### Prüfbericht - Nr.: 16004318 001

**Test Report No.:**

**Auftraggeber:** Classic Tech Development Ltd.
11-12/F., YUE XIU IND'L BLDG.
87 HUNG TO ROAD,
KWUN TONG, KOWLOON
HONG KONG

**Gegenstand der Prüfung:** Transmitter of Wireless Speaker System

**Bezeichnung:**

- **Identification:** SP1191A
- **FCC ID:** SP1791
- **REDSP1791-001T**

**Wareneingangs-Nr.:** 73014652
**Eingangsdatum:** 15.12.2004

**Prüfort:**

- **Testing location:** Shenzhen Bureau of Quality Technical Supervision Shenzhen Academy of Metrology and Quality Inspection
- **Bldg. of Shenzhen Academy of Metrology and Quality Inspection, Longzhu Road, Nanshan, Shenzhen, P.R. China**

**Prüfgrundlage:**

- **Test specification:**
  - ANSI C63.4:2001
  - Conduct Emissions with limits described at FCC Part 15 subpart C section 15.207
  - Radiated Emissions with limits described at FCC Part 15 Subpart C section 15.209 and 15.249

**Prüfergebnis:**

- **Test Result:** Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.
The a. m. test item passed.

**Prüflaboratorium/ Testing Laboratory:** TÜV Rheinland (Guangdong) Ltd

**zusammengestellt/ compiled by:**

<table>
<thead>
<tr>
<th>Datum</th>
<th>Name</th>
<th>Unterschrift</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.01.2005</td>
<td>Dave Xie</td>
<td>[Signature]</td>
</tr>
</tbody>
</table>

**kontrolliert/ checked by:**

<table>
<thead>
<tr>
<th>Datum</th>
<th>Name</th>
<th>Unterschrift</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.01.2005</td>
<td>Yuxin Huang</td>
<td>[Signature]</td>
</tr>
</tbody>
</table>

**Sonstiges/ Other Aspects:**

Abkürzungen:
- ok / P = entspricht Prüfgrundlage
- fail / F = entspricht nicht Prüfgrundlage
- n.a. / N = nicht anwendbar

**Abbreviations:**
- ok / P = passed
- fail / F = failed
- n.a. / N = not applicable

**Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.**

*This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.*
TEST SUMMARY

5.1 CONDUCTED EMISSION FOR FCC PART 15 PER SECTION 15.207(A)
RESULT: ok

5.2 RADIATED EMISSION FOR FCC PART 15 PER SECTION 15.209(A)
RESULT: ok

5.3 FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR FCC PART 15 PER SECTION 15.249(A)
RESULT: ok
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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test result

2 Test Sites

2.1 Test Facilities

Shenzhen SMQ

Shenzhen Bureau of Quality Technical Supervision
Shenzhen Academy of Metrology and Quality Inspection
Bldg, of Shenzhen Academy of Metrology and Quality Inspection
Longzhu Road, Nanshan, Shenzhen,
P.R. China
2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

<table>
<thead>
<tr>
<th>Kind of Equipment</th>
<th>Manufacturer</th>
<th>Type</th>
<th>S/N</th>
<th>Calibrated until</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna</td>
<td>Chase</td>
<td>CBL6112B</td>
<td>2591</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>Horn Antenna</td>
<td>Rohde &amp; Schwarz</td>
<td>HF906</td>
<td>100014</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>3m Semi-anechoic chamber</td>
<td>Albatross Projects</td>
<td>9X6X6</td>
<td>---</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>EMI Test Receiver</td>
<td>Rohde &amp; Schwarz</td>
<td>ESI26</td>
<td>838786/013</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>Communications Test Set</td>
<td>Rohde &amp; Schwarz</td>
<td>CMU200</td>
<td>1100.0008.02</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>Communications Test Set</td>
<td>HP</td>
<td>HP8920A</td>
<td>3438A05187</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>EMI Test Receiver</td>
<td>Rohde &amp; Schwarz</td>
<td>ESCS30</td>
<td>100003</td>
<td>29.01.2005</td>
</tr>
<tr>
<td>AMN</td>
<td>Rohde &amp; Schwarz</td>
<td>ESH3-Z5</td>
<td>100002</td>
<td>29.01.2005</td>
</tr>
</tbody>
</table>

2.3 Trace ability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer’s specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.
2.5 Measurement Uncertainty

The estimated combined standard uncertainty for conducted emissions measurements is ± 3 dB. The estimated combined standard uncertainty for radiated emissions measurements is ± 3 dB.

2.6 Location of original data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TUV Rheinland (Guangzhou) file for certification follow-up purposes.

2.7 Status of facility used for testing

Shenzhen Bureau of Quality Technical Supervision, Shenzhen Academy of Metrology and Quality Inspection, Bldg. of Shenzhen Academy of Metrology and Quality Inspection, Longzhu Road, Nanshan, Shenzhen, P.R.China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

Brief description of the test sample:
The submitted sample SP1791 is 900MHz transmitter for a wireless speaker system with two channels available. Audio signal input to the audio-in port of the sample and modulated as a FM signal for transmission. 19kHz pilot signal is also included in the RF signal as complete FM transmission. The antenna type is integrated.
SP1191A is identical with SP1791 except the model name and enclosure.
Therefore FCC characters of transmitter SP1791 can be accessed by tests to transmitter SP1191A when it is working at correspond function.
3.1 Product Function and Intended Use

For details, refer to technical document and the user manual.

3.2 Ratings and System Details

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>912.0MHz, 913.0MHz</td>
</tr>
<tr>
<td>Number of channels</td>
<td>2 channels</td>
</tr>
<tr>
<td>Type of antenna</td>
<td>Integral antenna</td>
</tr>
<tr>
<td>FCC ID</td>
<td>REDSP1791-001T</td>
</tr>
<tr>
<td>Power supply</td>
<td>AC/DC adaptor input</td>
</tr>
<tr>
<td>Ports</td>
<td>Audio input</td>
</tr>
<tr>
<td></td>
<td>12.5V DC input</td>
</tr>
<tr>
<td>RF Power level</td>
<td>&lt;50 mV/m</td>
</tr>
<tr>
<td>Protection Class</td>
<td>III</td>
</tr>
</tbody>
</table>

Refer to the technical document for further information

3.3 Independent Operation Modes

The basic operation modes are:

Transmitting and standby

For further information refer to User Manual
3.4 Submitted Documents

Block Diagram
Circuit Diagram
Components List
PCB layout
FCC label
User Manual
Photo document

4 Test Set-up and Operation Mode

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Refer to Test set-up in chapter 5.

4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following AC/DC Adaptor:

Model : PA-1215-DUA
Input : AC 120V 60Hz, 7W
Output : DC 12.5V / 150mA
Protection class : II

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the technical document. No additional measures were employed to achieve compliance.
4.5 Test set-up

Diagram 1 of Measurement Equipment Configuration for Testing Conducted Emission

Diagram 2 of Measurement Equipment Configuration for Testing Radiated Emission
5 Test Results EMISSION

5.1 Conducted Emission for FCC Part 15 Per Section 15.207(a)

RESULT: ok

Date of testing : 10.12.2004
Test specification : FCC Part 15 Per Section 15.207(a)
Limits : FCC Part 15 Per Section 15.207(a)
Deviations from Standard Test procedures : None
Test procedure : Procedure specified in ANSI C63.4 were followed
Kind of test site : Shielded room
Operation mode : Transmitting at channel 1
Temperature : 22°C
Humidity : 65%

If the result of the measurement with the Quasi Peak detector is below the Average limit, the measurement with Average Detector has been omitted.
Disturbances other than those mentioned are small or not detectable.

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

Table 2: Disturbance Voltage on AC Mains

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>---*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*) The disturbance measured is far below the limit and therefore, no final measurement was performed.
5.2 Radiated Emission for FCC Part 15 Per Section 15.209(a)

RESULT: ok

Date of testing : 14.12.2004
Test specification : FCC Part 15 Per Section 15.209(a)
Limits : FCC Part 15 Per Section 15.209(a)
Deviations from Standard Test procedures : None
Test procedure : Procedure specified in ANSI C63.4 were followed
Kind of test site : 3m Semi-anechoic chamber
Operation mode : Transmitting at channel 1
Temperature : 22°C
Humidity : 46%

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector; the final measurement for frequencies above 1000MHz is performed with Average detector.

Disturbances other than those mentioned are small or not detectable.

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

Table 3: Radiated Emission

<table>
<thead>
<tr>
<th>Frequency [MHz]</th>
<th>QP [dBµV/m]</th>
<th>AV [dBµV/m]</th>
<th>Polarity</th>
<th>Limit [dBµV/m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>---*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*) The disturbance measured is far below the limit and therefore, no final measurement was performed.
5.3 Fundamental and harmonics Radiated Emission for FCC Part 15 Per Section 15.249(a)

RESULT: ok

Date of testing : 14.12.2004  
Test specification : FCC Part 15 Per Section 15.249(a)  
Limits : FCC Part 15 Per Section 15.249(a)  
Deviations from Standard Test procedures : None  
Test procedure : Procedure specified in ANSI C63.4 were followed  
Kind of test site : 3m Semi-anechoic chamber  
Operation mode : Transmitting at channel 1  
Temperature : 22°C  
Humidity : 46%

Measurement was performed with unmodulated signal.  
Polarization of the measurement for the larger power level: Vertical

<table>
<thead>
<tr>
<th>Test conditions</th>
<th>Fundamental Frequency Channel 1 (912.010MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_{nom}(22°C)$</td>
<td>Unit (dB$\mu$V/m) (mV/m)</td>
</tr>
<tr>
<td>Horizontal</td>
<td>91.1</td>
</tr>
<tr>
<td>Vertical</td>
<td>91.1</td>
</tr>
<tr>
<td>Limit</td>
<td>93.979</td>
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</tbody>
</table>

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector; the final measurement for frequencies above 1000MHz is performed with Average detector.

Disturbances other than those mentioned are small or not detectable.

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.
6 Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission on AC Mains
Photograph 2: Set-up for Radiation Measurement Below 1GHz

Photograph 3: Set-up for Radiation Measurement Above 1GHz
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Conducted Disturbance

<table>
<thead>
<tr>
<th>EUT:</th>
<th>M/N: SP1191A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Op Cond:</td>
<td>TX</td>
</tr>
<tr>
<td>Test Spec:</td>
<td>N</td>
</tr>
<tr>
<td>Comment:</td>
<td>AC 120V/60Hz</td>
</tr>
<tr>
<td>Date:</td>
<td>10. Dec 04 10:41</td>
</tr>
</tbody>
</table>

![Graph](image)
Conducted Disturbance

EUT: M/N: SP1191A
Op Cond: TX
Test Spec: L
Comment: AC 120V/60Hz
Date: 10. Dec 04 10:39
Radiated Disturbance

FCC part 15

BUT: M/N: SP1191A
Manufacturer: TX (CHI)
Operating Condition: SMD EMC Lab.6AC
Test Site: Operator:
Test Specification: Horizontal
Comment: AC 120V/60Hz

Marker: 912.52505 MHz 91.2 dBµV/m

Level [dBµV/m]

Frequency [Hz]

--- MRS SP1191A TX(CHI) Hor
--- LIM FCC ClassB F QP/AV  FCC ClassB, field strength 3m
Radiated Disturbance

Fcc part15

EUT: M/N:SP1191A
Manufacturer: TX (CMI)
Operating Condition: SMQ EMC Lab.SRC
Test Site: Vertical
Operator: AC 120V/60Hz
Test Specification: 912.525MHz 90.04 dBµV/m

Marker: 912.52505 MHz 90.04 dBµV/m

Level [dBµV/m] vs Frequency [Hz]

---

MES SP1191A TX(CMI) Ver
LIM FCC ClassB P QP/AV FCC ClassB, field strength 3m
Radiated Disturbance

FCC part 15

EUT: M/X: SF1191A
Manufacturer: [Manufacturer Name]
Operating Condition: TX (CH1)
Test Site: SMQ EME Lab.
Operator: [Operator Name]
Test Specification: Vertical
Comment: AC 120V/60Hz

Marker: 1.811623246 GHz  40.53 dBμV/m
Radiated Disturbance

FCC part15

EUT: M/N: SP1191A
Manufacturer: TX (CEL)
Operating Condition: Sim EMC Lab.SAC
Test Site: Test Specification: Horizontal
Operator: AC 120V/60Hz
Comment: 1.011623246 GHz 36.54 dBuV/m

Level [dBuV/m]

Frequency [Hz]

MES SP1191A TX(CH1) HHor
LIN FCC ClassB F Q8/AV FCC ClassB, field strength 3m