



Most Technology Service Co., Ltd.  
Tel: (86) 755-26825180 Fax: (86) 755-86170310  
Http:// www. szmost.com Email: szmost@szmost.com

### Test Report

Product Name: GPS PORTABLE NAVIGATION DEVICE

FCC ID: VUP-G81C001

Model No.: 81C-1, 81C-2, 81C-3, 81C

Applicant:

YF INTERNATIONAL LIMITED  
7TH FL., CHINA ACADEMY OF SCIENCE&TECHNOLOGY DEV.,  
HIGH TECH SOUTH STREET 1, CHINA

Date Received: 01/20/2008

Date Tested: 01/20/2008

APPLICANT: YF INTERNATIONAL LIMITED  
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TABLE OF CONTENTS



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## TABLE OF CONTENTS

**APPLICANT:** YF INTERNATIONAL LIMITED

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### TEST REPORT CONTAINING:

PAGE 1.....TEST EQUIPMENT LIST  
PAGE 2.....TEST PROCEDURE  
PAGE 3-5.....POWER LINE CONDUCTED INTERFERENCE AND PLOTS  
PAGE 3-5.....RADIATION INTERFERENCE TEST DATA  
PAGE 6-9.....OCCUPIED BANDWIDTH AND PLOTS

### EXHIBIT INCLUDED:

PAGE 1.....BLOCK DIAGRAM  
PAGE 2.....SCHEMATIC  
PAGE 3.....USERS MANUAL  
PAGE 4.....LABEL SAMPLE  
PAGE 5.....LABEL LOCATION  
PAGE 6.....EXTERNAL PHOTOGRAPHS  
PAGE 7.....INTERNAL PHOTOGRAPHS  
PAGE 8.....OPERATIONAL DESCRIPTION  
PAGE 9.....TEST SET UP PHOTOGRAPHS

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TABLE OF CONTENTS



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## EMC Equipment List

| Equipment                      | Manufacturer  | Model No.      | Serial No.   | Last Cal.   | Cal. Interval |
|--------------------------------|---------------|----------------|--------------|-------------|---------------|
| EMI Test Receiver              | ROHDE&SCHWARZ | ESCI           | 100492       | Apr.05,2008 | 1 Year        |
| LISN                           | ROHDE&SCHWARZ | ENV216         | 100093       | Apr.05,2008 | 1 Year        |
| EMI Test Receiver              | ROHDE&SCHWARZ | ESCI           | 101202       | Apr.05,2008 | 1 Year        |
| Spectrum Analyzer              | ANRITSU       | MS2651B        | 6200238316   | Apr.05,2008 | 1 Year        |
| 50 Coaxial Switch              | ANRITSU CORP  | MP59B          | 6200283933   | Apr.05,2008 | 1 Year        |
| Bilog Antenna                  | Sunol         | JB3            | A121206      | Apr.05,2008 | 1 Year        |
| Horn Antenna                   | EMCO          | 3115           | 640201028-06 | Apr.05,2008 | 1 Year        |
| 50 Coaxial Switch              | ANRITSU CORP  | MP59B          | 6200283933   | Apr.05,2008 | 1 Year        |
| Cable                          | Resenberger   | N/A            | NO.1         | Apr.05,2008 | 1 Year        |
| Cable                          | SCHWARZBECK   | N/A            | NO.2         | Apr.05,2008 | 1 Year        |
| Cable                          | SCHWARZBECK   | N/A            | NO.3         | Apr.05,2008 | 1 Year        |
| Single Phase Power Line Filter | Kikusui       | LIN40MA-PC R-L | LM002352     | Apr.05,2008 | 1 Year        |
| AC Power Source                | Kikusui       | AC40MA         | LM003232     | Apr.05,2008 | 1 Year        |
| Test analyzer                  | Kikusui       | KHA1000        | LM003720     | Apr.05,2008 | 1 Year        |
| ESD Tester                     | Kikusui       | KES4021        | LM003537     | Apr.07,2008 | 1 Year        |
| Signal Generator               | IFR           | 2032           | 203002/100   | Apr.07,2008 | 1 Year        |
| Amplifier                      | A&R           | 150W1000       | 301584       | NCR         | NCR           |
| Dual Directional Coupler       | A&R           | DC6080         | 301508       | Apr.05,2008 | 1 Year        |
| Power Head                     | A&R           | PH2000         | 301193       | Apr.05,2008 | 1 Year        |
| Power Meter                    | A&R           | PM2002         | 302799       | Apr.05,2008 | 1 Year        |
| Field Monitor                  | A&R           | FM5004         | 300329       | Apr.05,2008 | 1 Year        |
| Field Probe                    | A&R           | FP5000         | 300221       | Apr.05,2008 | 1 Year        |
| EMCPRO System                  | EM Test       | UCS-500-M4     | V0648102026  | Apr.05,2008 | 1 Year        |
| EMCPRO System                  | EM Test       | UCS-500-M4     | V0648102026  | Apr.05,2008 | 1 Year        |

### Remark:

Test Firm Name: Most Technology Service Co., Ltd.

Test Firm Address:

No. 5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

FCC Registered Test Site Number: 490827



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#### TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of MOST TECHNOLOGY SERVICE CO., LTD. The EUT was transmitting a test signal during the testing.

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50 uH LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25 with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. The ambient temperature of the EUT was 25 with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS  
33 20 dBuV + 10.36 dB + 0.9 dB = 31.26 dBuV/m @ 3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.



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**FCC ID:** VUP-G81C001

**NAME OF TEST:** POWER LINE CONDUCTED INTERFERENCE

**RULES PART NUMBER:** 15.207

**REQUIREMENTS:**

| Frequency of Emission (MHz) | Conducted Limit (dB <sub>UV</sub> ) |            |
|-----------------------------|-------------------------------------|------------|
|                             | Quasi-peak                          | Average    |
| 0.15-0.5                    | 66 to 56 *                          | 56 to 46 * |
| 0.5-5                       | 56                                  | 46         |
| 5-30                        | 60                                  | 50         |

\* Decreases with the logarithm of the frequency.

**TEST PROCEDURE:** ANSI STANDARD C63.4-2003

THE HIGHEST EMISSION READ FOR LINE 1 WAS 45.10dB<sub>UV</sub> @ 0.526MHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 48.41dB<sub>UV</sub> @ 0.350MHz.

THE PLOTS ON THE NEXT PAGE REPRESENT THE EMISSIONS READ FOR POWER LINE CONDUCTED FOR THIS DEVICE.

APPLICANT: YF INTERNATIONAL LIMITED  
FCC ID: VUP-G81C001

### Conducted Emission Measurement

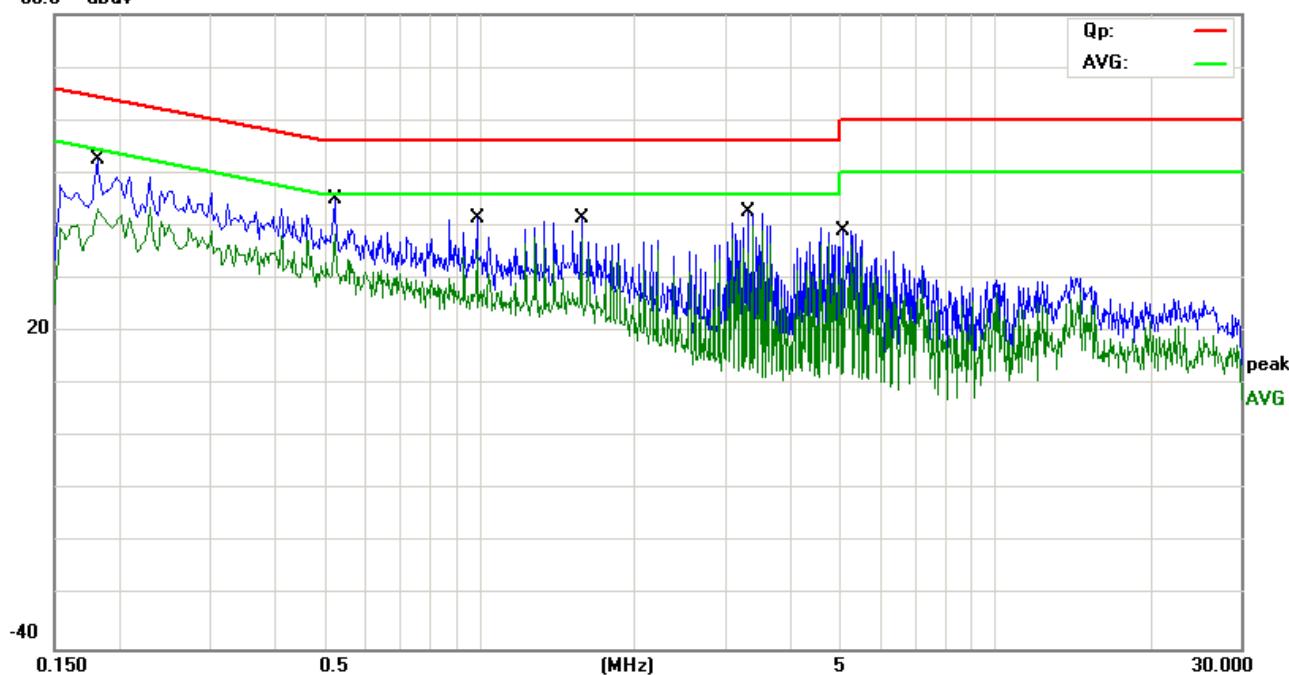
File : 81C-1

Data : #23

Date: 2009/01/20

Time: 16:48:04

80.0 dBuV



Site site #1

Phase: **L1**

Temperature: 26

Limit: FCC Part15 B Class B QP

Power: DC 5V Adaptor AC 120V/60Hz Humidity: 60 %

EUT: GPS Portable Navigation Device

M/N: 81C-1

Mode: Running (FM Mode)

Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measure-<br>ment | Limit | Over   |          |         |
|-----|-----|--------|---------------|----------------|------------------|-------|--------|----------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV             | dBuV  | dB     | Detector | Comment |
| 1   |     | 0.1820 | 41.52         | 10.92          | 52.44            | 64.39 | -11.95 | QP       |         |
| 2   | *   | 0.5260 | 35.10         | 10.00          | 45.10            | 56.00 | -10.90 | QP       |         |
| 3   |     | 0.9940 | 31.34         | 10.00          | 41.34            | 56.00 | -14.66 | QP       |         |
| 4   |     | 1.5780 | 32.07         | 9.42           | 41.49            | 56.00 | -14.51 | QP       |         |
| 5   |     | 3.3300 | 32.19         | 10.33          | 42.52            | 56.00 | -13.48 | QP       |         |
| 6   |     | 5.0780 | 27.06         | 11.95          | 39.01            | 60.00 | -20.99 | QP       |         |

\*:Maximum data    x:Over limit    !:over margin

### Conducted Emission Measurement

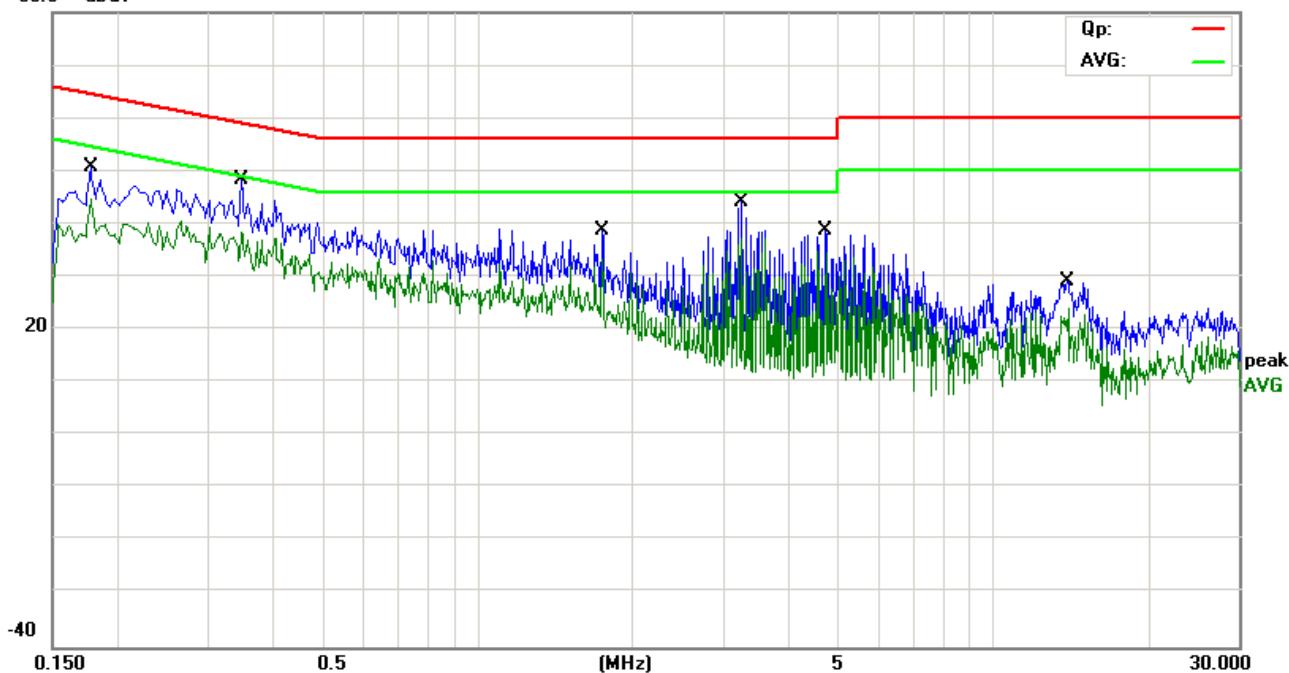
File : 81C-1

Data : #24

Date: 2009/01/20

Time: 16:49:26

80.0 dBuV



Site site #1

Phase: **N**

Temperature: 26

Limit: FCC Part15 B Class B QP

Power: DC 5V Adaptor AC 120V/60Hz Humidity: 60 %

EUT: GPS Portable Navigation Device

M/N: 81C-1

Mode: Running (FM Mode)

Note:

| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measure-<br>ment | Limit | Over     |         |
|-----|-----|---------|---------------|----------------|------------------|-------|----------|---------|
|     |     | MHz     | dBuV          | dB             | dBuV             | dB    | Detector | Comment |
| 1   |     | 0.1780  | 39.92         | 10.68          | 50.60            | 64.58 | -13.98   | QP      |
| 2   | *   | 0.3500  | 37.41         | 11.00          | 48.41            | 58.96 | -10.55   | QP      |
| 3   |     | 1.7500  | 29.36         | 9.25           | 38.61            | 56.00 | -17.39   | QP      |
| 4   |     | 3.2740  | 33.76         | 10.27          | 44.03            | 56.00 | -11.97   | QP      |
| 5   |     | 4.7340  | 27.13         | 11.73          | 38.86            | 56.00 | -17.14   | QP      |
| 6   |     | 13.9780 | 20.02         | 9.00           | 29.02            | 60.00 | -30.98   | QP      |

\*:Maximum data    x:Over limit    !:over margin



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**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.239, 15.209

**REQUIREMENTS:**

FIELD STRENGTH of S15.209  
Fundamental:

|                  |                           |
|------------------|---------------------------|
| 88-108 MHZ       | 30 - 88 MHz 40 dBuV/m @3M |
|                  | 88 - 216 MHz 43.5         |
|                  | 216 - 960 MHz 46          |
| 47.96 dBuV/m @3m | ABOVE 960 MHz 54dBuV/m    |

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

**REMARK:** Emissions attenuated more than 20 dB below the permissible value are not reported.

Fundamental Radiation Interference Data:

| Frequency (MHz) | Antenna<br>Polarization | Emission Level (dBuV/m) |       |       | FCC 15 Subpart C<br>Limit (dBuV/m) |
|-----------------|-------------------------|-------------------------|-------|-------|------------------------------------|
|                 |                         | Avg                     | QP    | Peak  |                                    |
| 88.1MHz         |                         |                         |       |       |                                    |
| 88.100          | Vertical                | --                      | 44.10 | 46.21 | 47.96                              |
| 88.100          | Horizontal              | --                      | 40.03 | 43.08 | 47.96                              |
| 98.1MHz         |                         |                         |       |       |                                    |
| 98.100          | Vertical                | --                      | 44.01 | 45.33 | 47.96                              |
| 98.100          | Horizontal              | --                      | 40.09 | 42.76 | 47.96                              |
| 107.9MHz        |                         |                         |       |       |                                    |
| 107.900         | Vertical                | --                      | 43.34 | 45.12 | 47.96                              |
| 107.900         | Horizontal              | --                      | 39.30 | 42.36 | 47.96                              |

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**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.239, 15.209

**REQUIREMENTS:**

FIELD STRENGTH of S15.209  
Fundamental:

|                  |                           |
|------------------|---------------------------|
| 88-108 MHZ       | 30 - 88 MHz 40 dBuV/m @3M |
|                  | 88 - 216 MHz 43.5         |
|                  | 216 - 960 MHz 46          |
| 47.96 dBuV/m @3m | ABOVE 960 MHz 54 dBuV/m   |

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

**Continued:**

General Radiation Interference Data:

| Frequency (MHz) | Antenna<br>Polarization | Emission Level (dBuV/m) |       |       | FCC 15 Subpart C<br>Limit (dBuV/m) |
|-----------------|-------------------------|-------------------------|-------|-------|------------------------------------|
|                 |                         | Avg                     | QP    | Peak  |                                    |
| 247.28          | Horizontal              | --                      | --    | 24.45 | 43.5                               |
| 516.94          | Horizontal              | --                      | --    | 26.41 | 46.0                               |
| 619.76          | Horizontal              | --                      | --    | 29.89 | 46.0                               |
| 743.92          | Horizontal              | --                      | --    | 31.36 | 46.0                               |
| 41.64           | Vertical                | --                      | 34.01 | 36.88 | 40.0                               |
| 154.16          | Vertical                | --                      | --    | 27.16 | 43.5                               |
| 544.10          | Vertical                | --                      | --    | 28.13 | 46.0                               |
| 697.36          | Vertical                | --                      | --    | 30.54 | 46.0                               |

TEST PROCEDURE: ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector and an appropriate antenna. The resolution bandwidth of spectrum analyzer was 100 kHz below 1 GHz and 1 MHz above 1 GHz. An appropriate sweep speed was used. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

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**NAME OF TEST:** Occupied Bandwidth and Band Edge Compliance

**RULES PART NUMBER:** 15.239, 15.209

**REQUIREMENTS:** Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

Band edge emissions plots are included on the following pages

**METHOD OF MEASUREMENT:** A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to 10 dB per division.

**TEST RESULTS:** The unit DOES meet the FCC requirements.

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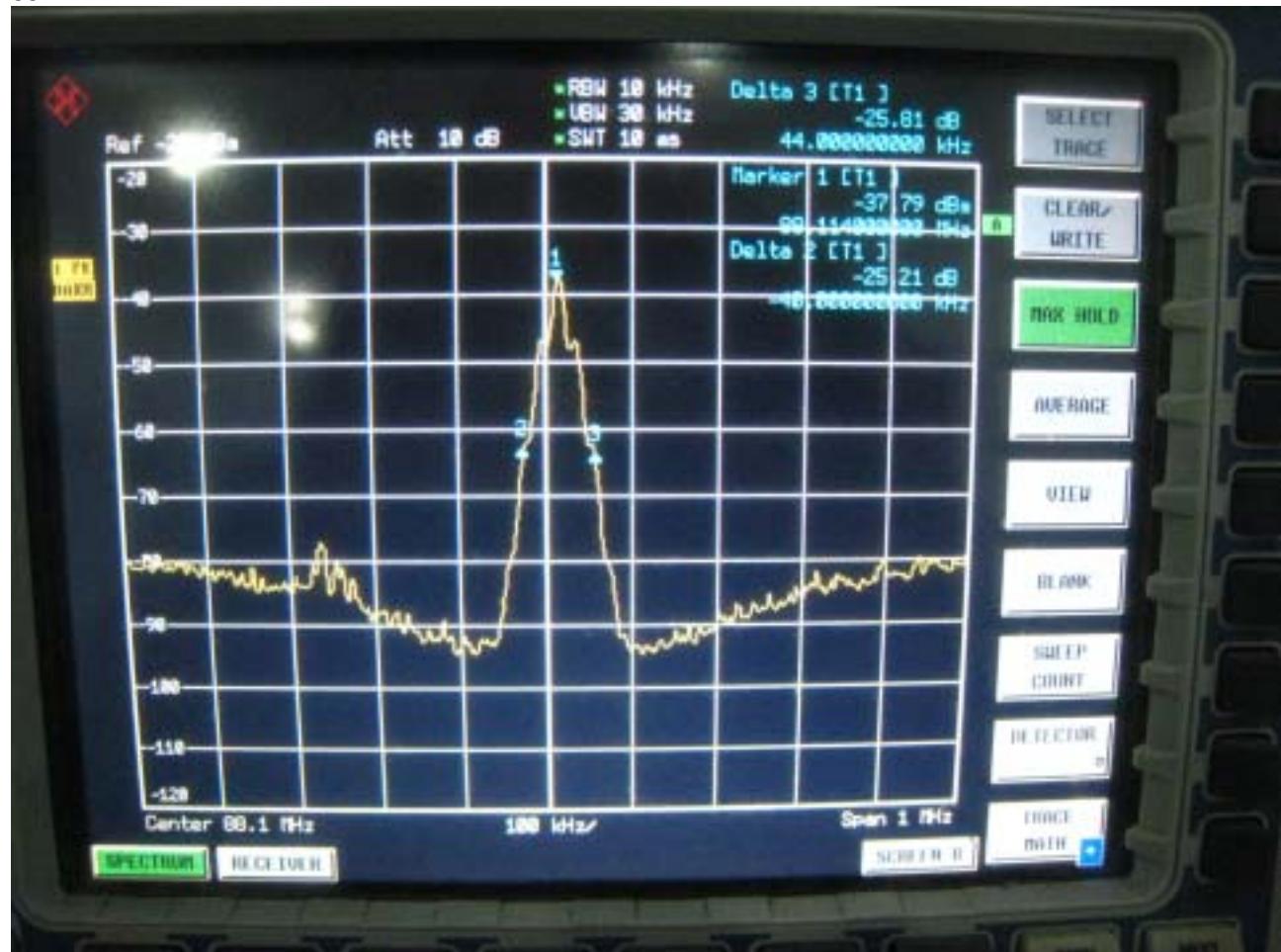
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When the EUT transmits the real MP3 file max volume level.

88.1MHz



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98.1MHz



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107.9MHz



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