7.12 | 15.18 |
| 11 | 758.96 | 24.90 QP | 46.00 | -21.10 | 1.25 V | 187 | 1.32 | 23.58 |
| 12 | 803.67 | 25.27 QP | 46.00 | -20.73 | 1.25 V | 151 | 1.42 | 23.85 |
| 13 | 889.20 | 25.47 QP | 46.00 | -20.53 | 1.75 V | 328 | 0.56 | 24.91 |
| 14 | 939.74 | 25.86 QP | 46.00 | -20.14 | 1.25 V | 223 | 0.33 | 25.53 |

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

| | | | |
|---------------------------------|----------------------------|--------------------------|------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | 78 | FREQUENCY RANGE | Below 1GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TEST MODE | D |
| TESTED BY | Rush Kao | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 31.94 | 22.13 QP | 40.00 | -17.87 | 1.00 H | 232 | 8.20 | 13.93 |
| 2 | 57.21 | 19.89 QP | 40.00 | -20.11 | 1.50 H | 253 | 5.90 | 13.99 |
| 3 | 80.54 | 20.25 QP | 40.00 | -19.75 | 1.50 H | 34 | 10.27 | 9.98 |
| 4 | 107.76 | 14.84 QP | 43.50 | -28.66 | 1.50 H | 352 | 3.07 | 11.77 |
| 5 | 142.75 | 17.39 QP | 43.50 | -26.11 | 2.00 H | 103 | 2.90 | 14.48 |
| 6 | 160.24 | 18.04 QP | 43.50 | -25.46 | 1.50 H | 157 | 3.18 | 14.87 |
| 7 | 199.12 | 16.84 QP | 43.50 | -26.66 | 2.00 H | 175 | 5.38 | 11.46 |
| 8 | 228.28 | 20.32 QP | 46.00 | -25.68 | 1.50 H | 226 | 7.97 | 12.35 |
| 9 | 257.43 | 16.76 QP | 46.00 | -29.24 | 1.00 H | 181 | 3.43 | 13.33 |
| 10 | 286.59 | 17.03 QP | 46.00 | -28.97 | 2.50 H | 10 | 2.74 | 14.29 |
| 11 | 329.36 | 18.33 QP | 46.00 | -27.67 | 1.00 H | 259 | 3.15 | 15.18 |
| 12 | 735.63 | 24.14 QP | 46.00 | -21.86 | 2.00 H | 328 | 0.96 | 23.18 |
| 13 | 854.21 | 24.99 QP | 46.00 | -21.01 | 1.50 H | 328 | 0.72 | 24.27 |
| 14 | 895.03 | 25.50 QP | 46.00 | -20.50 | 2.00 H | 256 | 0.48 | 25.02 |
| 15 | 951.40 | 25.69 QP | 46.00 | -20.31 | 1.50 H | 124 | 0.05 | 25.64 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 33.89 | 20.63 QP | 40.00 | -19.37 | 1.00 V | 226 | 6.38 | 14.25 |
| 2 | 55.27 | 30.77 QP | 40.00 | -9.23 | 1.00 V | 1 | 16.59 | 14.18 |
| 3 | 76.65 | 36.28 QP | 40.00 | -3.72 | 1.00 V | 10 | 25.44 | 10.84 |
| 4 | 92.20 | 31.43 QP | 43.50 | -12.07 | 1.50 V | 253 | 21.06 | 10.37 |
| 5 | 111.64 | 28.91 QP | 43.50 | -14.59 | 1.00 V | 262 | 16.74 | 12.17 |
| 6 | 156.35 | 25.01 QP | 43.50 | -18.49 | 1.00 V | 289 | 10.21 | 14.80 |
| 7 | 228.28 | 24.47 QP | 46.00 | -21.53 | 2.00 V | 208 | 12.12 | 12.35 |
| 8 | 243.83 | 20.41 QP | 46.00 | -25.59 | 2.00 V | 13 | 7.28 | 13.13 |
| 9 | 257.43 | 18.69 QP | 46.00 | -27.31 | 2.00 V | 154 | 5.36 | 13.33 |
| 10 | 286.59 | 23.15 QP | 46.00 | -22.85 | 1.50 V | 172 | 8.85 | 14.29 |
| 11 | 329.36 | 22.09 QP | 46.00 | -23.91 | 1.50 V | 235 | 6.91 | 15.18 |
| 12 | 457.66 | 21.99 QP | 46.00 | -24.01 | 1.00 V | 88 | 3.82 | 18.17 |
| 13 | 741.46 | 24.41 QP | 46.00 | -21.59 | 1.50 V | 196 | 1.09 | 23.32 |
| 14 | 914.47 | 25.38 QP | 46.00 | -20.62 | 1.50 V | 49 | 0.12 | 25.26 |
| 15 | 957.23 | 25.29 QP | 46.00 | -20.71 | 1.50 V | 70 | -0.38 | 25.66 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

| | | | |
|---------------------------------|-------------------------------|--------------------------|--------------------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | Channel 0 | FREQUENCY RANGE | 1 ~25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak(PK) Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TESTED BY | Rush Kao |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 1200.00 | 49.18 PK | 74.00 | -24.82 | 1.22 H | 238 | 22.17 | 27.01 |
| 2 | *2402.00 | 95.45 PK | | | 1.33 H | 148 | 63.61 | 31.84 |
| 2 | *2402.00 | 65.45 AV | | | 1.33 H | 148 | 33.61 | 31.84 |
| 3 | 4804.00 | 64.15 PK | 74.00 | -9.85 | 1.00 H | 154 | 26.11 | 38.04 |
| 3 | 4804.00 | 34.15 AV | 54.00 | -19.85 | 1.00 H | 154 | -3.89 | 38.04 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 1200.00 | 52.08 PK | 74.00 | -21.92 | 1.00 V | 9 | 25.07 | 27.01 |
| 2 | *2402.00 | 96.17 PK | | | 1.00 V | 154 | 64.33 | 31.84 |
| 2 | *2402.00 | 66.17 AV | | | 1.00 V | 154 | 34.33 | 31.84 |
| 3 | 4804.00 | 67.14 PK | 74.00 | -6.86 | 1.00 V | 146 | 29.10 | 38.04 |
| 3 | 4804.00 | 37.14 AV | 54.00 | -16.86 | 1.00 V | 146 | -0.90 | 38.04 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel. Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
 7. Average value = peak reading $-20\log(\text{duty cycle})$

| | | | |
|---------------------------------|-------------------------------|--------------------------|--------------------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | Channel 39 | FREQUENCY RANGE | 1 ~25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak(PK) Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TESTED BY | Rush Kao |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|--|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1221.00 | 43.34 PK | 74.00 | -30.66 | 1.20 H | 237 | 16.26 | 27.08 |
| 2 | *2441.00 | 99.86 PK | | | 1.39 H | 287 | 67.90 | 31.96 |
| 2 | *2441.00 | 69.86 AV | | | 1.39 H | 287 | 37.90 | 31.96 |
| 3 | 4882.00 | 59.27 PK | 74.00 | -14.73 | 1.89 H | 85 | 20.96 | 38.31 |
| 3 | 4882.00 | 29.27 AV | 54.00 | -24.73 | 1.89 H | 85 | -9.04 | 38.31 |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
|--|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1221.00 | 40.81 PK | 74.00 | -33.19 | 1.32 V | 170 | 13.73 | 27.08 |
| 2 | *2441.00 | 99.39 PK | | | 1.00 V | 156 | 67.43 | 31.96 |
| 2 | *2441.00 | 69.39 AV | | | 1.00 V | 156 | 37.43 | 31.96 |
| 3 | 4882.00 | 59.89 PK | 74.00 | -14.11 | 1.38 V | 315 | 21.58 | 38.31 |
| 3 | 4882.00 | 29.89 AV | 54.00 | -24.11 | 1.38 V | 315 | -8.42 | 38.31 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel. Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
 7. Average value = peak reading $-20\log(\text{duty cycle})$

| | | | |
|---------------------------------|-------------------------------|--------------------------|--------------------------|
| EUT | Bluetooth Headset | MODEL | ME-101 |
| CHANNEL | Channel 78 | FREQUENCY RANGE | 1 ~25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak(PK) Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25 deg. C, 65 % RH, 991hPa | TESTED BY | Rush Kao |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 1240.00 | 44.17 PK | 74.00 | -29.83 | 1.16 H | 236 | 17.02 | 27.15 |
| 2 | *2480.00 | 100.70 PK | | | 1.31 H | 307 | 68.62 | 32.08 |
| 2 | *2480.00 | 70.70 AV | | | 1.31 H | 307 | 38.62 | 32.08 |
| 3 | 4960.00 | 59.27 PK | 74.00 | -14.73 | 1.04 H | 340 | 20.60 | 38.66 |
| 3 | 4960.00 | 29.27 AV | 54.00 | -24.73 | 1.04 H | 340 | -9.39 | 38.66 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 1240.00 | 41.31 PK | 74.00 | -32.69 | 1.00 V | 196 | 14.16 | 27.15 |
| 2 | *2480.00 | 99.40 PK | | | 1.00 V | 154 | 67.32 | 32.08 |
| 2 | *2480.00 | 69.40 AV | | | 1.00 V | 154 | 37.32 | 32.08 |
| 3 | 4960.00 | 60.48 PK | 74.00 | -13.52 | 1.00 V | 337 | 21.81 | 38.66 |
| 3 | 4960.00 | 30.48 AV | 54.00 | -23.52 | 1.00 V | 337 | -8.18 | 38.66 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel. Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
 7. Average value = peak reading $-20\log(\text{duty cycle})$

4.8 BAND EDGES MEASUREMENT

4.8.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.8.2 TEST INSTRUMENTS

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

NOTES:

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

4.8.3 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 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation

4.8.5 EUT OPERATING CONDITION

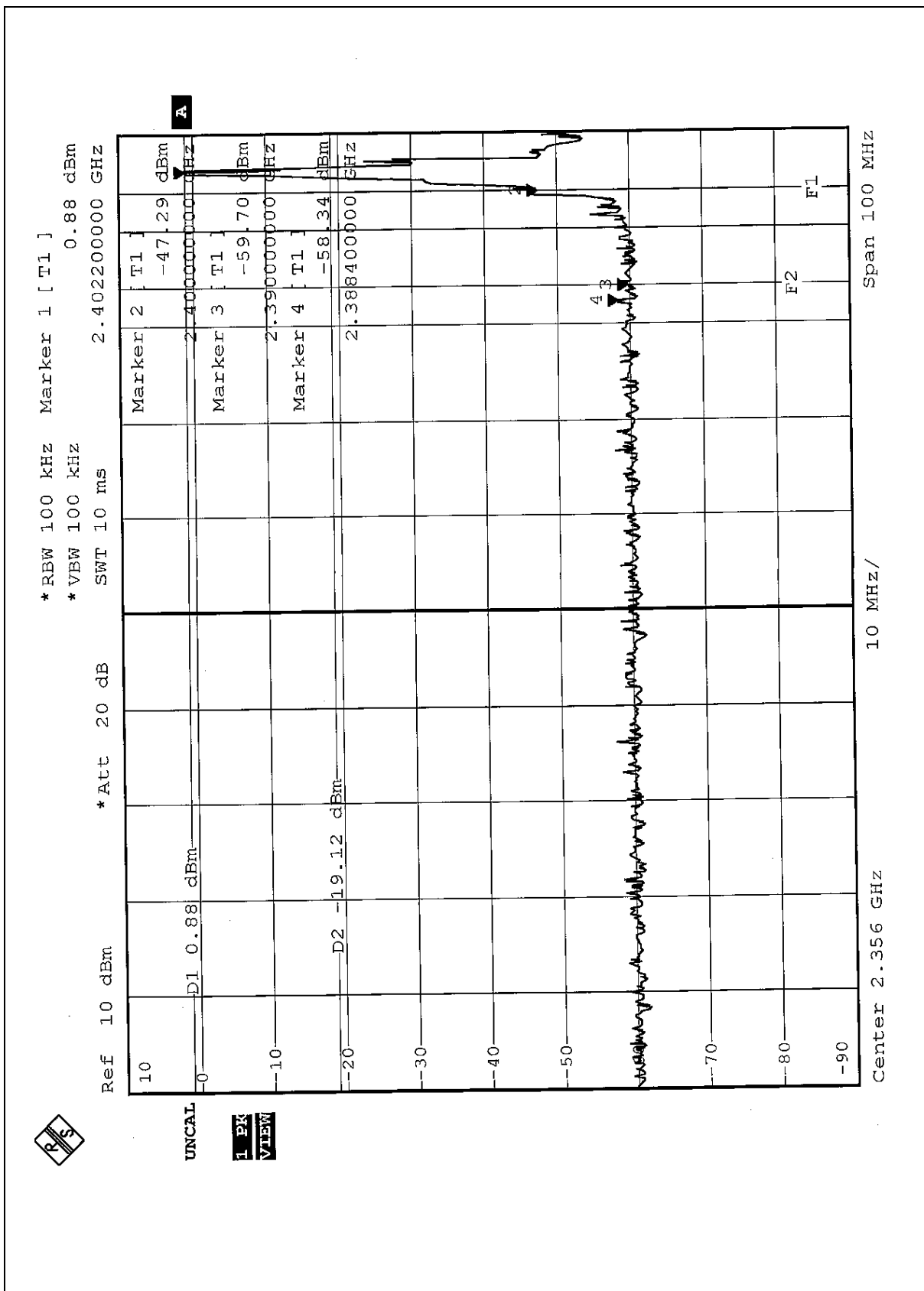
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

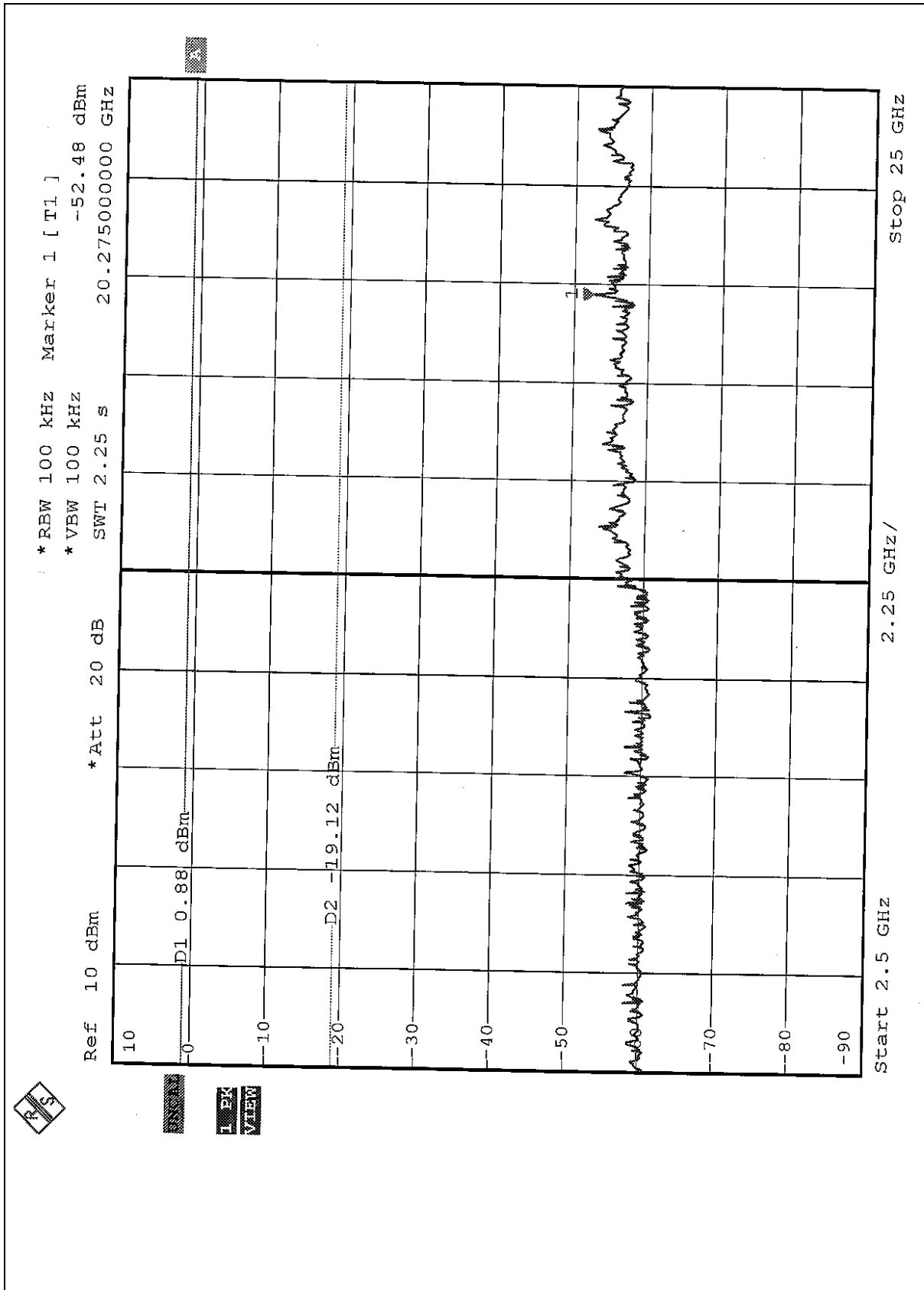
4.8.6 TEST RESULTS

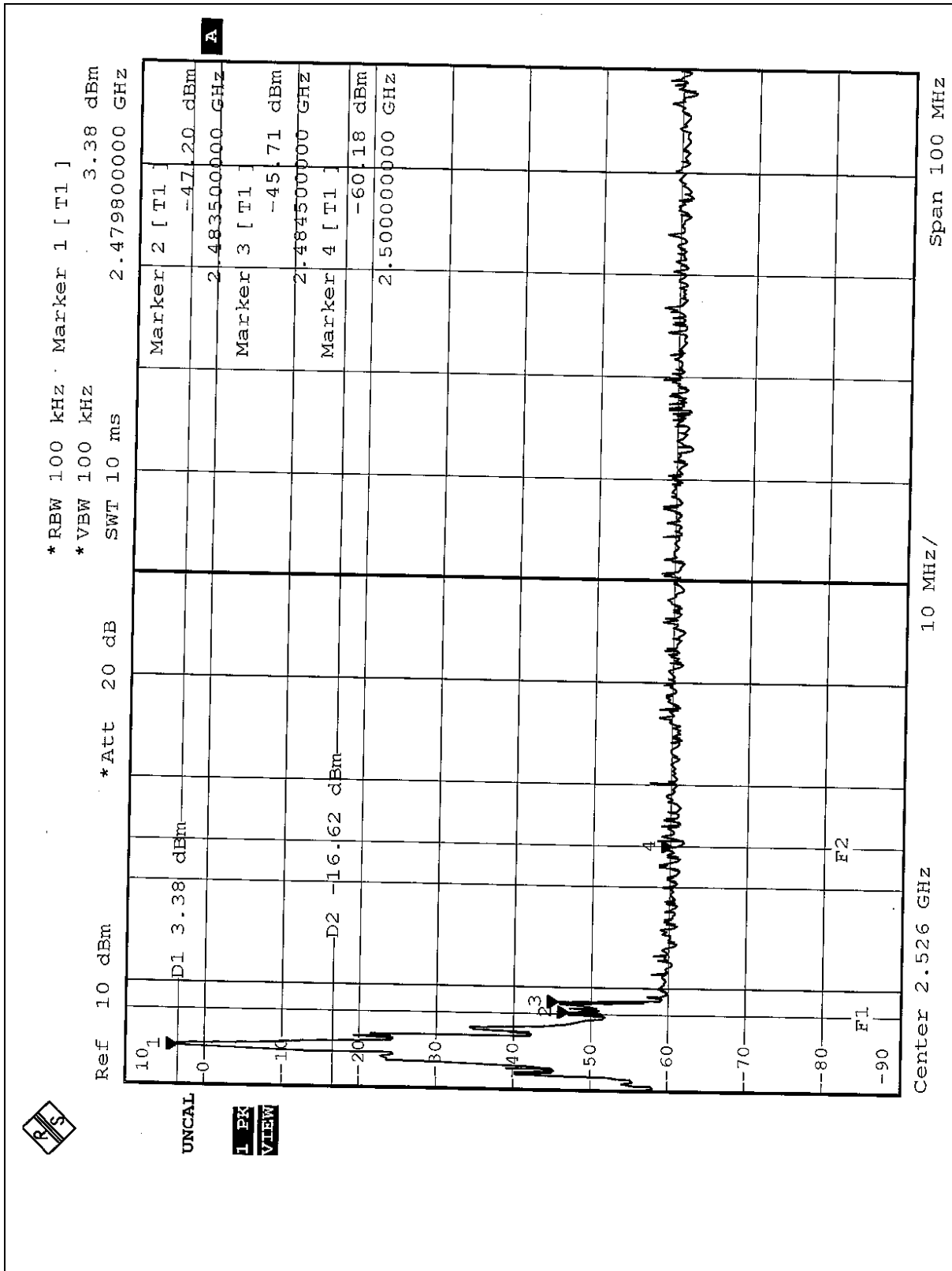
The spectrum plots are attached on the following 4 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

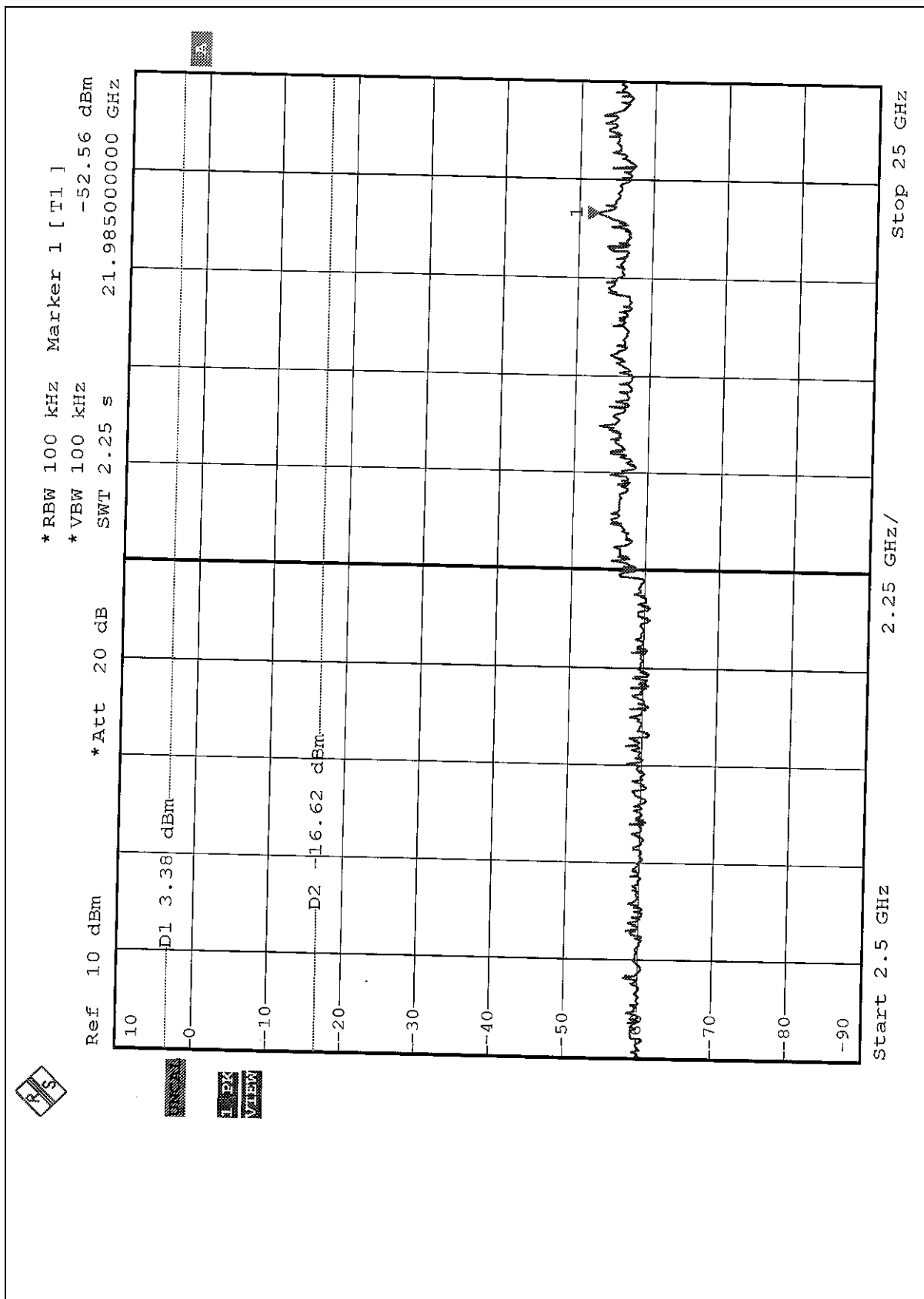
NOTE1: The band edge emission plot on the following 1 ~ 2 page shows 59.22dB delta between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.7.9 is 66.17dBuV/m, so the maximum field strength in restrict band is $66.17 - 59.22 = 6.95$ dBuV/m which is under 54 dBuV/m limit.

NOTE2: The band edge emission plot on the following 3 ~ 4 page shows 49.09dB delta between carrier maximum power and local maximum emission in restrict band (2.4845GHz). The emission of carrier strength list in the test result of channel 78 at the item 4.7.9 is 70.70dBuV/m, so the maximum field strength in restrict band is $70.70 - 49.09 = 20.80$ dBuV/m which is under 54 dBuV/m limit.











4.9 ANTENNA REQUIREMENT

4.9.1 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 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.9.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Printed Antenna without antenna connector. The maximum Gain of this antenna is only -2.53dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST (For Test Mode A)



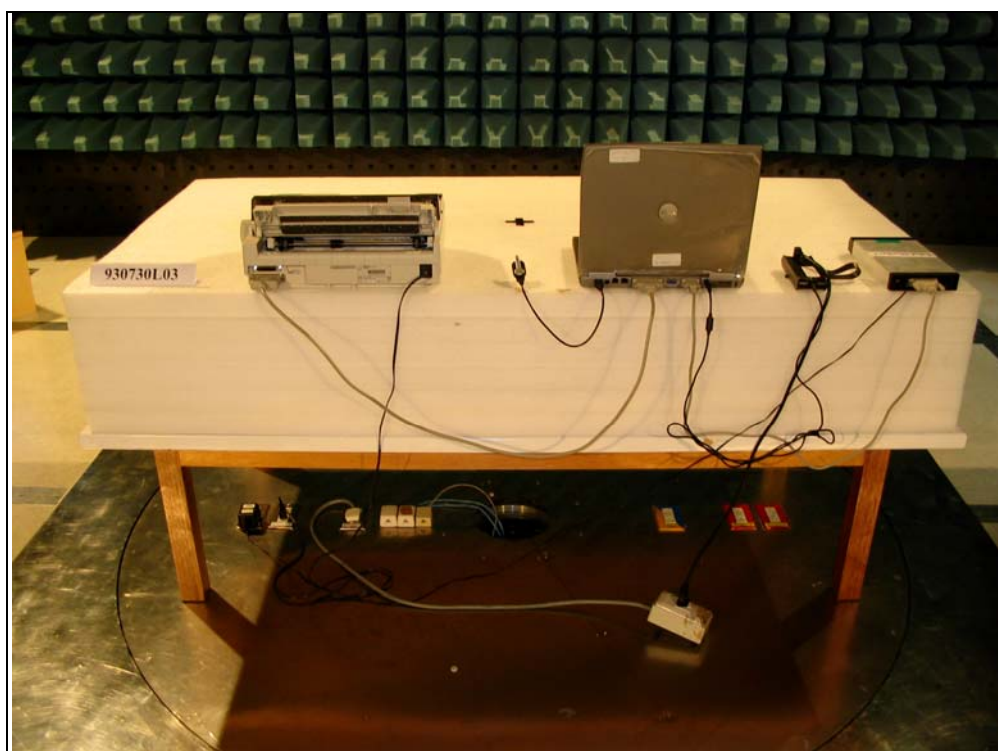
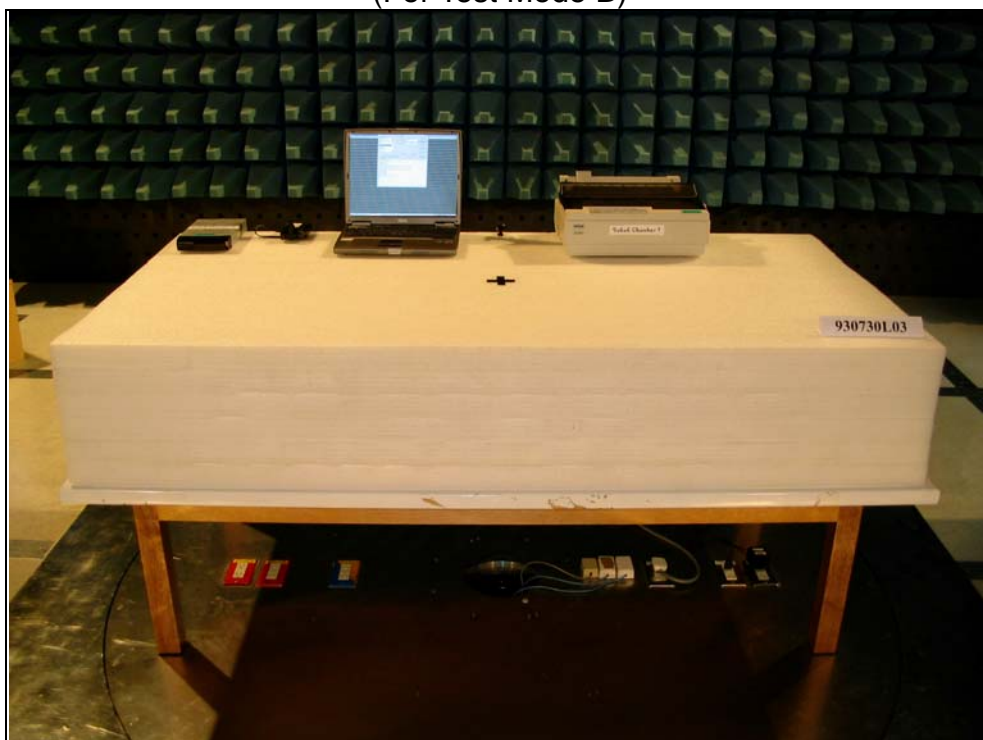
(For Test Mode B)



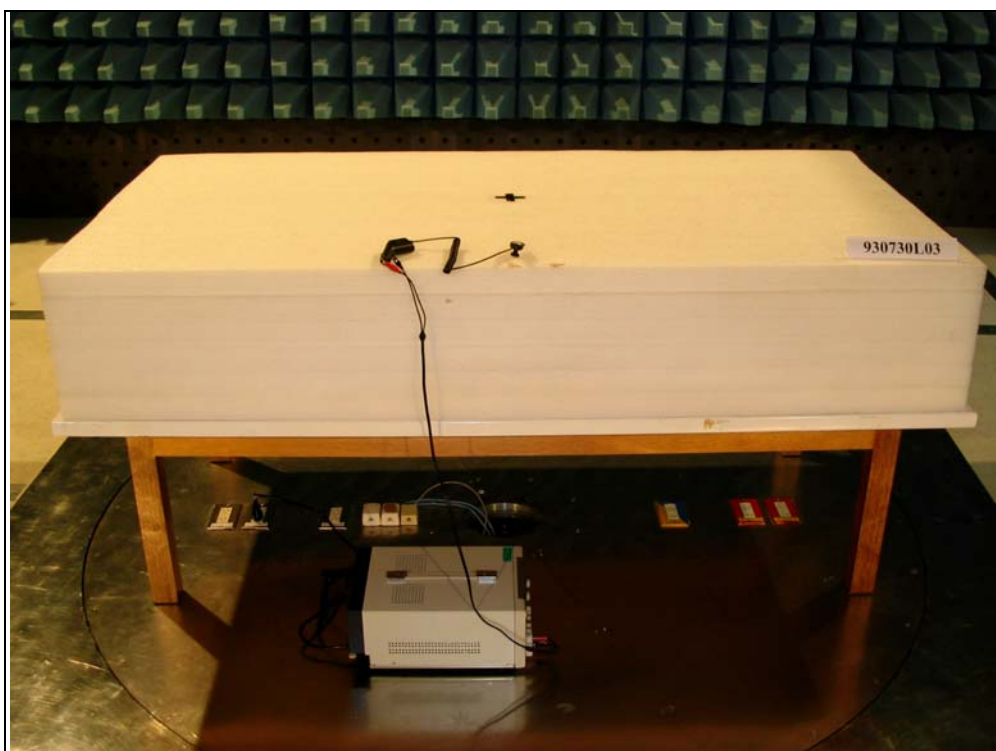
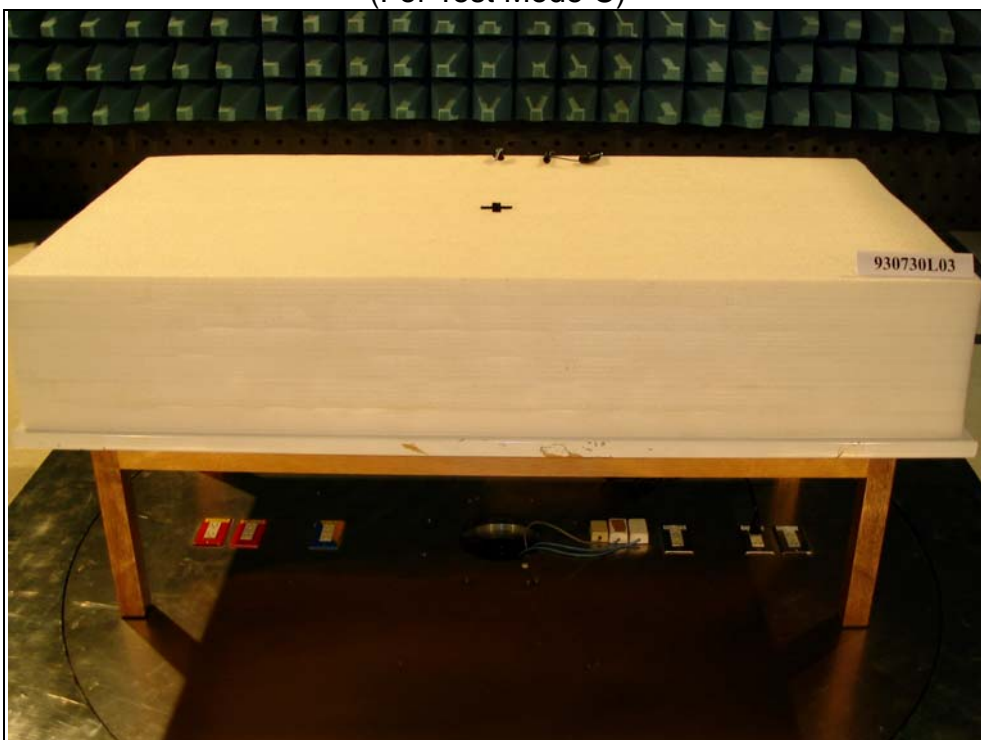
RADIATED EMISSION TEST (For Test Mode A)



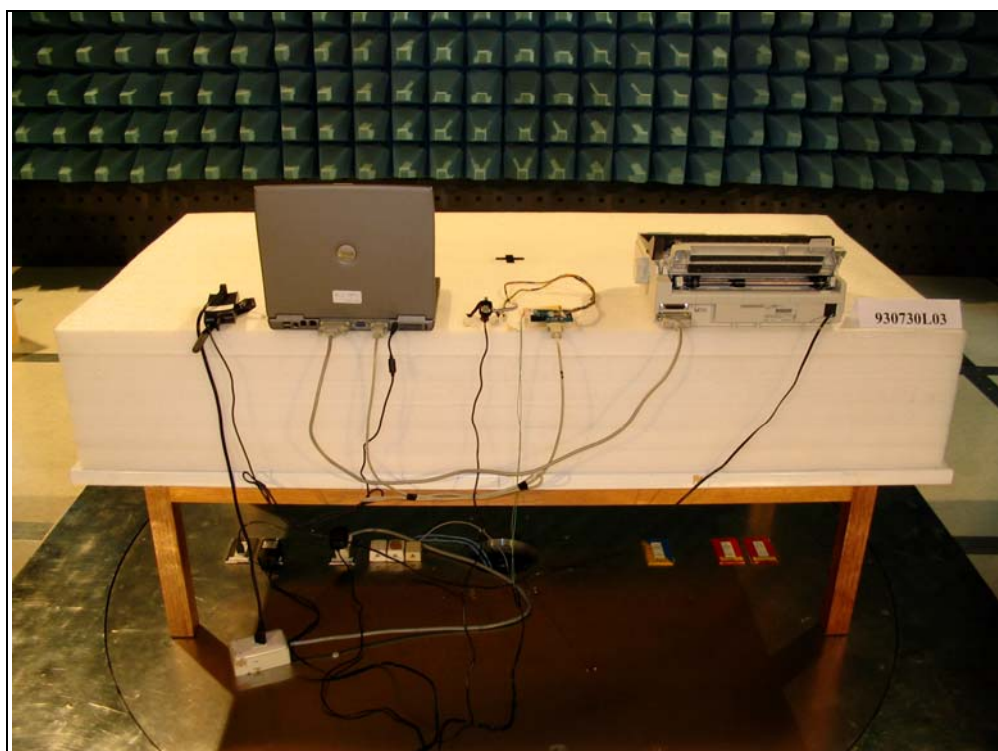
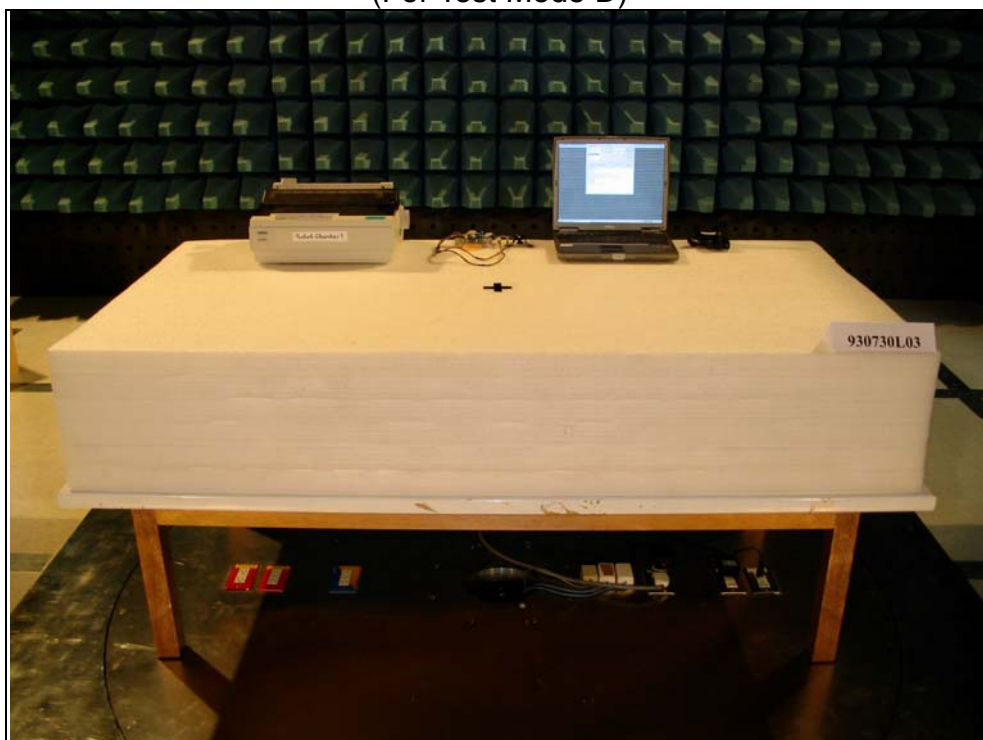
(For Test Mode B)



(For Test Mode C)



(For Test Mode D)



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

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Linko RF Lab.

Tel: 886-3-3270910

Fax: 886-3-3270892

Email: service@mail.adt.com.tw

Web Site: www.adt.com.tw

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

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