

# FCC PART 24 TYPE APPROVAL EMI MEASUREMENT AND TEST REPORT

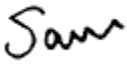
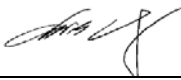
For

## ZTE Corporation

ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, China

**FCC ID: Q78-ZXCBTS192T**

April 29, 2005

|                                                                                                                                                                                                                                                     |                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>This Report Concerns:</b><br><input checked="" type="checkbox"/> Original Report                                                                                                                                                                 | <b>Equipment Type:</b><br>CDMA Micro Base<br>Transceiver Station |
| <b>Test Engineer:</b> Sam Lin                                                                                                                                    |                                                                  |
| <b>Report No.:</b> RSZ05032302                                                                                                                                                                                                                      |                                                                  |
| <b>Test Date:</b> March 28-April 1, 2005                                                                                                                                                                                                            |                                                                  |
| <b>Reviewed By:</b> Chris Zeng                                                                                                                                   |                                                                  |
| <b>Prepared By:</b> Bay Area Compliance Lab Corp. (ShenZhen)<br>6/F, the 3rd Phase of WanLi Industrial Building, ShiHua<br>Road, FuTian Free Trade Zone, ShenZhen, Guangdong<br>518038, P.R.China<br>Tel: +86-755-33320018<br>Fax: +86-755-33320008 |                                                                  |

**Note:** The test report is specially limited to the above company and this particular sample only. It may not be duplicated without prior written consent of Bay Area Compliance Lab Corp. (ShenZhen). This report **must not** be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

**TABLE OF CONTENTS**

|                                                                          |           |
|--------------------------------------------------------------------------|-----------|
| <b>GENERAL INFORMATION.....</b>                                          | <b>4</b>  |
| PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....                 | 4         |
| OBJECTIVE .....                                                          | 5         |
| RELATED SUBMITTAL(S)/GRANT(S).....                                       | 5         |
| TEST METHODOLOGY .....                                                   | 5         |
| TEST FACILITY .....                                                      | 5         |
| EXTERNAL I/O CABLE .....                                                 | 5         |
| <b>SYSTEM TEST CONFIGURATION.....</b>                                    | <b>6</b>  |
| DESCRIPTION OF TEST CONFIGURATION .....                                  | 6         |
| EQUIPMENT MODIFICATIONS .....                                            | 6         |
| CONFIGURATION OF TEST SETUP .....                                        | 7         |
| BLOCK DIAGRAM OF TEST SETUP .....                                        | 7         |
| <b>SUMMARY OF TEST RESULTS.....</b>                                      | <b>8</b>  |
| <b>§15.107 (a)- CONDUCTED EMISSION.....</b>                              | <b>9</b>  |
| MEASUREMENT UNCERTAINTY .....                                            | 9         |
| EUT SETUP.....                                                           | 9         |
| TEST RECEIVER SETUP.....                                                 | 10        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 10        |
| TEST PROCEDURE .....                                                     | 10        |
| TEST DATA .....                                                          | 10        |
| <b>§2.1046, §24.232- CONDUCTED OUTPUT POWER.....</b>                     | <b>19</b> |
| STANDARD APPLICABLE .....                                                | 19        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 19        |
| TEST PROCEDURE .....                                                     | 19        |
| <b>§2.1047- MODULATION CHARACTERISTIC .....</b>                          | <b>22</b> |
| STANDARD APPLICABLE .....                                                | 22        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 22        |
| TEST PROCEDURE .....                                                     | 22        |
| TEST DATA .....                                                          | 22        |
| <b>§15.109(a)- RADIATED EMISSION .....</b>                               | <b>25</b> |
| MEASUREMENT UNCERTAINTY .....                                            | 25        |
| EUT SETUP.....                                                           | 25        |
| TEST RECEIVER SETUP.....                                                 | 25        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 26        |
| TEST PROCEDURE .....                                                     | 26        |
| CORRECTED AMPLITUDE & MARGIN CALCULATION .....                           | 26        |
| TEST DATA .....                                                          | 26        |
| <b>§2.1053- SPURIOUS RADIATED EMISSIONS .....</b>                        | <b>35</b> |
| APPLICABLE STANDARD .....                                                | 35        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 35        |
| TEST PROCEDURE .....                                                     | 35        |
| TEST DATA .....                                                          | 35        |
| <b>§2.1051, §24.238(a)- SPURIOUS EMISSIONS AT ANTENNA TERMINALS.....</b> | <b>37</b> |
| APPLICABLE STANDARD .....                                                | 37        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 37        |
| TEST PROCEDURE .....                                                     | 37        |
| TEST DATA .....                                                          | 37        |
| <b>§2.1049&amp; §24.238-OCCUPIED BANDWIDTH .....</b>                     | <b>44</b> |
| STANDARD APPLICABLE .....                                                | 44        |
| TEST EQUIPMENT LIST AND DETAILS.....                                     | 44        |

---

|                                                                           |           |
|---------------------------------------------------------------------------|-----------|
| TEST PROCEDURE .....                                                      | 44        |
| TEST DATA .....                                                           | 44        |
| <b>§24.238- BAND EDGES .....</b>                                          | <b>47</b> |
| STANDARD APPLICABLE .....                                                 | 47        |
| TEST EQUIPMENT LIST AND DETAILS.....                                      | 47        |
| TEST PROCEDURE .....                                                      | 47        |
| ENVIRONMENTAL CONDITIONS.....                                             | 47        |
| <b>§2.1055 (a), §2.1055 (d) &amp; §24.235 - FREQUENCY STABILITY .....</b> | <b>49</b> |
| APPLICABLE STANDARD .....                                                 | 49        |
| TEST EQUIPMENT LIST AND DETAILS.....                                      | 49        |
| TEST PROCEDURE .....                                                      | 49        |
| TEST DATA .....                                                           | 49        |

## GENERAL INFORMATION

### Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, model number: ZXCBTS M192T; ZXCBTS R192T or the "EUT" as referred to in this report is a CDMA Micro Base Transceiver Station. The EUT is measured approximately 63.0 cm L x 40.0cmW x 28.5cmH, rated input voltage: AC 120V/60Hz.

The following charts describe the modules what ZXCBTS M192T and ZXCBTS R192T have used.

| ZXCBTS M192T |                    |                 |          |
|--------------|--------------------|-----------------|----------|
| NO.          | MODULE NAME        |                 |          |
| 1            | RFS                | MPA192          |          |
| 2            |                    | MLNA1900        |          |
| 3            |                    | MTRX（1900M）     | RFCM     |
|              |                    |                 | FS1900   |
|              |                    |                 | RX1900   |
|              |                    |                 | TX1900   |
| 4            |                    | RFE (RF Filter) | IQ_BORAD |
|              |                    |                 | MDUP1900 |
|              |                    | MDIV1900        |          |
| 5            | MPD (Power supply) |                 |          |
| 6            | TFS                | GPSTM           |          |
| 7            | BDS                | BDM1900         |          |

| ZXC BTS R192T |                           |                 |          |
|---------------|---------------------------|-----------------|----------|
| NO.           | MODULE NAME               |                 |          |
| 1             | RFS                       | MPA192          |          |
| 2             |                           | MLNA1900        |          |
| 3             |                           | MTRX（1900M）     | RF CM    |
|               |                           |                 | FS1900   |
|               |                           |                 | RX1900   |
|               |                           |                 | TX1900   |
|               |                           |                 | IQ_BORAD |
| 4             |                           | RFE (RF Filter) | MDUP1900 |
|               | MDIV1900                  |                 |          |
| 5             | MPD (Power supply)        |                 |          |
| 6             | TFS                       | N/A             |          |
| 7             | Remote Fiber Module (RFM) |                 |          |

Note:

RFS: Provides an air interface, completes the modulation transmitting and demodulation receiving of CDMA signals and implements related detection, monitor, configuration and control functions.

MPD: Power supply.

TFS: Provides time and frequency signals necessary for the BDS and RFS.

BDS: Completes the baseband modulation/demodulation of CDMA signals and also provides functions such as resources management, signaling processing and operation & maintenance. In addition, the BDS provides an Abis interface with the base station controller.

RFM: Remote Fiber Module, used to transmit CDMA baseband signals and system signaling.

\* The test data gathered are from production sample, serial number which were provided by the manufacturer:

ZXCBTS M192T:0510065050300002;

ZXCBTS R192T: 0510065050300001.

## Objective

This Type approval report is prepared on behalf of ZTE Corporation in accordance with Part 2, Subpart J, and Part 24 Subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, spurious emission at antenna terminal, field strength of spurious radiation, frequency stability, and conducted and radiated margin.

## Related Submittal(s)/Grant(s)

No related submittal(s).

## Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 24 Subpart E - PCS

Applicable Standards: TIA EIA 137-A, TIA EIA 97-D, TIA/EIA 603-B, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

## Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect radiated and conducted emission measurement data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab Corp. (ShenZhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

## External I/O Cable

| Cable Description                      | Length (M) | From/Port | To       |
|----------------------------------------|------------|-----------|----------|
| Unshielded Undetachable AC Power Cable | 3.0        | EUT       | AC Power |

## **SYSTEM TEST CONFIGURATION**

---

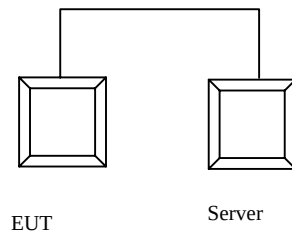
### **Description of Test Configuration**

The system was configured for testing in a typical fashion (as normally used by a typical user).

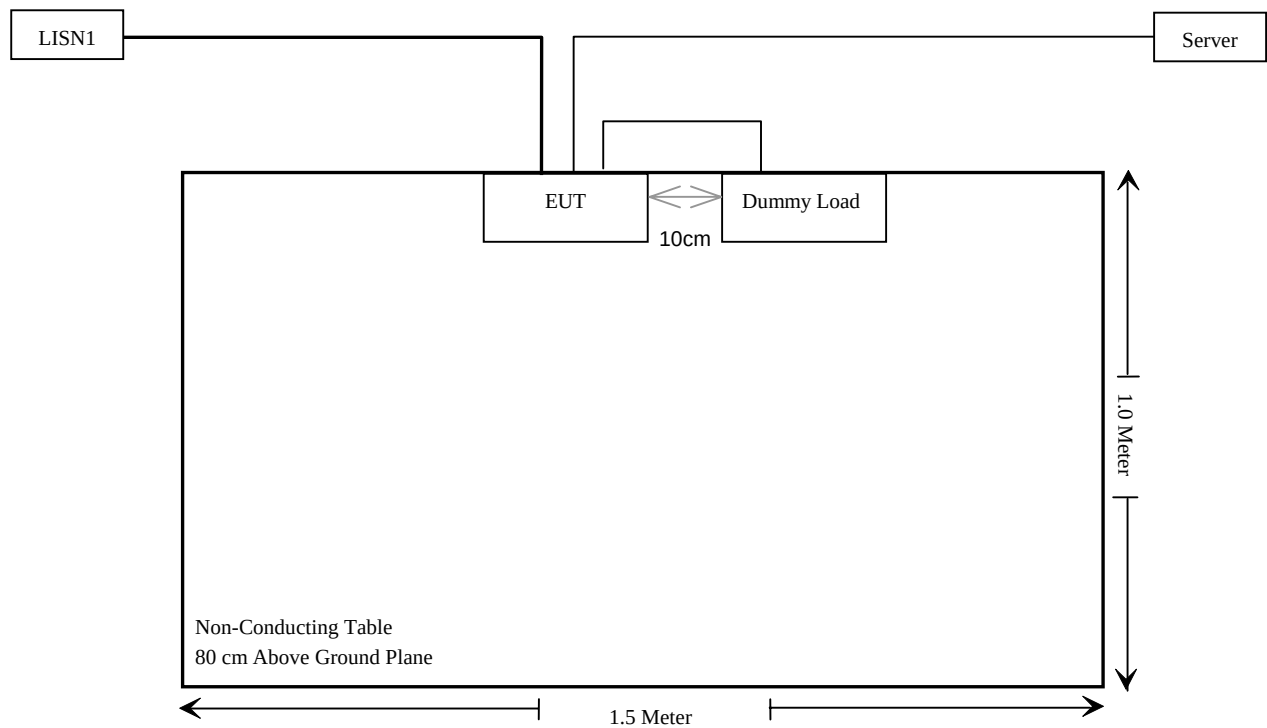
### **Equipment Modifications**

BACL has not done any modification on the EUT.

## Configuration of Test Setup



## Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS****ZXCBTS M192T**

| FCC RULES                                | DESCRIPTION OF TEST                     | RESULT    |
|------------------------------------------|-----------------------------------------|-----------|
| §15.107 (a)                              | Conduction Emission                     | Compliant |
| §2.1046,<br>§24.232                      | Conducted Output Power                  | Compliant |
| § 2.1091                                 | RF Exposure                             | Compliant |
| §2.1047                                  | Modulation characteristic               | Compliant |
| §15.109(a)                               | Radiation Emission                      | Compliant |
| §2.1053                                  | Spurious Radiated Emissions             | Compliant |
| §2.1051,<br>§24.238(a)                   | Spurious Emissions AT Antenna Terminals | Compliant |
| §2.1049,<br>§24.238                      | Occupied Bandwidth                      | Compliant |
| §24.238                                  | Band Edge                               | Compliant |
| § 2.1055 (a)<br>§ 2.1055 (d)<br>§ 24.235 | Frequency stability                     | Compliant |

**ZXCBTS R192T**

| FCC RULES   | DESCRIPTION OF TEST | RESULT    |
|-------------|---------------------|-----------|
| §15.107 (a) | Conduction Emission | Compliant |
| §15.109(a)  | Radiation Emission  | Compliant |



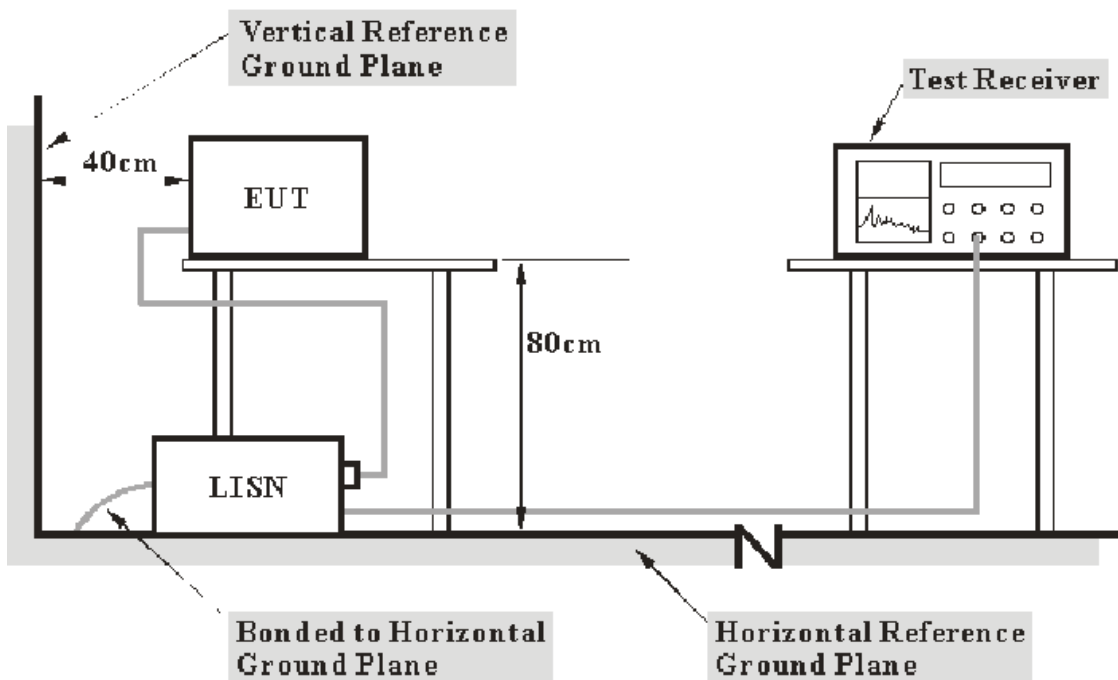
## §15.107 (a)- CONDUCTED EMISSION

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is  $\pm 2.4$  dB.

### EUT Setup



- Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per TIA/EIA 603-B measurement procedure. The specification used was with the FCC Part 15.107 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The EUT was connected to a 120 VAC/60 Hz power source.

## Test Receiver Setup

The test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the test receiver was set with the following configurations:

| <u>Frequency Range</u> | <u>IFBW</u> |
|------------------------|-------------|
| 150 kHz – 30 MHz       | 9 kHz       |

## Test Equipment List and Details

| Manufacturer | Description       | Model    | Serial Number | Calibration Date | Calibration Due Date |
|--------------|-------------------|----------|---------------|------------------|----------------------|
| R&S          | EMI Test Receiver | ESCS30   | 100068        | 2004-9-24        | 2005-9-23            |
| R&S          | LISN              | ESH2-Z5  | 100027        | 2004-9-24        | 2005-9-23            |
| SCHWARZBECK  | LISN              | NNLK8129 | 8129-151      | 2004-9-24        | 2005-9-23            |
| R&S          | ISN               | ENY22    | 100046        | 2004-9-24        | 2005-9-23            |
| R&S          | ISN               | ENY41    | 100057        | 2004-9-24        | 2005-9-23            |
| R&S          | Pulse Limiter     | ESH3-Z2  | 100063        | 2004-9-24        | 2005-9-23            |
| HP           | Current Probe     | HP11967A | 555           | 2004-10-22       | 2007-10-19           |
| R&S          | Software          | ES-K1    | N/A           | N/A              | N/A                  |
| R&S          | Cable             | CE Cable | N/A           | 2004-9-24        | 2005-9-23            |

\* Com-Power's LISN were used as the supporting equipment.

\* **Statement of Tractability: BACL** attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

During the conducted emission test, the EUT power cord was connected the LISN.

Maximizing procedure was performed on the six (6) highest were emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Data

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 18 °C     |
| Relative Humidity: | 53 %      |
| ATM Pressure:      | 1015 mbar |

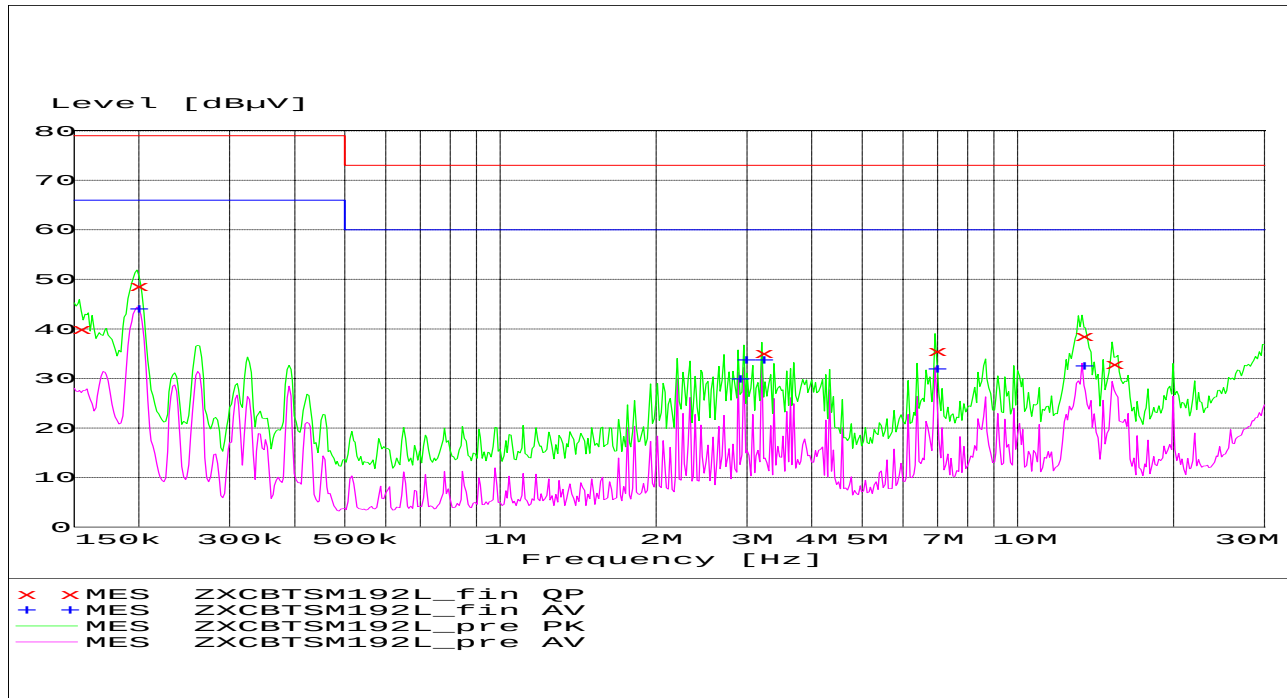
The testing was performed by Sam Lin on 2005-3-28

Test result: Pass

Plot(s) of Test Data is presented hereinafter as reference.

**Conducted Emission**

EUT: ZXCBTS M192T  
 Manufacturer: ZTE  
 Operating Condition: Running  
 Test Site: ZTE  
 Operator:  
 Test Specification: FCC PART 15 Class A  
 Comment: L Line  
 Start of Test: 2005-3-28 / 11:19:22

**MEASUREMENT RESULT: "ZXCBTSM192T L\_fin QP"**

2005-3-28 11:22

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.153629         | 39.90         | 9.9          | 79            | 39.1         | L1   | GND |
| 0.198248         | 48.70         | 9.9          | 79            | 30.3         | L1   | GND |
| 3.198421         | 35.10         | 9.9          | 73            | 37.9         | L1   | GND |
| 6.927989         | 35.40         | 10.0         | 73            | 37.6         | L1   | GND |
| 13.315910        | 38.50         | 10.1         | 73            | 34.5         | L1   | GND |
| 15.247544        | 32.90         | 10.1         | 73            | 40.1         | L1   | GND |

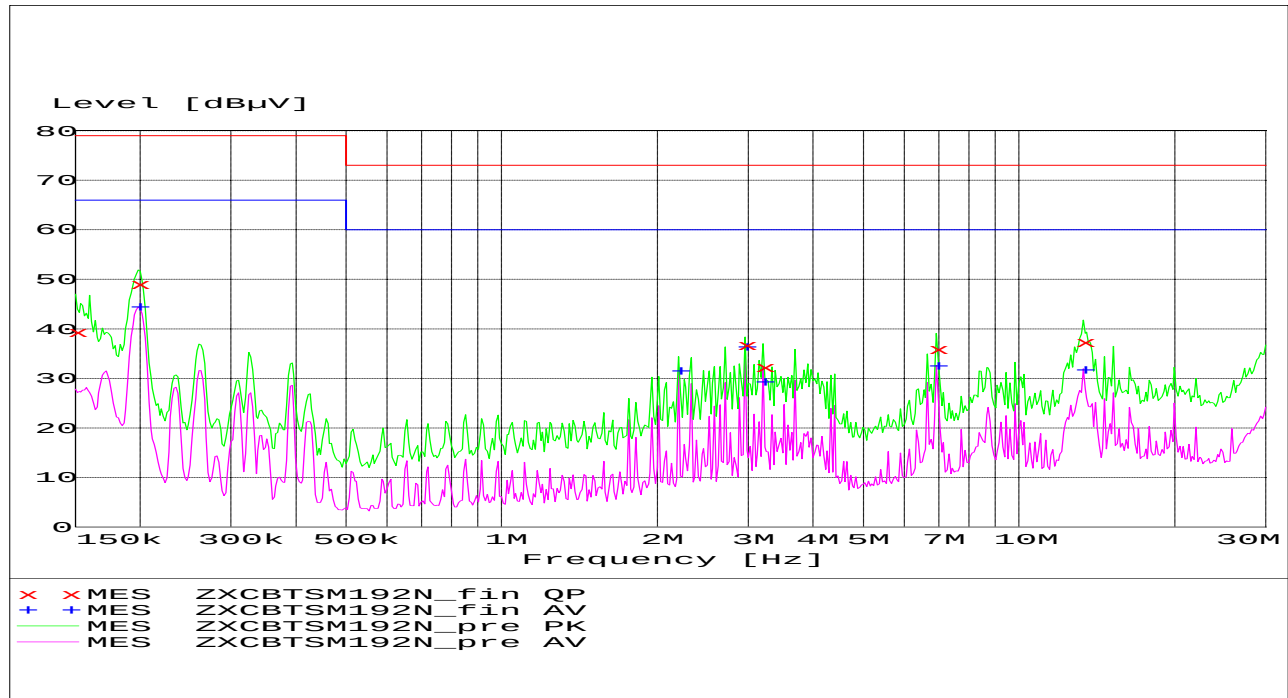
**MEASUREMENT RESULT: "ZXCBTSM192T L\_fin AV"**

2005-3-28 11:22

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.198248         | 44.00         | 9.9          | 66            | 22.0         | L1   | GND |
| 2.883691         | 29.90         | 10.0         | 60            | 30.1         | L1   | GND |
| 2.953454         | 33.70         | 10.0         | 60            | 26.3         | L1   | GND |
| 3.198421         | 33.60         | 9.9          | 60            | 26.4         | L1   | GND |
| 6.927989         | 31.90         | 10.0         | 60            | 28.1         | L1   | GND |
| 13.315910        | 32.50         | 10.1         | 60            | 27.5         | L1   | GND |

**Conducted Emission**

EUT: ZXCBTS M192T  
 Manufacturer: ZTE  
 Operating Condition: Running  
 Test Site: ZTE  
 Operator:  
 Test Specification: FCC PART 15 Class A  
 Comment: Neutral  
 Start of Test: 2005-3-28 / 11:30:26

**MEASUREMENT RESULT: "ZXCBTSM192T N\_fin QP"**

2005-3-28 11:34

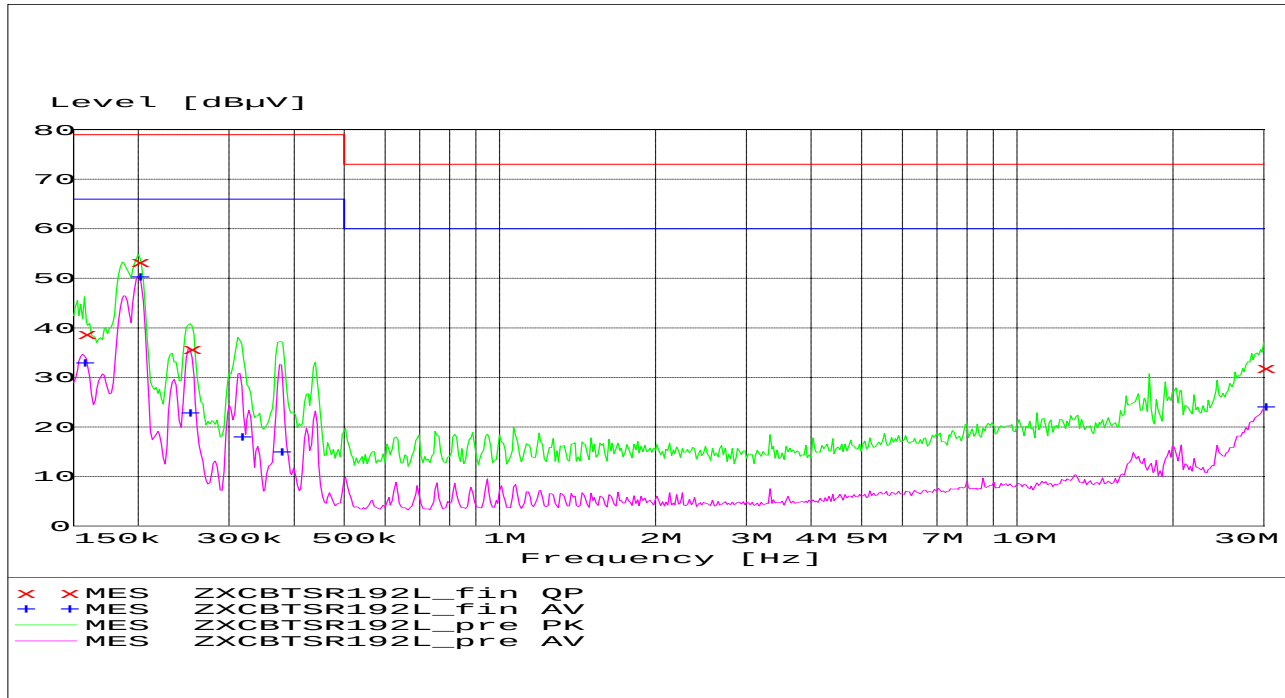
| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.150000         | 39.30         | 9.9          | 79            | 39.7         | N    | GND |
| 0.198248         | 49.00         | 9.9          | 79            | 30.0         | N    | GND |
| 2.953454         | 36.70         | 10.0         | 73            | 36.3         | N    | GND |
| 3.198421         | 32.30         | 9.9          | 73            | 40.7         | N    | GND |
| 6.927989         | 35.80         | 10.0         | 73            | 37.2         | N    | GND |
| 13.315910        | 37.20         | 10.1         | 73            | 35.8         | N    | GND |

**MEASUREMENT RESULT: "ZXCBTSM192T N\_fin AV"**

2005-3-28 11:34

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE |
|------------------|---------------|--------------|---------------|--------------|------|----|
| 0.198248         | 44.30         | 9.9          | 66            | 21.7 N       | GND  |    |
| 2.199331         | 31.40         | 9.9          | 60            | 28.6 N       | GND  |    |
| 2.953454         | 36.20         | 10.0         | 60            | 23.8 N       | GND  |    |
| 3.198421         | 29.20         | 9.9          | 60            | 30.8 N       | GND  |    |
| 6.927989         | 32.50         | 10.0         | 60            | 27.5 N       | GND  |    |
| 13.315910        | 31.60         | 10.1         | 60            | 28.4 N       | GND  |    |

EUT: ZXCBTS R192T  
Manufacturer: ZTE  
Operating Condition: Running  
Test Site: ZTE  
Operator:  
Test Specification: FCC PART 15 Class A  
Comment: Line  
Start of Test: 2005-3-28 / 14:35:24



### MEASUREMENT RESULT: "ZXCBTSR192T L\_fin QP"

2005-3-28 14:38

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.157346         | 38.60         | 9.9          | 79            | 40.4         | L1   | GND |
| 0.199834         | 53.30         | 9.9          | 79            | 25.7         | L1   | GND |
| 0.251783         | 35.70         | 9.9          | 79            | 43.3         | L1   | GND |
| 30.000000        | 31.80         | 10.3         | 73            | 41.2         | L1   | GND |
| 0.312224         | 17.20         | 9.9          | 79            | 61.8         | L1   | GND |
| 0.375028         | 16.90         | 9.9          | 79            | 62.1         | L1   | GND |

**MEASUREMENT RESULT: "ZXCBTSR192T L\_fin AV"**

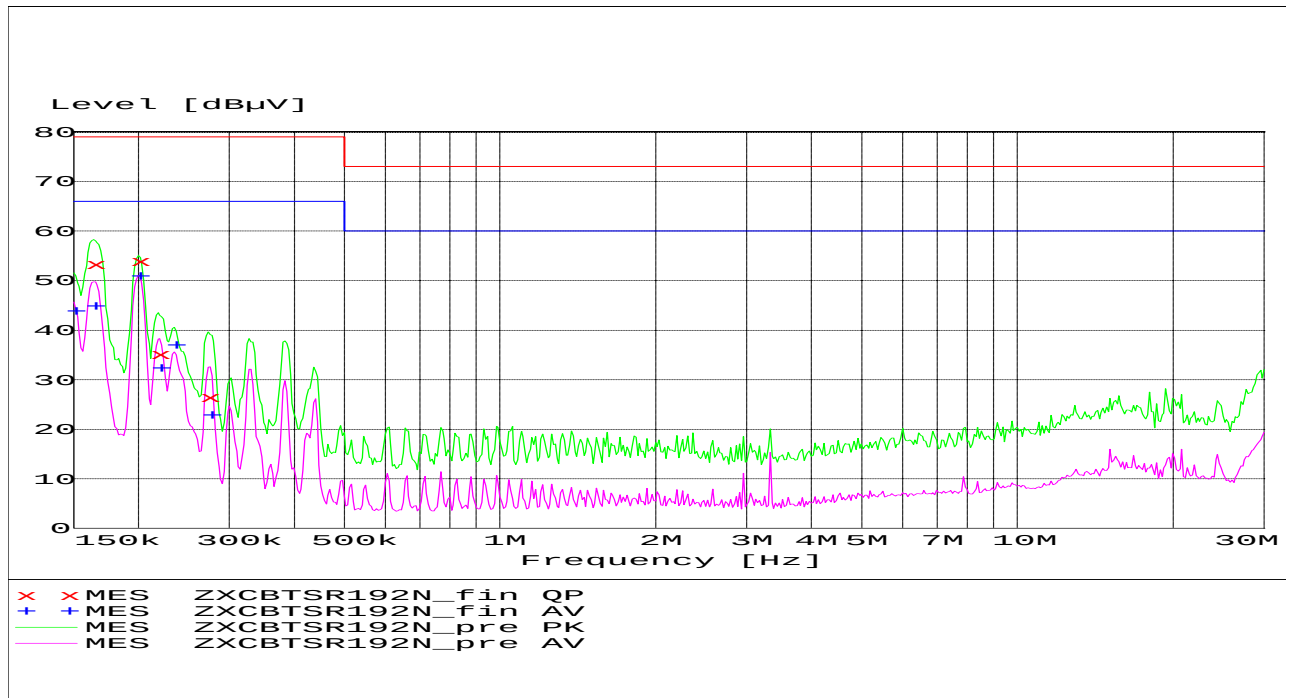
2005-3-28 14:38

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.156097         | 32.90         | 9.9          | 66            | 33.1         | L1   | GND |
| 0.199834         | 50.30         | 9.9          | 66            | 15.7         | L1   | GND |
| 0.249784         | 22.80         | 9.9          | 66            | 43.2         | L1   | GND |
| 0.314717         | 17.90         | 9.9          | 66            | 48.1         | L1   | GND |
| 0.375018         | 14.90         | 9.9          | 66            | 51.1         | L1   | GND |
| 30.000000        | 23.90         | 10.3         | 60            | 36.1         | L1   | GND |



**Conducted Emission**

EUT: ZXCBTS R192T  
 Manufacturer: ZTE  
 Operating Condition: Running  
 Test Site: ZTE  
 Operator:  
 Test Specification: FCC PART 15 Class A  
 Comment: Neutral  
 Start of Test: 2005-3-28 / 14:24:30

**MEASUREMENT RESULT: "ZXCBTSR192T N\_fin QP"**

2005-3-28 14:27

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.163741         | 53.30         | 9.9          | 79            | 25.7         | N    | GND |
| 0.199834         | 53.90         | 9.9          | 79            | 25.1         | N    | GND |
| 0.218140         | 35.20         | 9.9          | 79            | 43.8         | N    | GND |
| 0.272666         | 26.50         | 9.9          | 79            | 52.5         | N    | GND |
| 0.234359         | 40.20         | 9.9          | 79            | 38.8         | N    | GND |
| 0.327519         | 24.70         | 9.9          | 79            | 54.3         | N    | GND |

**MEASUREMENT RESULT: "ZXCBTSR192T N\_fin AV"**

2005-3-28 14:27

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Line | PE |
|------------------|---------------|--------------|---------------|--------------|------|----|
| 0.150000         | 43.70         | 9.9          | 66            | 22.3 N       | GND  |    |
| 0.163741         | 44.80         | 9.9          | 66            | 21.2 N       | GND  |    |
| 0.199834         | 50.90         | 9.9          | 66            | 15.1 N       | GND  |    |
| 0.219886         | 32.40         | 9.9          | 66            | 33.6 N       | GND  |    |
| 0.234359         | 37.00         | 9.9          | 66            | 29.0 N       | GND  |    |
| 0.274847         | 22.90         | 9.9          | 66            | 43.1 N       | GND  |    |

---

**§2.1046, §24.232- CONDUCTED OUTPUT POWER**

---

**Standard Applicable**

According to FCC §2.1046 and §24.232(a), in no case may the peak output power of a base station transmitter exceed 100 watt.

**Test Equipment List and Details**

| Manufacturer | Description           | Model  | Serial Number | Calibration Date | Calibration Due Date |
|--------------|-----------------------|--------|---------------|------------------|----------------------|
| Agilent      | PSA Spectrum Analyzer | E4445A | MY44300451    | 2004-11-5        | 2005-11-4            |

\* **Statement of Tractability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

**Test Procedure**

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

**Environmental Conditions**

|                    |           |
|--------------------|-----------|
| Temperature:       | 18 °C     |
| Relative Humidity: | 53 %      |
| ATM Pressure:      | 1015 mbar |

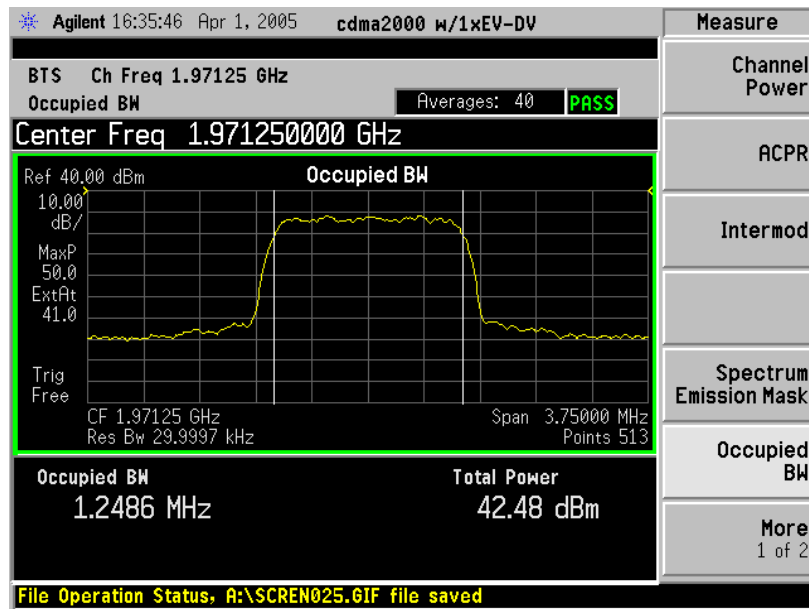
*The testing was performed by Sam Lin on 2005-4-1*

Model: ZXCBS M192T

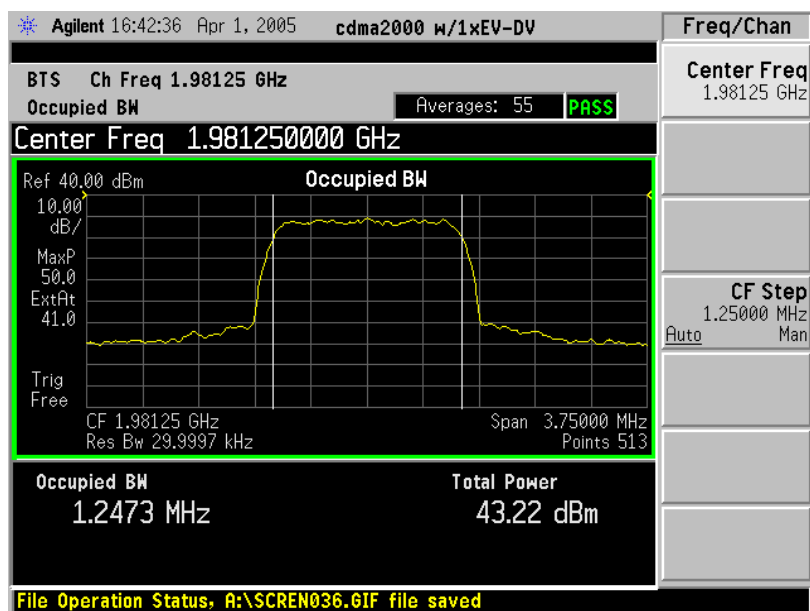
The result has been complied with the §2.1046, §24.232, see the following plot:

| Channel      | Frequency (MHz) | Output Power in dBm | Output Power in W | Limit in W |
|--------------|-----------------|---------------------|-------------------|------------|
| Channel 825  | 1971.25         | 42.48               | 17.70             | 100        |
| Channel 1025 | 1981.25         | 43.22               | 20.99             | 100        |
| Channel 1175 | 1988.75         | 43.22               | 20.99             | 100        |

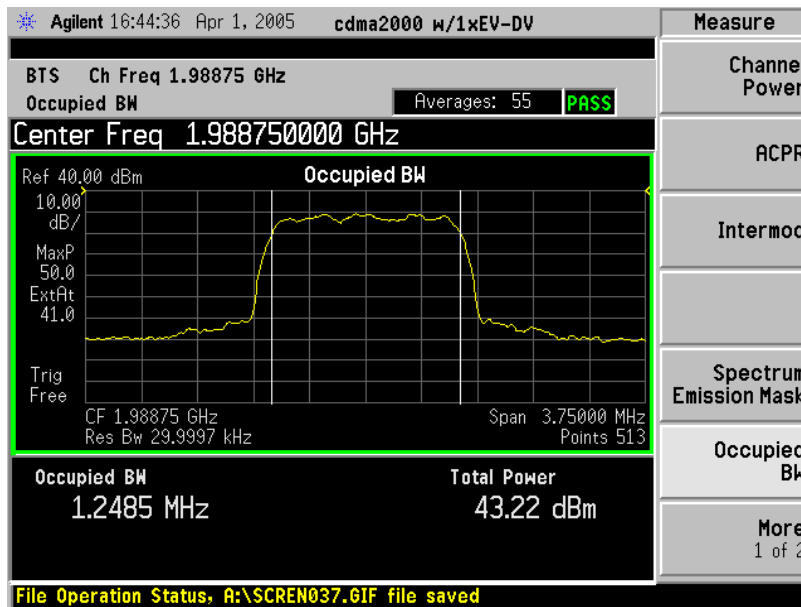
Channel 825



Channel 1025



## Channel 1175



---

**§2.1047- MODULATION CHARACTERISTIC**

---

**Standard Applicable**

Requirement: §2.1047.

**Test Equipment List and Details**

| Manufacturer | Description           | Model  | Serial Number | Calibration Date | Calibration Due Date |
|--------------|-----------------------|--------|---------------|------------------|----------------------|
| Agilent      | PSA Spectrum Analyzer | E4445A | MY44300451    | 2004-11-5        | 2005-11-4            |

\* **Statement of Traceability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

**Test Procedure**

CDMA digital mode is used by EUT.

**Test Data****Environmental Conditions**

|                    |           |
|--------------------|-----------|
| Temperature:       | 18 °C     |
| Relative Humidity: | 53 %      |
| ATM Pressure:      | 1015 mbar |

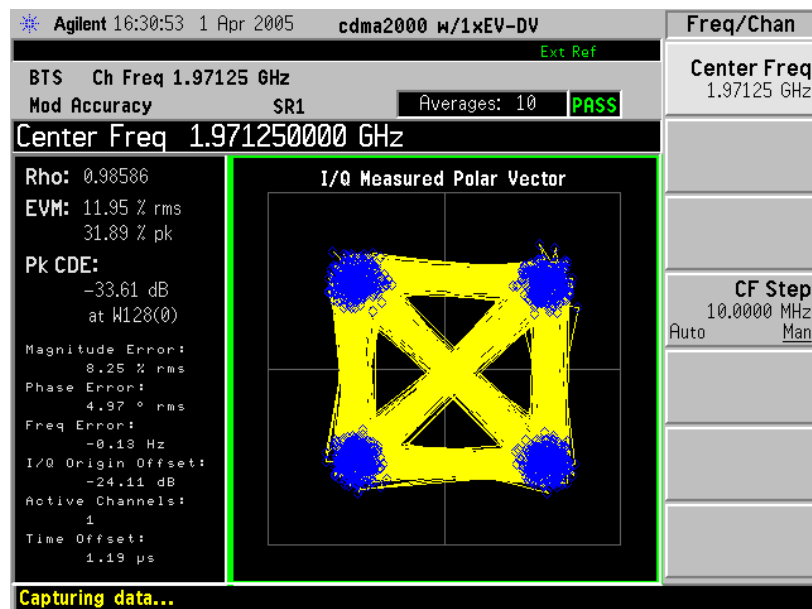
*The testing was performed by Sam Lin on 2005-4-11*

Model: ZXCBTS M192T

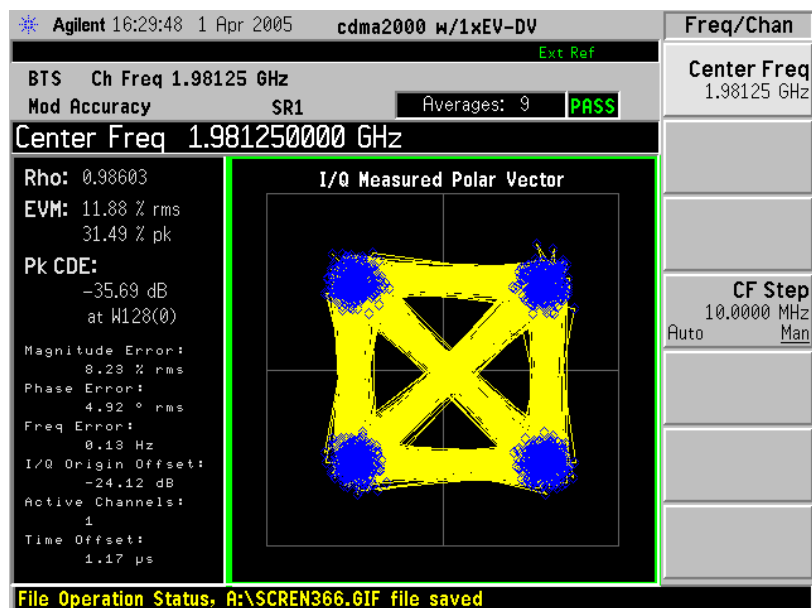
The result has been complied with the §2.1047, see the following plot:

| Channel      | Frequency (MHz) | Rho     |
|--------------|-----------------|---------|
| Channel 825  | 1971.25         | 0.98586 |
| Channel 1025 | 1981.25         | 0.98603 |
| Channel 1175 | 1988.75         | 0.98606 |

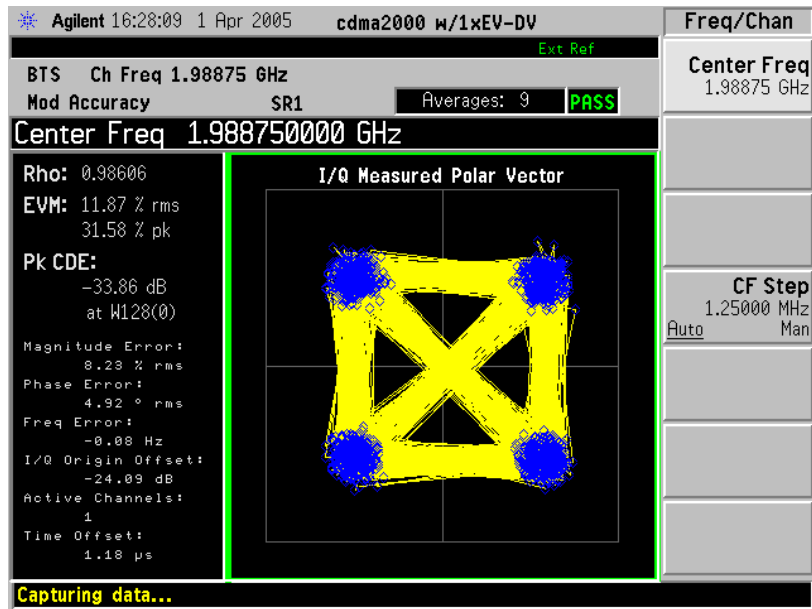
Channel 825



Channel 1025



## Channel 1175





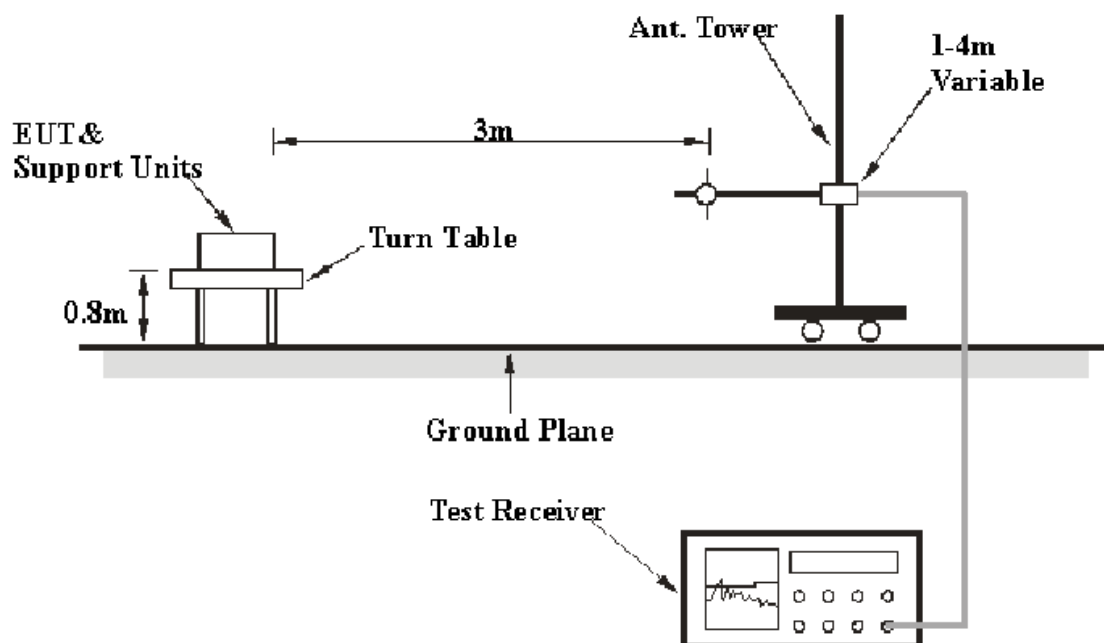
## §15.109(a)- RADIATED EMISSION

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is  $\pm 4.0$  dB.

### EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the TIA/EIA 603-B. The specification used was the FCC 15.109 limits.

### Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

During the radiated emission test, the Test Receiver was set with the following configurations:

| <u>Frequency Range</u> | <u>RBW</u> | <u>Video B/W</u> |
|------------------------|------------|------------------|
| 30 – 1000 MHz          | 100 kHz    | 100 kHz          |

## Test Equipment List and Details

| Manufacturer | Description                          | Model    | Serial Number | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|----------|---------------|------------------|----------------------|
| R&S          | EMI Test Receiver                    | ESI26    | 100058        | 2004-9-24        | 2005-9-23            |
| R&S          | Ultra Broadband Antenna              | HL562    | 100022        | 2003-3-7         | 2006-3-4             |
| R&S          | Double-Ridged Waveguide Horn Antenna | HF906    | 100032        | 2004-10-10       | 2007-10-7            |
| Albatross    | Anechoic Chamber                     | 3m Site  | N/A           | 2002-6-8         | 2005-6-5             |
| R&S          | Cable Set                            | RE Cable | N/A           | 2004-9-24        | 2005-9-23            |
| R&S          | Software                             | ES-K1    | N/A           | N/A              | N/A                  |

\* **Statement of Traceability:** BACL attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the PK detection mode.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

## Test Data

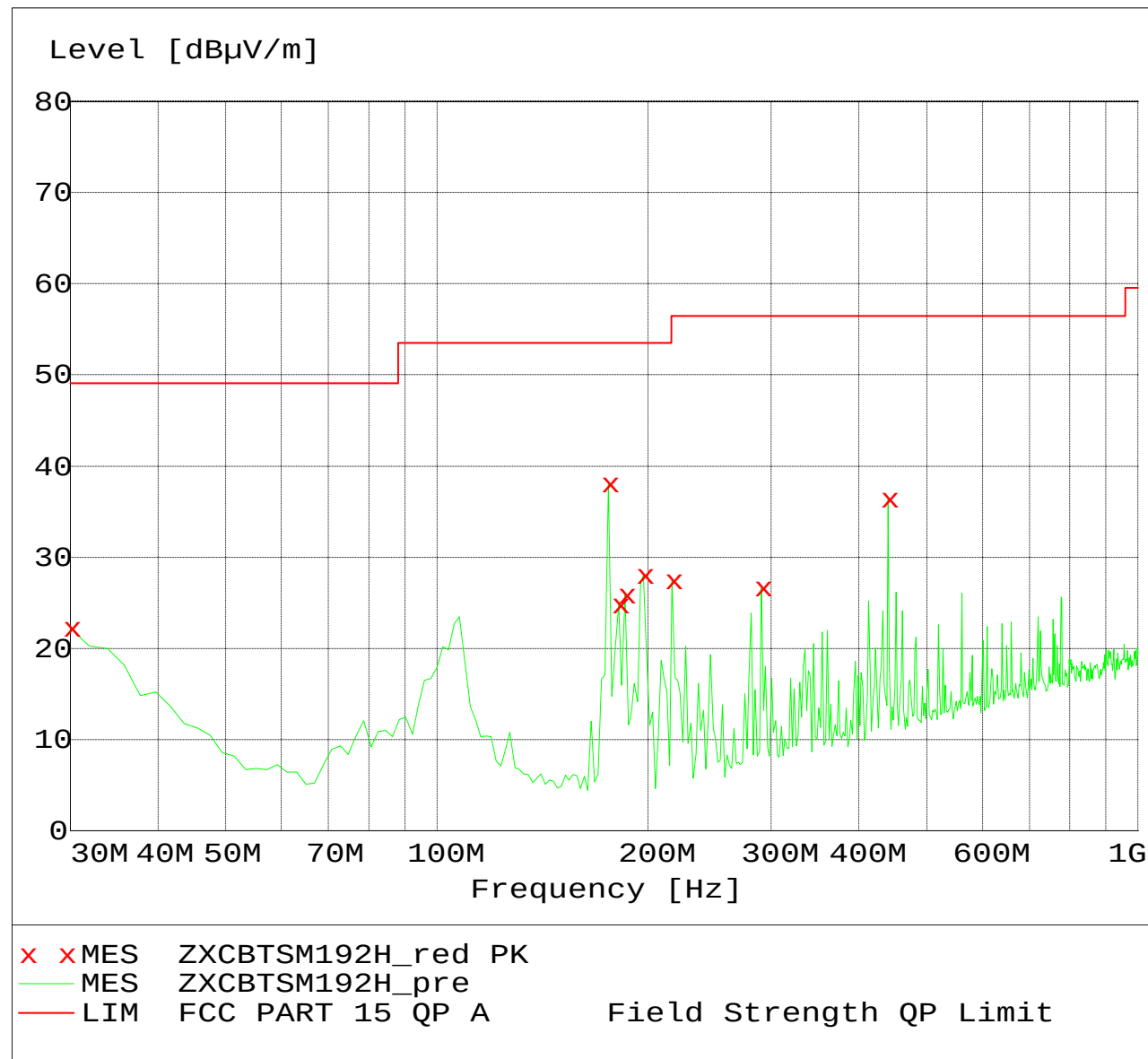
### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 18 °C     |
| Relative Humidity: | 53 %      |
| ATM Pressure:      | 1015 mbar |

*The testing was performed by Sam Lin on 2005-4-11, and the data were only for unintentional radiator and be subjected to verification*

**ZTE Corporation**

EUT: ZXCBTSM 192T  
Manufacturer: ZTE  
Operating Condition: Running  
Test Site: Anechoic Chamber  
Operator:  
Test Specification: FCC PART15 Class A  
Comment: Hor  
Start of Test: 2005-3-29 / 19:40:33

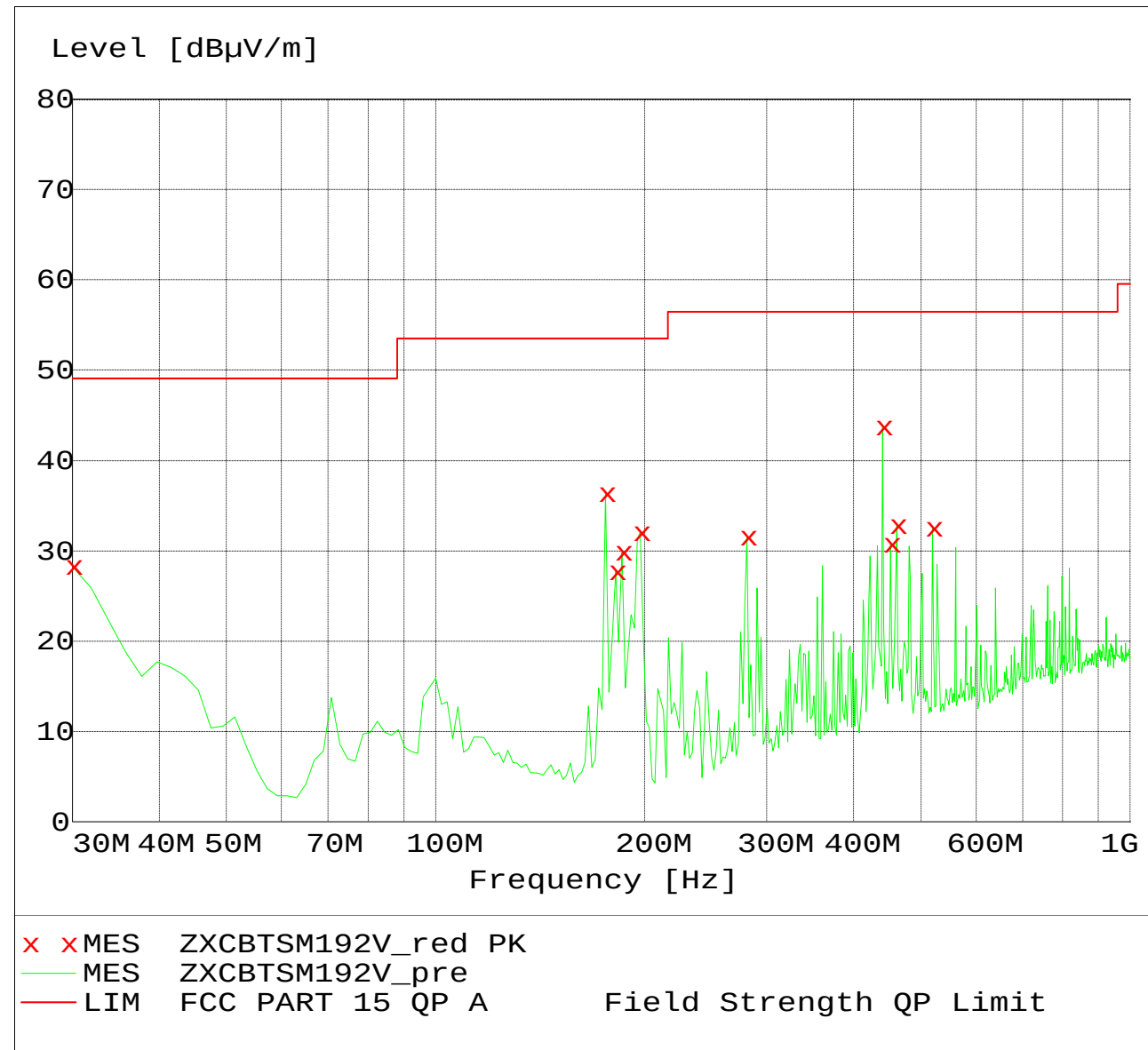


**MEASUREMENT RESULT: "ZXCBTSM192T H\_red PK"**

2005-3-29 19:46

| Frequency<br>MHz | Level<br>dBμV/m | Height<br>cm | Azimuth<br>deg | Polarisation | Transd<br>dB | dBμV/m | Limit | Margin<br>dB |
|------------------|-----------------|--------------|----------------|--------------|--------------|--------|-------|--------------|
| 30.000000        | 22.18           | 200.0        | 90.00          | HORIZONTAL   | -16.9        | 49.1   | 26.9  |              |
| 175.791583       | 38.01           | 200.0        | 270.00         | HORIZONTAL   | -26.5        | 53.5   | 15.5  |              |
| 181.623246       | 24.84           | 100.0        | 270.00         | HORIZONTAL   | -26.5        | 53.5   | 28.7  |              |
| 185.511022       | 25.87           | 100.0        | 270.00         | HORIZONTAL   | -27.0        | 53.5   | 27.6  |              |
| 197.174349       | 28.05           | 100.0        | 0.00           | HORIZONTAL   | -27.2        | 53.5   | 25.5  |              |
| 216.613226       | 27.40           | 100.0        | 270.00         | HORIZONTAL   | -26.4        | 56.4   | 29.0  |              |
| 290.480962       | 26.64           | 100.0        | 90.00          | HORIZONTAL   | -22.8        | 56.4   | 29.8  |              |
| 440.160321       | 36.37           | 200.0        | 0.00           | HORIZONTAL   | -18.6        | 56.4   | 20.1  |              |

EUT: ZXCBTS M192T  
Manufacturer: ZTE  
Operating Condition: Running  
Test Site: Anechoic Chamber  
Operator:  
Test Specification: FCC PART15 Class A  
Comment: Ver  
Start of Test: 2005-3-29 / 19:56:26



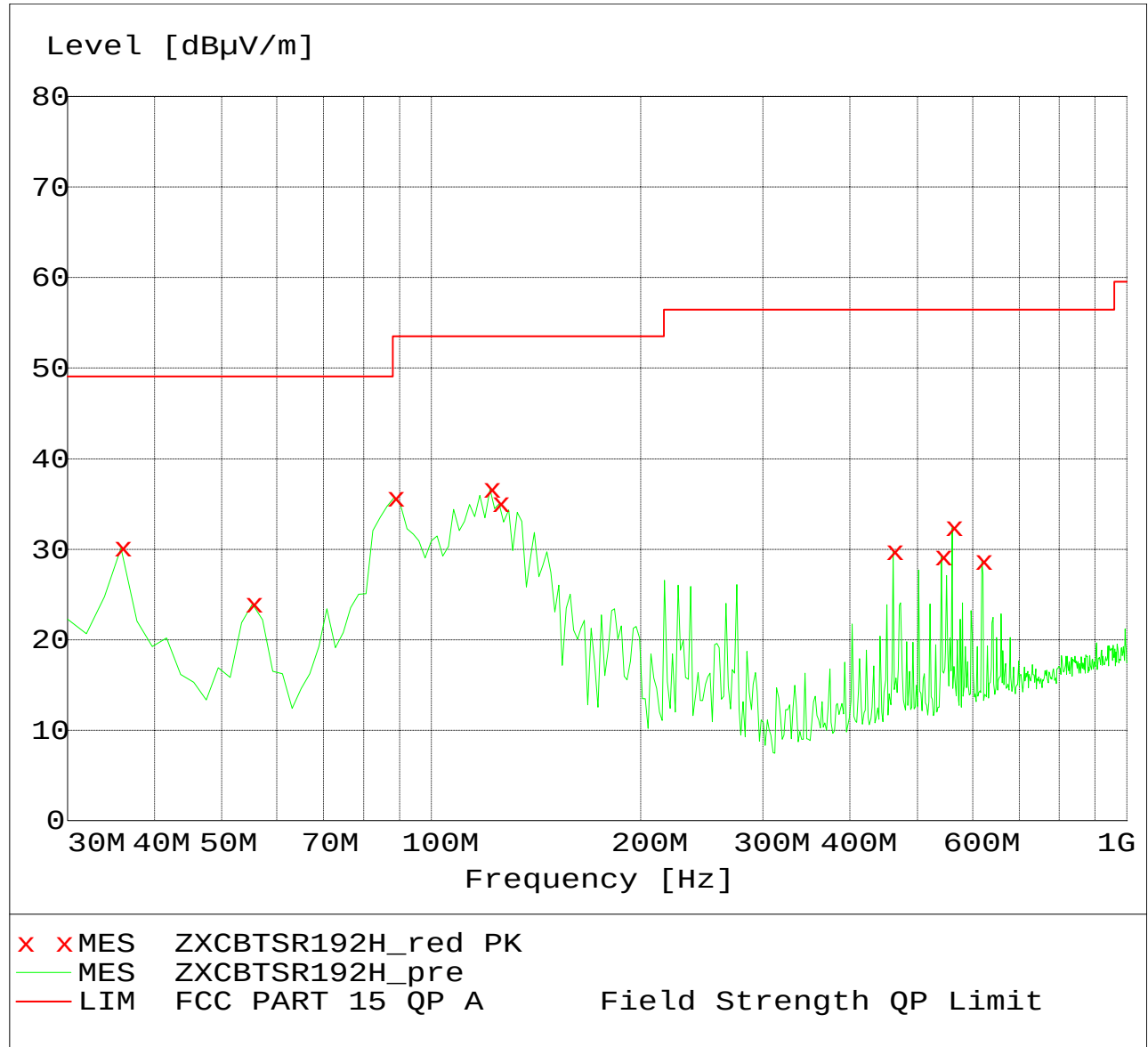
**MEASUREMENT RESULT: "ZXCBTSM192T V\_red PK"**

2005-3-29 20:03

| Frequency<br>MHz | Level<br>dBμV/m | Height<br>cm | Azimuth<br>deg | Polarisation | Transd<br>dB | Limit<br>dBμV/m | Margin<br>dB |
|------------------|-----------------|--------------|----------------|--------------|--------------|-----------------|--------------|
| 30.000000        | 28.21           | 100.0        | 90.00          | VERTICAL     | -16.9        | 49.1            | 20.9         |
| 175.791583       | 36.33           | 100.0        | 270.00         | VERTICAL     | -26.5        | 53.5            | 17.2         |
| 181.623246       | 27.72           | 100.0        | 270.00         | VERTICAL     | -26.5        | 53.5            | 25.8         |
| 185.511022       | 29.86           | 100.0        | 0.00           | VERTICAL     | -27.0        | 53.5            | 23.7         |
| 197.174349       | 32.08           | 300.0        | 0.00           | VERTICAL     | -27.2        | 53.5            | 21.4         |
| 280.761523       | 31.50           | 100.0        | 270.00         | VERTICAL     | -23.3        | 56.4            | 24.9         |
| 440.160321       | 43.75           | 100.0        | 270.00         | VERTICAL     | -18.6        | 56.4            | 12.7         |
| 451.823647       | 30.77           | 100.0        | 90.00          | VERTICAL     | -18.3        | 56.4            | 25.7         |
| 461.543086       | 32.78           | 100.0        | 0.00           | VERTICAL     | -18.0        | 56.4            | 23.7         |
| 519.859719       | 32.53           | 100.0        | 0.00           | VERTICAL     | -16.6        | 56.4            | 23.9         |

**ZTE Corporation**

EUT: ZXCBTS R192T  
Manufacturer: ZTE  
Operating Condition: Running  
Test Site: Anechoic Chamber  
Operator:  
Test Specification: FCC PART15 Class A  
Comment: Hor  
Start of Test: 2005-3-29 / 16:04:13



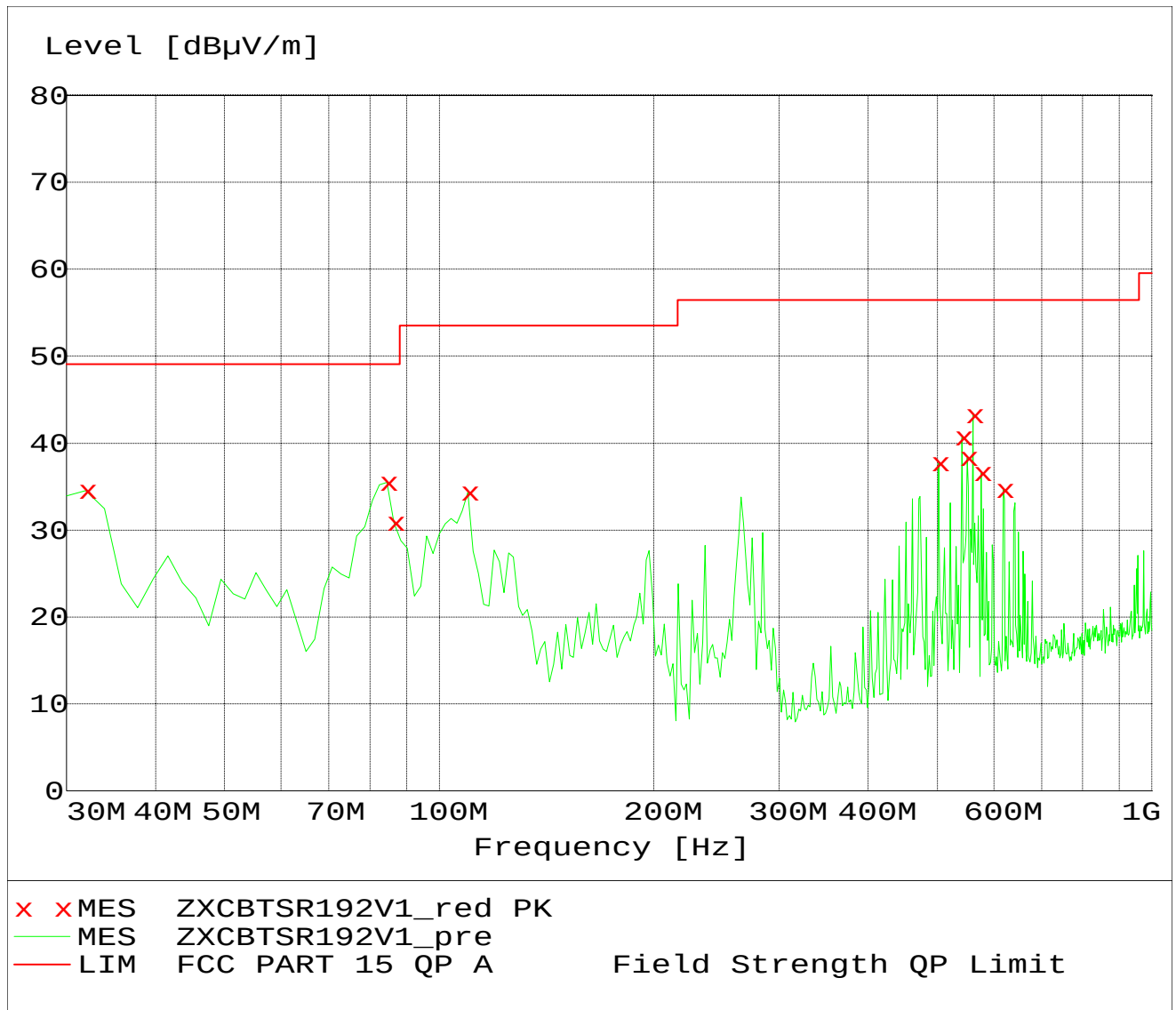
**MEASUREMENT RESULT: "ZXCBTSR192T H\_red PK"**

2005-3-29 16:13

| Frequency<br>MHz | Level<br>dB $\mu$ V/m | Height<br>cm | Azimuth<br>deg | Polarisation | Transd<br>dB | Limit<br>dB $\mu$ V/m | Margin<br>dB |
|------------------|-----------------------|--------------|----------------|--------------|--------------|-----------------------|--------------|
| 35.831663        | 30.13                 | 200.0        | 270.00         | HORIZONTAL   | -19.9        | 49.1                  | 19.0         |
| 55.270541        | 23.95                 | 300.0        | 270.00         | HORIZONTAL   | -31.5        | 49.1                  | 25.1         |
| 88.316633        | 35.66                 | 300.0        | 180.00         | HORIZONTAL   | -25.6        | 53.5                  | 17.8         |
| 121.362725       | 36.63                 | 300.0        | 180.00         | HORIZONTAL   | -25.6        | 53.5                  | 16.9         |
| 125.250501       | 35.03                 | 100.0        | 180.00         | HORIZONTAL   | -26.0        | 53.5                  | 18.5         |
| 461.543086       | 29.72                 | 200.0        | 0.00           | HORIZONTAL   | -18.0        | 56.4                  | 26.7         |
| 541.242485       | 29.14                 | 200.0        | 180.00         | HORIZONTAL   | -16.4        | 56.4                  | 27.3         |
| 560.681363       | 32.42                 | 200.0        | 180.00         | HORIZONTAL   | -15.8        | 56.4                  | 24.0         |
| 618.997996       | 28.60                 | 200.0        | 180.00         | HORIZONTAL   | -14.9        | 56.4                  | 27.8         |



EUT: ZXCBS R192T  
Manufacturer: ZTE  
Operating Condition: Running  
Test Site: Anechoic Chamber  
Operator:  
Test Specification: FCC PART15 Class A  
Comment: Ver  
Start of Test: 2005-3-29 / 16:14:28



**MEASUREMENT RESULT: "ZXCBTSR192T V1\_red PK"**

2005-3-29 16:22

| Frequency<br>MHz | Level<br>dBµV/m | Height<br>cm | Azimuth<br>deg | Polarisation | Transd<br>dB | Limit<br>dBµV/m | Margin<br>dB |
|------------------|-----------------|--------------|----------------|--------------|--------------|-----------------|--------------|
| 31.943888        | 34.52           | 100.0        | 0.00           | VERTICAL     | -17.9        | 49.1            | 14.6         |
| 84.428858        | 35.48           | 100.0        | 180.00         | VERTICAL     | -26.9        | 49.1            | 13.6         |
| 86.372745        | 30.81           | 100.0        | 180.00         | VERTICAL     | -26.8        | 49.1            | 18.3         |
| 109.699399       | 34.33           | 100.0        | 180.00         | VERTICAL     | -26.0        | 53.5            | 19.2         |
| 502.364729       | 37.68           | 100.0        | 90.00          | VERTICAL     | -17.1        | 56.4            | 18.8         |
| 541.242485       | 40.63           | 100.0        | 90.00          | VERTICAL     | -16.4        | 56.4            | 15.8         |
| 550.961924       | 38.28           | 100.0        | 90.00          | VERTICAL     | -16.1        | 56.4            | 18.2         |
| 560.681363       | 43.26           | 100.0        | 90.00          | VERTICAL     | -15.8        | 56.4            | 13.2         |
| 576.232465       | 36.57           | 100.0        | 90.00          | VERTICAL     | -15.5        | 56.4            | 19.9         |
| 618.997996       | 34.60           | 100.0        | 90.00          | VERTICAL     | -14.9        | 56.4            | 21.8         |

## §2.1053- SPURIOUS RADIATED EMISSIONS

### Applicable Standard

Requirements: CFR 47, §2.1053

### Test Equipment List and Details

| Manufacturer | Description                          | Model     | Serial Number | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|-----------|---------------|------------------|----------------------|
| R&S          | EMI Test Receiver                    | ESI26     | 100058        | 2004-9-24        | 2005-9-23            |
| R&S          | Ultra Broadband                      | HL562     | 100022        | 2003-3-7         | 2006-3-4             |
| R&S          | Double-Ridged Waveguide Horn Antenna | HF906     | 100032        | 2004-10-10       | 2007-10-7            |
| Albatross    | Anechoic Chamber                     | 3m Site   | N/A           | 2002-6-8         | 2005-6-5             |
| R&S          | Cable Set                            | RE Cable  | N/A           | 2004-9-24        | 2005-9-23            |
| R&S          | Software                             | ES-K1     | N/A           | N/A              | N/A                  |
| R&S          | Double-Ridged Waveguide Horn Antenna | HF906     | 100013        | 2004-1-31        | 2007-1-28            |
| SCHWARZBECK  | VHF-UHF Broad band Antenna           | VUBA 9117 | SB3174        | 2003-3-31        | 2006-3-28            |
| R&S          | Signal Generator                     | SMR20     | 100098        | 2004-9-24        | 2005-9-23            |

**\* Statement of Traceability:** BACL attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB = 43 + 10 Log<sub>10</sub> (power out in Watts)

### Test Data

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 18 °C     |
| Relative Humidity: | 53 %      |
| ATM Pressure:      | 1015 mbar |

The testing was performed by Sam Lin on 2005-4-11

Model: ZXCBTS M192T

| Indicated                 |        | Table  | Test Antenna |       | Substituted |       |       | Antenna    | Cable | Absolute | Limit | Margin |
|---------------------------|--------|--------|--------------|-------|-------------|-------|-------|------------|-------|----------|-------|--------|
| Frequency                 | Ampl.  | Angle  | Height       | Polar | Frequency   | Level | Polar | Gain       | Loss  | Level    |       |        |
| MHz                       | dBuV/m | Degree | Meter        | H/V   | MHz         | dBm   | H/V   | Correction | dB    | dBm      | dBm   | dB     |
| CHANNEL 825 F=1971.25MHZ  |        |        |              |       |             |       |       |            |       |          |       |        |
| 9474.95                   | 61.82  | 270    | 1.0          | H     | 9474.95     | -39.0 | H     | 12.2       | 8.5   | -35.3    | -13   | -22.3  |
| 9527.05                   | 56.23  | 180    | 1.5          | V     | 9527.05     | -47.0 | V     | 12.2       | 8.6   | -43.4    | -13   | -30.4  |
| 5917.83                   | 46.87  | 180    | 1.5          | H     | 5917.83     | -55.0 | H     | 11.3       | 6.6   | -50.3    | -13   | -37.3  |
| 5977.96                   | 46.38  | 180    | 1.0          | V     | 5977.96     | -57.5 | V     | 11.3       | 6.7   | -52.9    | -13   | -39.9  |
| 3933.86                   | 42.64  | 270    | 1.0          | V     | 3933.86     | -58.6 | V     | 10.0       | 5.3   | -53.9    | -13   | -40.9  |
| 1276.55                   | 39.83  | 270    | 1.0          | H     | 1276.55     | -58.5 | H     | 7.4        | 3.0   | -54.1    | -13   | -41.1  |
| 1072.14                   | 43.32  | 0      | 1.0          | V     | 1072.14     | -58.9 | V     | 7.4        | 2.7   | -54.2    | -13   | -41.2  |
| 5917.0                    | 45.00  | 180    | 1.0          | V     | 5917.00     | -59.5 | V     | 11.3       | 6.6   | -54.8    | -13   | -41.8  |
| 3969.94                   | 41.90  | 270    | 1.5          | H     | 3969.94     | -61.5 | H     | 10.0       | 5.3   | -56.8    | -13   | -43.8  |
| 1108.22                   | 42.68  | 0      | 1.0          | V     | 1108.22     | -62.0 | V     | 7.4        | 2.9   | -57.5    | -13   | -44.5  |
| 1970.94                   | 99.23  | 0      | 1.0          | H     | 1970.94     | 36.9  | H     | 9.2        | 3.8   | 42.3     |       |        |
| 1970.94                   | 112.73 | 0      | 1.2          | V     | 1970.94     | 46.9  | V     | 9.2        | 3.8   | 52.3     |       |        |
| CHANNEL 1025 F=1981.25MHZ |        |        |              |       |             |       |       |            |       |          |       |        |
| 9474.95                   | 60.49  | 270    | 1.0          | H     | 9474.95     | -40.0 | H     | 12.2       | 8.6   | -36.4    | -13   | -23.4  |
| 9527.05                   | 55.52  | 180    | 1.5          | V     | 9527.05     | -48.0 | V     | 12.2       | 8.6   | -44.4    | -13   | -31.4  |
| 5941.88                   | 45.15  | 270    | 1.0          | H     | 5941.88     | -55.1 | H     | 11.3       | 6.7   | -50.5    | -13   | -37.5  |
| 1228.46                   | 39.06  | 270    | 1.0          | H     | 1228.46     | -57.0 | H     | 7.4        | 2.9   | -52.5    | -13   | -39.5  |
| 3969.94                   | 41.59  | 270    | 1.0          | V     | 3969.94     | -58.0 | V     | 10.0       | 5.3   | -53.3    | -13   | -40.3  |
| 5941.88                   | 46.00  | 270    | 1.5          | V     | 5941.88     | -58.0 | V     | 11.3       | 6.7   | -53.4    | -13   | -40.4  |
| 3969.94                   | 42.12  | 180    | 1.0          | H     | 3969.94     | -61.0 | H     | 10.0       | 5.3   | -56.3    | -13   | -43.3  |
| 1981.25                   | 98.98  | 0      | 1.0          | H     | 1981.25     | 36.2  | H     | 9.2        | 3.7   | 41.7     |       |        |
| 1981.25                   | 111.83 | 0      | 1.2          | V     | 1981.25     | 46.7  | V     | 9.2        | 3.7   | 52.2     |       |        |
| Channel 1175 f=1988.75MHz |        |        |              |       |             |       |       |            |       |          |       |        |
| 9474.95                   | 60.30  | 270    | 1.0          | H     | 9474.95     | -40.0 | H     | 12.2       | 8.6   | -36.4    | -13   | -23.4  |
| 9527.05                   | 56.24  | 180    | 1.5          | V     | 9527.05     | -47.0 | V     | 12.2       | 8.6   | -43.4    | -13   | -30.4  |
| 5965.93                   | 47.29  | 90     | 1.5          | H     | 5965.93     | -53.0 | H     | 11.3       | 6.7   | -48.4    | -13   | -35.4  |
| 3969.94                   | 42.47  | 180    | 1.5          | V     | 3969.94     | -57.0 | V     | 10.0       | 5.3   | -52.3    | -13   | -39.3  |
| 5965.93                   | 46.03  | 90     | 1.0          | V     | 5965.93     | -58.0 | V     | 11.3       | 6.7   | -53.4    | -13   | -40.4  |
| 3969.94                   | 41.74  | 180    | 1.5          | H     | 3969.94     | -62.0 | H     | 10.0       | 5.3   | -57.3    | -13   | -44.3  |
| 1988.75                   | 110.10 | 0      | 1.0          | V     | 1988.75     | 44.4  | V     | 9.2        | 3.7   | 49.9     |       |        |
| 1988.75                   | 98.17  | 0      | 1.2          | H     | 1988.75     | 36.7  | H     | 9.2        | 3.7   | 42.2     |       |        |

**§2.1051, §24.238(a)- SPURIOUS EMISSIONS AT ANTENNA TERMINALS****Applicable Standard**

Requirements: CFR 47§ 2.1051 & §24.238(a)

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in §2.1057

**Test Equipment List and Details**

| Manufacturer    | Description       | Model  | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|--------|---------------|------------------|----------------------|
| Rohde & Schwarz | Spectrum Analyzer | FSEM30 | 849720/019    | 2004-11-10       | 2005-11-9            |

\* **Statement of Traceability:** BACL attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

**Test Procedure**

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.

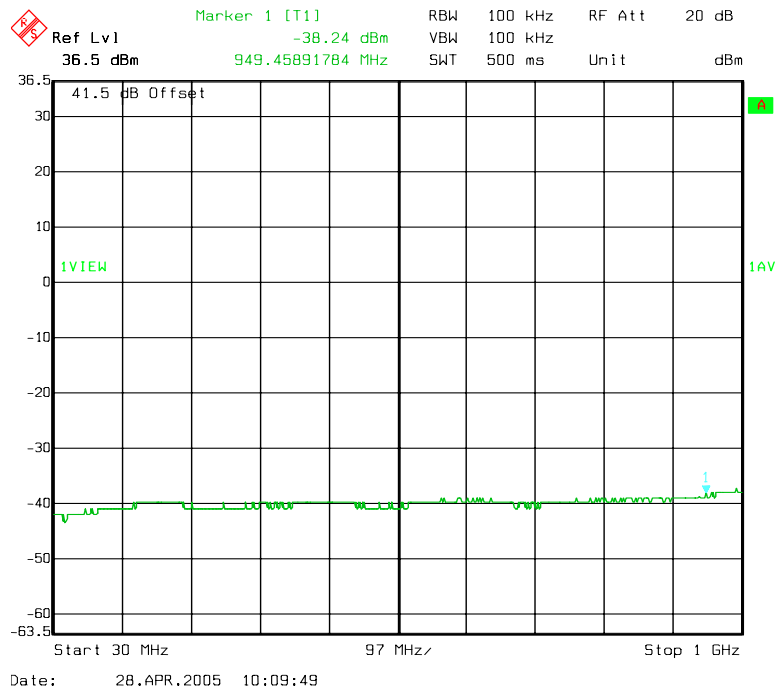
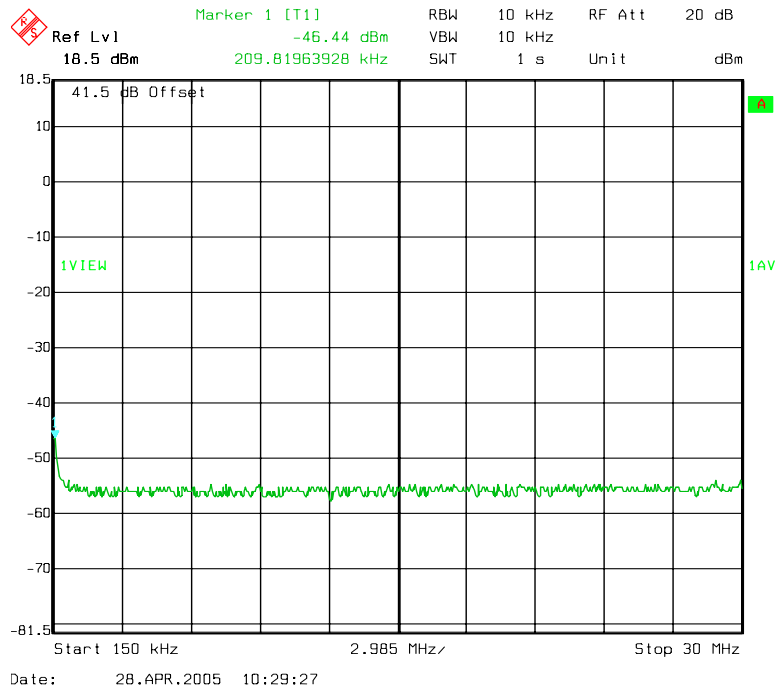
**Test Data****Environmental Conditions**

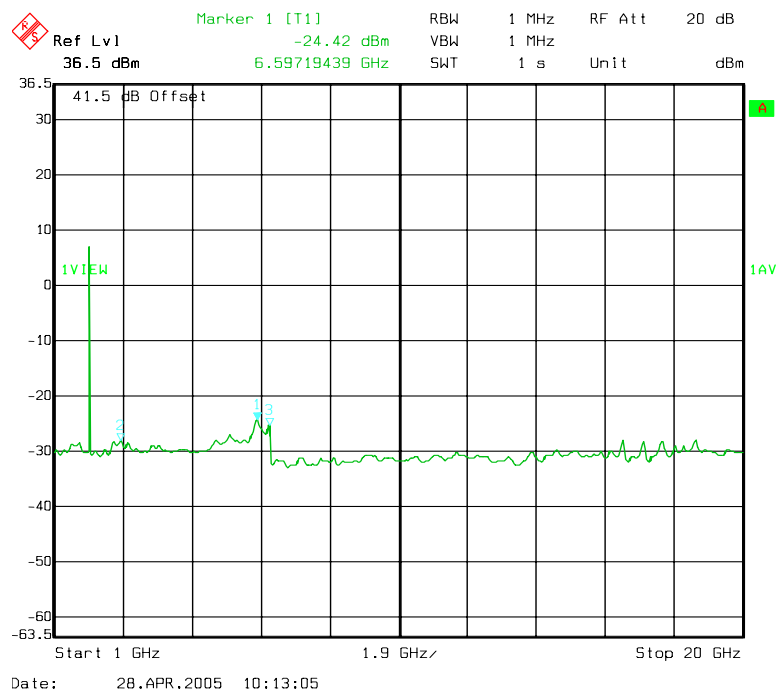
|                    |           |
|--------------------|-----------|
| Temperature:       | 18 °C     |
| Relative Humidity: | 53 %      |
| ATM Pressure:      | 1015 mbar |

*The testing was performed by Sam Lin on 2005-4-1*

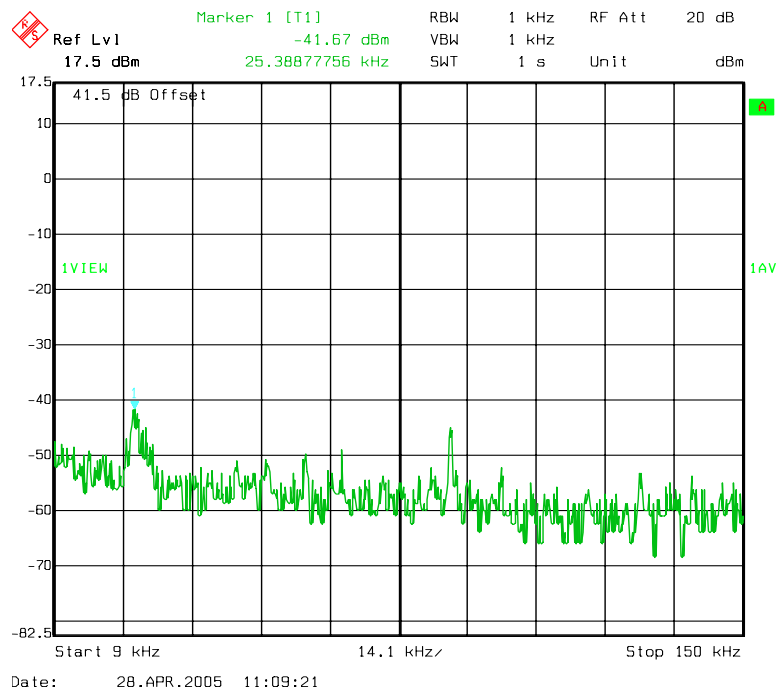
Model: ZXCBS M192T

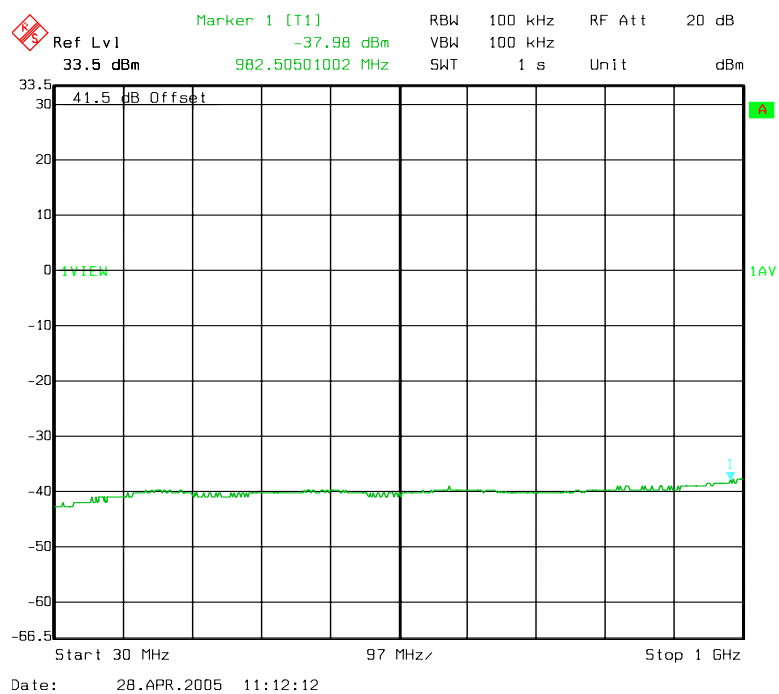
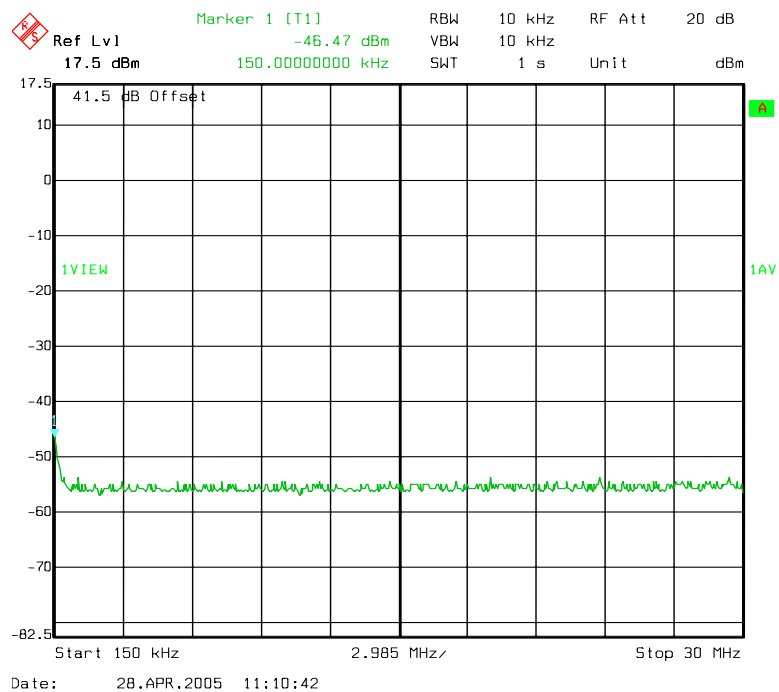
Channel 825



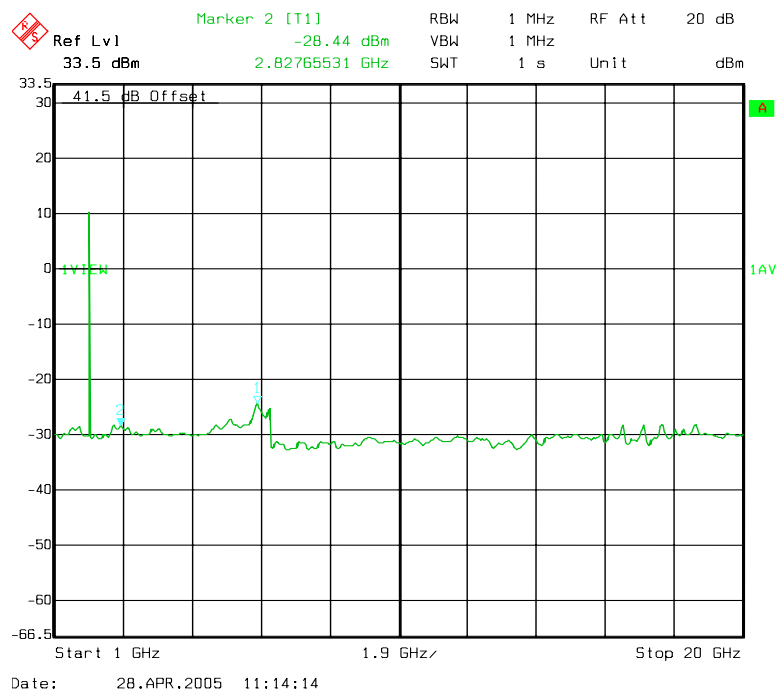


## Channel 1025

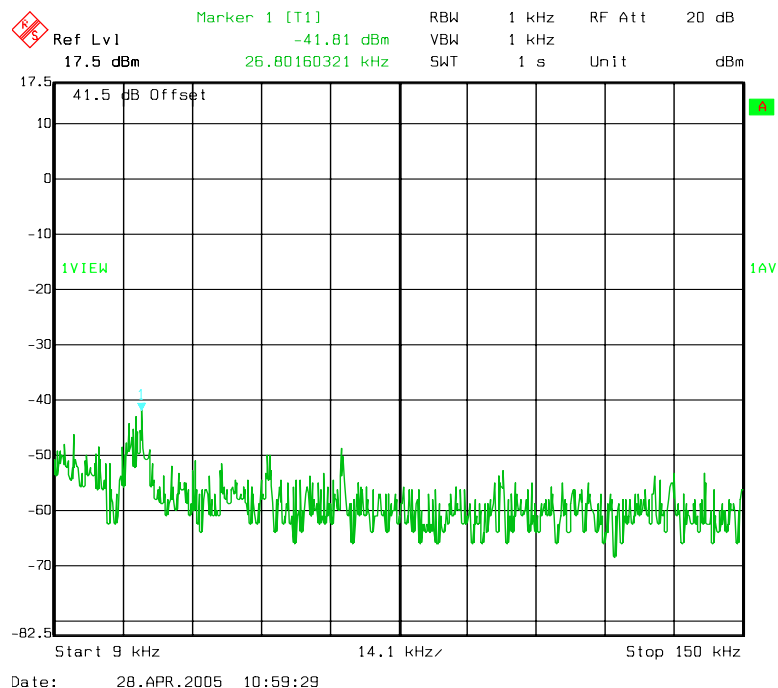


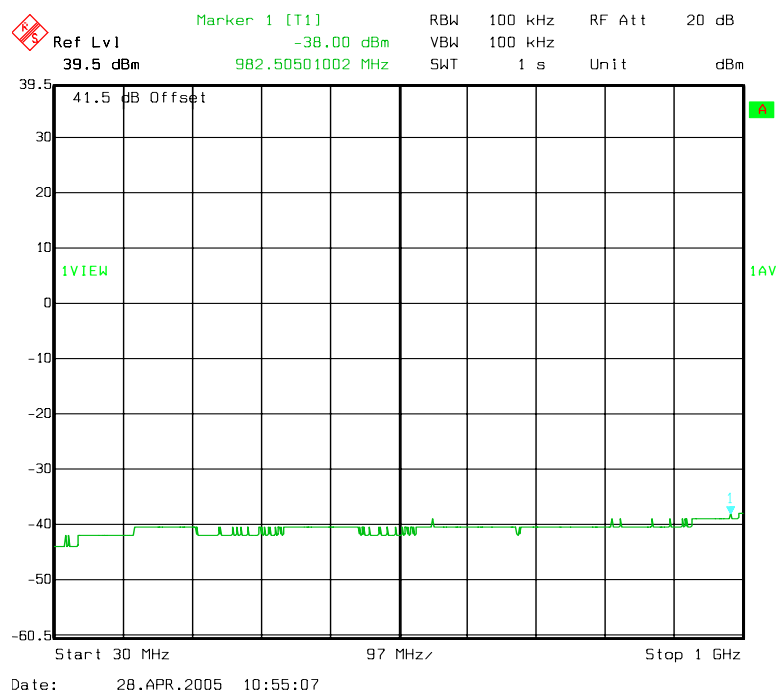
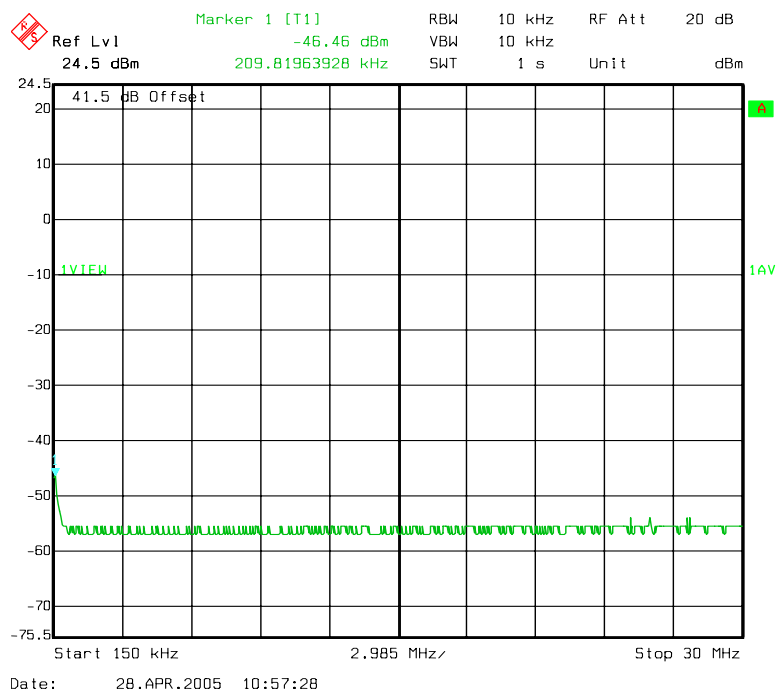


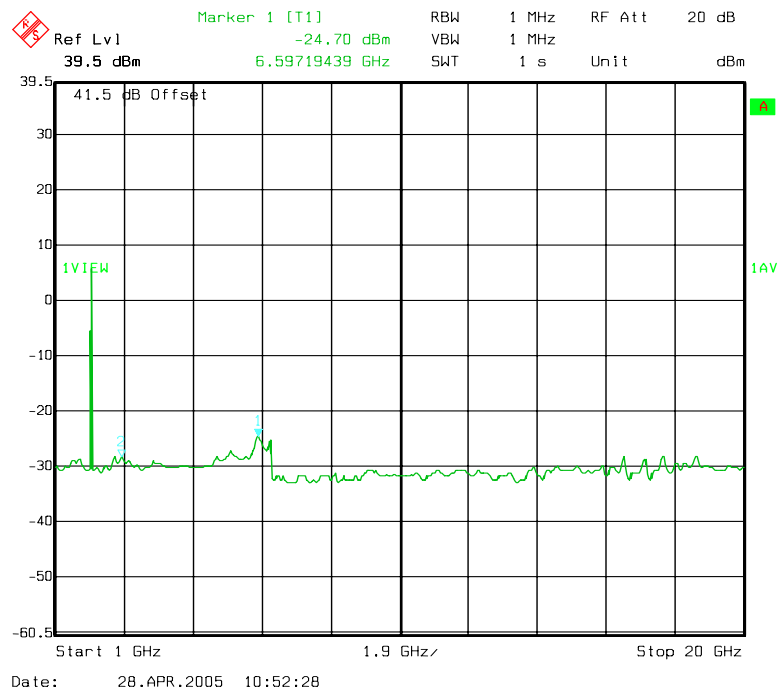




## Channel 1175







**§2.1049& §24.238-OCCUPIED BANDWIDTH****Standard Applicable**

Requirements: CFR 47, Section 2.1049 and Section 24.238.

**Test Equipment List and Details**

| Manufacturer | Description           | Model  | Serial Number | Calibration Date | Calibration Due Date |
|--------------|-----------------------|--------|---------------|------------------|----------------------|
| Agilent      | PSA Spectrum Analyzer | E4445A | MY44300451    | 2004-11-5        | 2005-11-4            |

\* **Statement of Traceability:** BACL attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

**Test Procedure**

The RF out of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 30 kHz and the 26 dB and 99%Power bandwidth was recorded.

**Test Data****Environmental Conditions**

|                    |          |
|--------------------|----------|
| Temperature:       | 25 ° C   |
| Relative Humidity: | 50%      |
| ATM Pressure:      | 1032mbar |

*The testing was performed by Sam Lin on 2005-4-12*

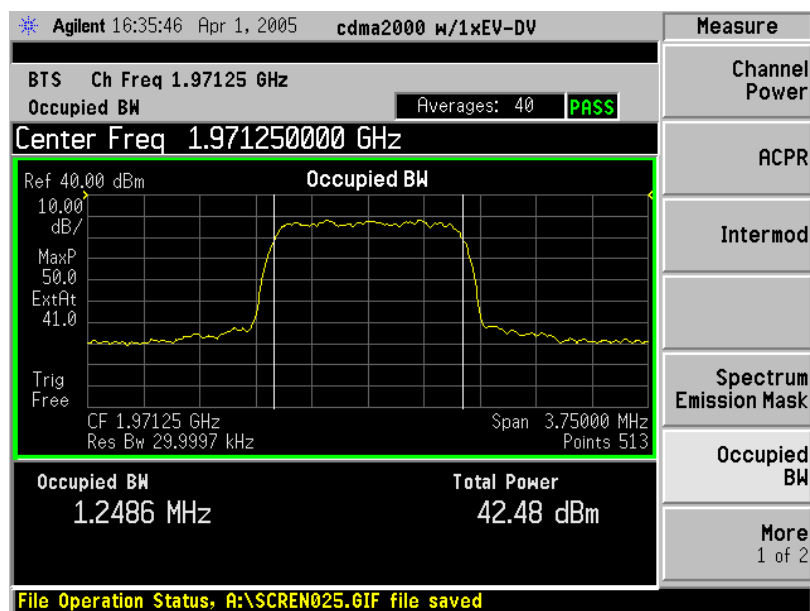
Test Result: Pass

Model: ZXCBTS M192T

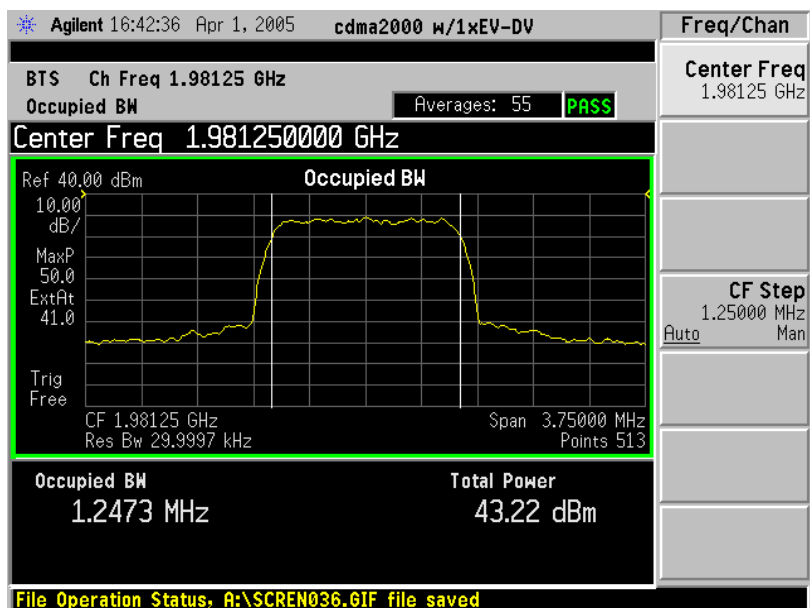
The result has been complied with the §2.1049 & §24.238, see the following plot:

| Channel      | Channel frequency (MHz) | 99% Power Bandwidth (MHz) |
|--------------|-------------------------|---------------------------|
| Channel 825  | 1971.25                 | 1.2431                    |
| Channel 1025 | 1981.25                 | 1.2434                    |
| Channel 1175 | 1988.75                 | 1.2465                    |

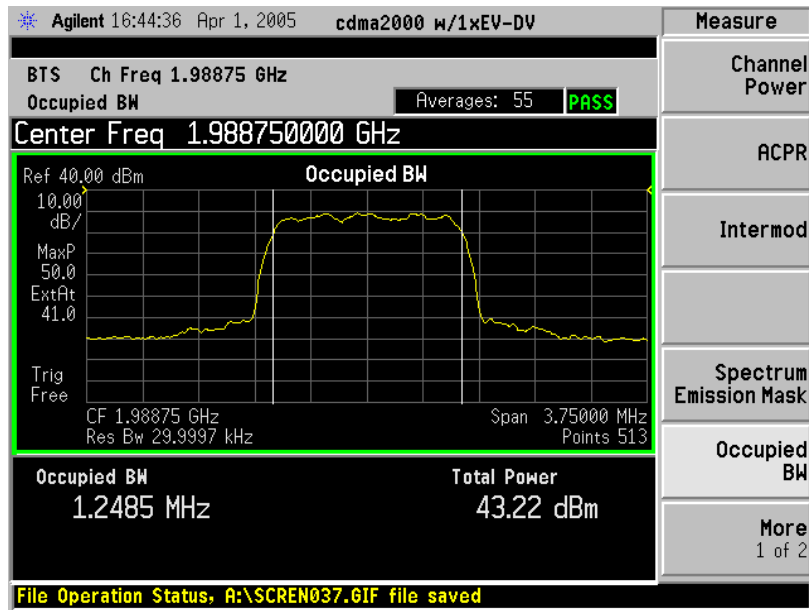
Channel 825



Channel 1025



## Channel 1175



## §24.238- BAND EDGES

### Standard Applicable

According to §24.238, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (p) by a factor of at least  $43+10 \log(p)$  dB.

### Test Equipment List and Details

| Manufacturer    | Description       | Model  | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|--------|---------------|------------------|----------------------|
| Rohde & Schwarz | Spectrum Analyzer | FSEM30 | 849720/019    | 2004-11-10       | 2005-11-9            |

\* **Statement of Traceability:** **BACL Corp.** attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 30 kHz.

### Environmental Conditions

|                    |          |
|--------------------|----------|
| Temperature:       | 24 °C    |
| Relative Humidity: | 59%      |
| ATM Pressure:      | 1178mbar |

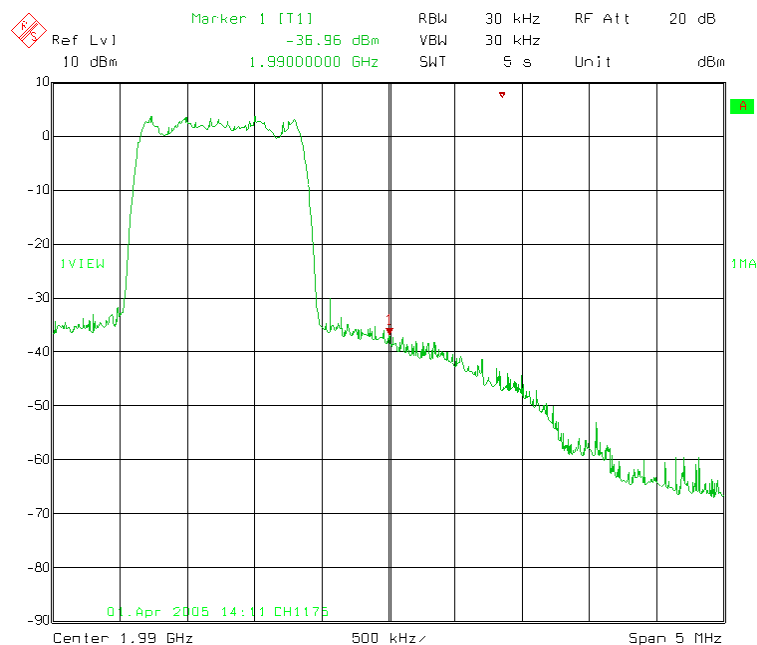
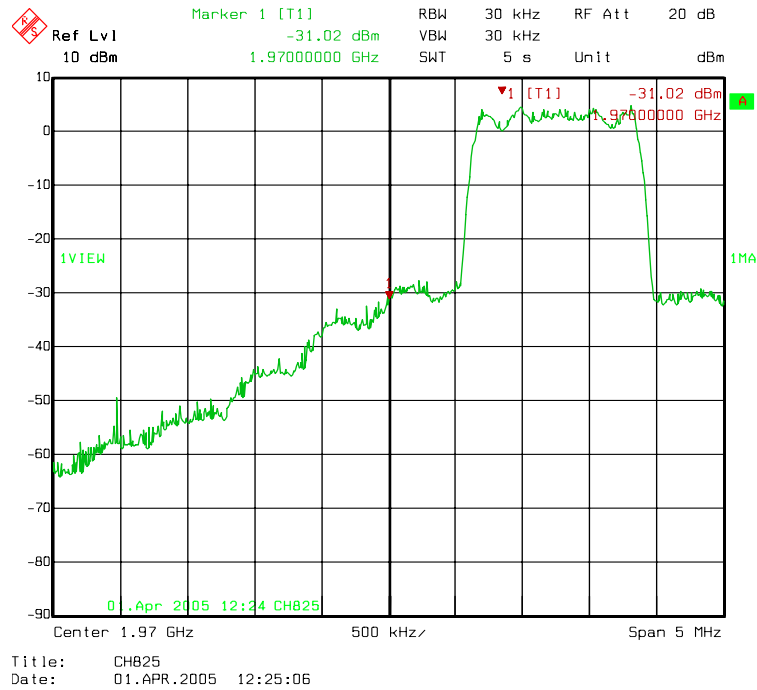
*The testing was performed by Sam Lin on 2005-4-1*

Test Result: Pass

Model: ZXC BTS M192T

The result has been complied with the §24.238, see the following plot:

| Frequency<br>MHz | Emission<br>dBm | Limit<br>dBm |
|------------------|-----------------|--------------|
| 1970.00          | -31.02          | -13          |
| 1990.00          | -36.96          | -13          |





## §2.1055 (a), §2.1055 (d) & §24.235 - FREQUENCY STABILITY

### Applicable Standard

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:

According to §24.235, The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### Test Equipment List and Details

| Manufacturer | Description           | Model    | Serial Number | Calibration Date | Calibration Due Date |
|--------------|-----------------------|----------|---------------|------------------|----------------------|
| Agilent      | PSA Spectrum Analyzer | E4445A   | MY44300451    | 2004-11-5        | 2005-11-4            |
| GZ-ESPEC     | Temperature Chamber   | EL-10AGP | 0105105       | 2004-6-1         | 2005-5-31            |

\* **Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to a f Spectrum Analyzer via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.

Frequency Stability vs. Voltage: An external variable AC power supply Source. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

### Test Data

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 20° C     |
| Relative Humidity: | 49%       |
| ATM Pressure:      | 1011 mbar |

*The testing was performed by Sam Lin on 2004-4-1.*

Model: ZXCBS M192T

## Frequency Stability Versus Temperature

| Frequency Stability vs. Temperature |                       |                               |              |         |
|-------------------------------------|-----------------------|-------------------------------|--------------|---------|
| Temperature<br>°C                   | Power Supplied<br>Vac | Frequency Measure Error<br>Hz | Error<br>ppm | Results |
| CH825 f=1971.25MHz                  |                       |                               |              |         |
| -30                                 | 120                   | 2.42                          | 0.00123      | Pass    |
| -20                                 | 120                   | 3.05                          | 0.00155      | Pass    |
| -10                                 | 120                   | 3.96                          | 0.00201      | Pass    |
| 0                                   | 120                   | 3.64                          | 0.00185      | Pass    |
| 10                                  | 120                   | 3.97                          | 0.00201      | Pass    |
| 20                                  | 120                   | 3.64                          | 0.00185      | Pass    |
| 30                                  | 120                   | 1.81                          | 0.00092      | Pass    |
| 40                                  | 120                   | 2.01                          | 0.00102      | Pass    |
| 55                                  | 120                   | 2.17                          | 0.0011       | Pass    |
| CH1025 f=1981.25MHz                 |                       |                               |              |         |
| -30                                 | 120                   | 2.59                          | 0.00131      | Pass    |
| -20                                 | 120                   | 3.16                          | 0.00159      | Pass    |
| -10                                 | 120                   | 3.61                          | 0.00182      | Pass    |
| 0                                   | 120                   | 3.46                          | 0.00175      | Pass    |
| 10                                  | 120                   | 3.64                          | 0.00184      | Pass    |
| 20                                  | 120                   | 4.23                          | 0.00214      | Pass    |
| 30                                  | 120                   | 2.48                          | 0.00125      | Pass    |
| 40                                  | 120                   | 2.10                          | 0.00106      | Pass    |
| 55                                  | 120                   | 1.89                          | 0.00095      | Pass    |
| CH1175 f=1988.75MHz                 |                       |                               |              |         |
| -30                                 | 120                   | 3.57                          | 0.0018       | Pass    |
| -20                                 | 120                   | 3.06                          | 0.00154      | Pass    |
| -10                                 | 120                   | 3.57                          | 0.0018       | Pass    |
| 0                                   | 120                   | 3.36                          | 0.00169      | Pass    |
| 10                                  | 120                   | 3.48                          | 0.00175      | Pass    |
| 20                                  | 120                   | 4.17                          | 0.0021       | Pass    |
| 30                                  | 120                   | 1.44                          | 0.00072      | Pass    |
| 40                                  | 120                   | 1.67                          | 0.00084      | Pass    |
| 55                                  | 120                   | 2.79                          | 0.0014       | Pass    |

## Frequency Stability Versus Voltage

| Frequency Stability vs. Voltage |                   |                               |              |         |
|---------------------------------|-------------------|-------------------------------|--------------|---------|
| Voltage<br>Vac                  | Temperature<br>°C | Frequency Measure Error<br>Hz | Error<br>ppm | Results |
| CH825 f=1971.25MHz              |                   |                               |              |         |
| 85                              | 20                | 1.12                          | 0.00057      | Pass    |
| 120                             | 20                | 0.49                          | 0.00025      | Pass    |
| 135                             | 20                | 1.17                          | 0.00059      | Pass    |
| CH1025 f=1981.25MHz             |                   |                               |              |         |
| 85                              | 20                | 1.88                          | 0.00095      | Pass    |
| 120                             | 20                | 1.92                          | 0.00097      | Pass    |
| 135                             | 20                | 0.82                          | 0.00041      | Pass    |
| CH1175 f=1988.75MHz             |                   |                               |              |         |
| 85                              | 20                | 4.13                          | 0.00208      | Pass    |
| 120                             | 20                | 5.15                          | 0.00259      | Pass    |
| 135                             | 20                | 4.04                          | 0.00203      | Pass    |