

Prüfbericht - Nr.: Seite 1 von 22 17018568 001 Page 1 of 22 Test Report No.: Auftraggeber: Zhongshan K-mate General Electronics Co., Ltd. Client: Fuwan Industrial Zone, Fuwan South Road, Sunwen East Road, East District, Zhongshan, Guangdong 528403, P.R. China Gegenstand der Prüfung: FM Transmitter Test item: Bezeichnung: AT1900-1A-MFI Serien-Nr.: n.a. Identification: Serial No.: Wareneingangs-Nr.: 163070339 Eingangsdatum: 2010-11-09 Receipt No .: Date of receipt: Prüfort: TÜV Rheinland (Guangdong) Ltd. Testing location: **EMC Laboratory** Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China FCC Registration No.:833845 Test site Industry Canada No.: 2932C-1 Prüfgrundlage: FCC CFR47 Part 15: Subpart C Section 15.239 Test specification: FCC CFR47 Part 15: Subpart C Section 15.109 FCC CFR47 Part 15: Subpart C Section 15.107 Prüfergebnis: Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). Test Result: The test item passed the test specification(s). Prüflaboratorium: TÜV Rheinland (Shenzhen) Co., Ltd. Testing Laboratory: geprüft/ tested by: kontrolliert/ reviewed by: 2011-01- 1 2011-01-18 Sam Lin/ Technical Certifier Winnie Hou/ Project Engineer Datum Name/Stellung Unterschrift Datum Name/Stellung Unterschrift Date Name/Position Signature Date Name/Position Signature Sonstiges/ Other Aspects: Abkürzungen: entspricht Prüfgrundlage P(ass) Abbreviations: P(ass) passed F(ail) entspricht nicht Prüfgrundlage F(ail) failed not applicable N/A nicht anwendbar N/A nicht getestet not tested

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.



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TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT

RESULT: Passed

5.1.2 26DB BANDWIDTH

RESULT: Passed

5.1.3 IN-BAND EMISSIONS

RESULT: Passed

5.1.4 OUT OF BAND EMISSIONS

RESULT: Passed

5.1.5 RADIATED EMISSIONS

RESULT: Passed

5.1.6 CONDUCTED EMISSIONS

RESULT: Passed



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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

TÜV Rheinland (Guangdong) Ltd. EMC Laboratory

(FCC Registration No.: 833845 & Test Site Industry Canada No.: 2932C-1)

Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| Kind of Equipment | Manufacturer | Туре | S/N | Calibrated until | | | |
|--|--------------------------------|---------------------------------|------------|------------------|--|--|--|
| Spurious Radiated Emissions and Radiated Emissions | | | | | | | |
| EMI Test Receiver | Rohde & Schwarz | ESCI3 | 100216 | 2011-03-16 | | | |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | 100286 | 2011-03-16 | | | |
| Trilog-Broadband Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9168 | 209 | 2011-08-21 | | | |
| Double-Ridged Waveguide Horn Antenna | Rohde & Schwarz | HF906 | 100385 | 2011-08-24 | | | |
| Pre-amplifier | MITEQ | AFS42- 00101800-25- S-42 | 1101599 | 2011-07-31 | | | |
| Horn Antenna | EMCO | 3160-09 | 21642 | 2011-06-26 | | | |
| Pre-amplifier | MITEQ | AFS33- 18002650-30- 8P-44 | 1108282 | 2011-03-16 | | | |
| Loop Antenna | Rohde & Schwarz | HFH2-Z2 | 100111 | 2011-11-26 | | | |
| 3m Anechoic Chamber | Albatross Project GmbH | N/A | N/A | 2011-02-10 | | | |
| 26dB Bandwidth | | | | | | | |
| Spectrum Analyzer | Agilent | E4404B | MY41440753 | 2011-03-16 | | | |
| Conducted Emissi | ons | | | | | | |
| Receiver | Rohde &Schwarz | ESCI | 100178 | 2011-03-16 | | | |
| LISN | Rohde &Schwarz | ESH3-Z5 | 100114 | 2011-03-16 | | | |



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2.3 Traceability

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 basics using in house standards or comparisons.

2.5 Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO/IEC 17025 are:

Table 2: Measurement Uncertainty

| | Items | Extended Uncertainty |
|----------------|----------------------------|-----------------------|
| CE | Disturbance Voltage (dBuV) | U=±2.1dB, k=2, σ=95% |
| RE | Field Strength (dBuV/m) | U=±4.46dB, k=2, σ=95% |
| (9kHz – 30MHz) | | |
| RE | Field strength (dBuV/m) | U=±4.94dB, k=2, σ=95% |
| (30-1000MHz) | , | |

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. test facility located at Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

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3. General Product Information

3.1 Product Function and Intended Use

The EUT is a FM transmitter specially designed for iPod and iPhone.

It can transmit music wirelessly form iPod or iPhone to FM radio receiver. Also charge your iPod or iPhone through it Micro USB jack.

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Rating of EUT

| Kind of Equipment: | FM Transmitter |
|--------------------|----------------|
| Type Designation: | AT1900-1A-MFI |
| FCC ID | WAD-AT1900B |

Table 4: Technical Specification of EUT

| Technical Specification | Value |
|--------------------------|--|
| Operating Frequency band | 88.1MHz ~ 107.9MHz |
| Channel Bandwidth | 200kHz |
| Operation Voltage | DC 5V via iPod or iPhone |
| Antenna Type | Internal Antenna, Non-User Replaceable |
| Antenna Gain | 0dBi |



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3.3 Independent Operation Modes

The basic operation modes are:

- A. Transmitting
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. Charging iPod
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material

- PCB Layout

- Photo Document

- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.



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4.3 Special Accessories and Auxiliary Equipment

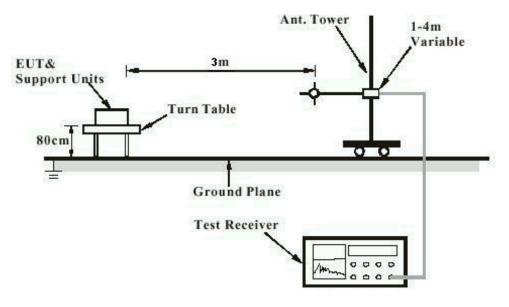
| Kind of Equipment | Manufacturer | Туре | S/N |
|-------------------|--------------|-------|-------------|
| Notebook | Lenovo | X60 | L3 BZ383 |
| iPod | Apple | A1320 | 5U946Z4R726 |

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test





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Diagram of Measurement Equipment Configuration for Conduction Measurement

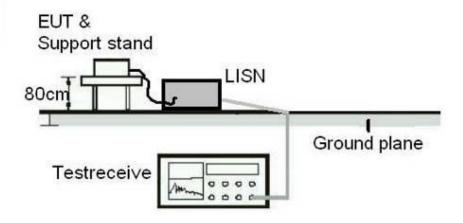
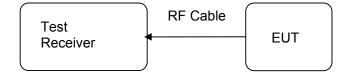


Diagram of Measurement Equipment Configuration for Transmitter Measurement





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5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: Passed

Test date : 2010-11-23 to 2011-01-06

Test standard : Part 15.203

Limit : the use of antennas with directional gains that do

not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 0dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to compliance the provision.

Refer to EUT photo for details.



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5.1.2 26dB Bandwidth

RESULT: Passed

Date of testing 2010-11-23 to 2011-01-06

Test standard FCC Part 15.239(a) Basic standard ANSI C63.4: 2003

Limits 200kHz

Kind of test site Shielded room

Test setup

Low/ Middle/ High

rest Channel :
Operation Mode :
Ambient temperature :
Relative humidity :
Atmospheric pressure **23**℃ 54% Atmospheric pressure : 101.0 kPa

Table 5: Test result of 26dB Bandwidth

| Channel | Channel Frequency (MHz) | 26dB Bandwidth (kHz) | Limit (kHz) | Result |
|--------------|----------------------------|-------------------------|----------------|--------|
| Low Channel | 88.1 | 190.8 | 200 | Pass |
| Mid Channel | 98.1 | 188.3 | 200 | Pass |
| High Channel | 107.9 | 194.5 | 200 | Pass |



Products

Products

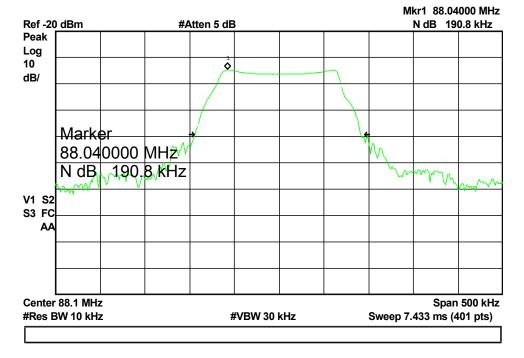
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Test Graph of 26dB Bandwidth

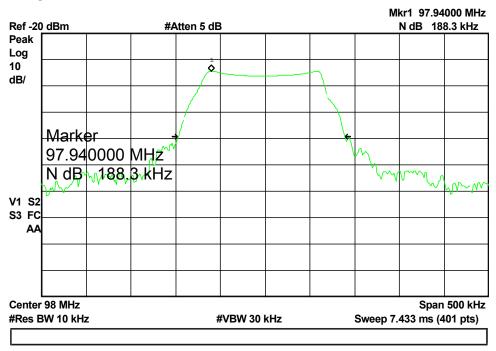
Low Channel

🔆 Agilent



Middle Channel

* Agilent



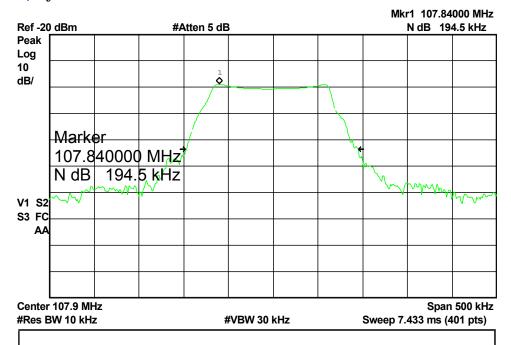


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High Channel







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5.1.3 In-band Emissions

RESULT: Passed

Date of testing : 2010-11-23 to 2011-01-17
Test standard : FCC part 15.239(b)
Basic standard : ANSI C63.4: 2003

Limits : Refer to FCC part 15.239(b)
Kind of test site : 3m Semi-Anechoic Chamber

Test setup

Test Channel : Low/ Middle/ High

Operation mode : A
Ambient temperature : 23°C
Relative humidity : 54%
Atmospheric pressure : 101.0 kPa

Table 6: Test result of In-band Emissions

| | Average | Peak Value | | Limit (dBµV/m) | |
|--------------|-------------------|------------|------------|----------------|------|
| Channel | Value (dBµV/m) | (dBµV/m) | Polarity | Average | Peak |
| Low Channel | 40.3 | 43.4 | Horizontal | 48 | 68 |
| Mid Channel | 41.2 | 45.4 | Horizontal | 48 | 68 |
| High Channel | 44.5 | 48.4 | Horizontal | 48 | 68 |

Refer to attached Appendix 1 for details.



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5.1.4 Out of Band Emissions

RESULT: Passed

Date of testing 2010-11-23 to 2011-01-17 Test standard FCC part 15.239(b) Basic standard ANSI C63.4: 2003

Refer to FCC part 15.239(b) Limits Kind of test site 3m Semi-Anechoic Chamber

Test setup

Test Channel Low/ Middle/ High

Operation mode Ambient temperature **23**℃ Relative humidity : Atmospheric pressure : 54% 101.0 kPa

Refer to attached appendix 1 for details.



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5.1.5 Radiated Emissions

RESULT: Passed

Date of testing 2010-11-23 to 2011-01-06

Test standard FCC Part 15.109 Basic standard ANSI C63.4: 2003 FCC Part 15.109(a) Limits

Kind of test site 3m Semi-Anechoic Chamber

Test Setup

Input Voltage DC 5V Operation Mode

Earthing Not Connected

Ambient temperature : Relative humidity : Atmospheric pressure : **23**℃ 50% 101 kPa

Refer to attached Appendix 1 for details.



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5.1.6 Conducted Emissions

RESULT: Passed

2010-11-23 to 2011-01-06

Date of testing :
Test standard :
Basic standard :
Limits FCC Part 15.107 Basic standard : Limits : Kind of test site : ANSI C63.4: 2003 FCC Part 15.107(a)

Shield Room

Test Setup

Input Voltage DC 5V Input Voltage
Operation Mode

Earthing Not Connected

Ambient temperature : Relative humidity : Atmospheric pressure : **23**℃ 50% 101 kPa

Refer to attached Appendix 1 for details.



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6. Photographs of the Test Set-Up

Photograph 1: Set-up for Out of band emissions (9kHz-30MHz)



Photograph 2: Set-up for Out of band emissions (30MHz-1GHz)





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Photograph 3: Set-up for Out of band emissions (1GHz-2GHz)



Photograph 4: Set-up for Radiated emissions





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Photograph 5: Set-up for Conducted emissions





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| • | 19 |

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Test Graphs of Out of band emissions

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: Test Item:

Identification Test Standard:

Test Detail: Operation Mode:

Climate Condition: Test Voltage / Freq. :

Receipt No.: Report No.

Comment:

Result:

K-mate

FM Transmitter AT1900-1A-MFI FCC Part 15

FM @ 88.1MHz 23 ℃; 50 % DC 5V 50 %RH;

163070339 300 17018568 001

Pass

Test distance is 3m,

Vertical

Subrange 1

Frequency Range:

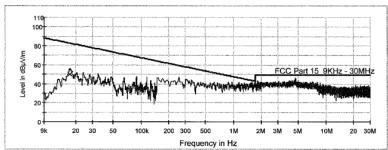
Receiver: Transducer: 9kHz - 30MHz TUV ESCI 3

TUV SAC Active Loop Antenna ZN30900A / TUV ESCI3 -TUV SAC

101 kPa.

Active Loop Antenna ZN30900A





Result Table Single

Date: 23/11/2010 - Time: 12:00:37

| Frequency (MHz) | QuasiPeak (dBµV/m) | Average (dBµV/m) | Corr. (dB) | Polarization |
|--------------------|-----------------------|---------------------------------|---------------|--------------|
| 4.646000 | 41.6 | Det value for Schoolse dated to | 25.3 | V |
| 1.590000 | 36.4 | | 25.4 | ٧ |
| 0.017320 | | 50.2 | 26.3 | V |

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: RE Operation Mode:

FM @ 88.1MHz Climate Condition: 23 ℃; DC 5V 50 %RH;

Test Voltage / Freq. : Receipt No.: 163070339 300 Report No. 17018568 001

Result: Pass

Test distance is 3m, Comment: Horizontal

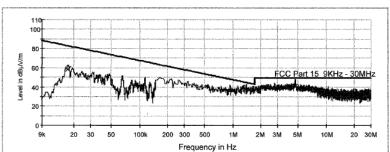
Subrange 1

9kHz - 30MHz Frequency Range: TUV ESCI 3 Receiver:

TUV SAC Active Loop Antenna ZN30900A / TUV ESCI3 -TUV SAC Transducer:

101 kPa.

Active Loop Antenna ZN30900A



Result Table Single

| . tooait i | u2.0_0 | 9.0 | | |
|--------------------|-----------------------|---------------------|---------------|--------------|
| Frequency (MHz) | QuasiPeak (dBµV/m) | Average (dBµV/m) | Corr. (dB) | Polarization |
| 4.658000 | 42.4 | | 25.3 | Н |
| 1.398000 | 36.3 | | 25.4 | Н |
| 0.017320 | | 58.7 | 26.3 | н |





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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

50 %RH;

101 kPa.

Test Information

Manufacturer:

Test Item: Identification

Test Standard: Test Detail:

Operation Mode: Climate Condition:

Test Voltage / Freq. : Receipt No.:

Report No. Result:

Comment:

23 °C; DC 5V 163070339 300

Pass

Test distance is 3m,

Subrange 1

Frequency Range: Receiver:

30M-1GHz **TUV ESCI 3**

K-mate

RE

FM Transmitter

AT1900-1A-MFI

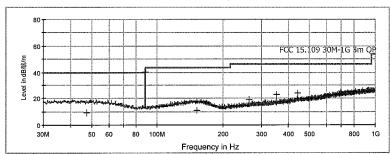
FM @ 88.1MHz

17018568 001

FCC Part 15

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168





Limit and Margin QP

| Frequency (MHz) | | Gorr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|------|---------------|----------------|-------------------|--------------|
| 47.450000 | 9.3 | 13.6 | 30.7 | 40.0 | Н |
| 88.100000 | 40.2 | 9.4 | - | - | Н |
| 152.350000 | 11.1 | 14.2 | 32.4 | 43.5 | Н |
| 264.300000 | 19.1 | 11.9 | 26.9 | 46.0 | Н |
| 352.400000 | 23.1 | 13.8 | 22.9 | 46.0 | Н |
| 440.500000 | 23.7 | 15.8 | 22.3 | 46.0 | Н |

Tested by: ____ Reviewed by: ___ Date: 17/01/2011 - Time: 20:48:00

17018568 001





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EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

101 kPa.

Test Information

TUV Rheinland (Guangdong) Ltd.

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15

Test Detail:

Operation Mode: FM @ 88.1MHz Climate Condition: 50 %RH;

23 °C; DC 5V Test Voltage / Freq. : Receipt No.: 163070339 300 Report No. 17018568 001

Result: Pass

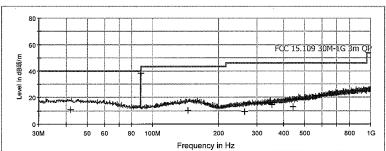
Comment: Test distance is 3m, Vertical

Subrange 1

30M-1GHz Frequency Range: Receiver: **TUV ESCI 3**

TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168 Transducer:

FCC 15.109 30M-1G sweep



Limit and Margin QP

| Frequeлcy (MHz) | QuasiPeak (dBµV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|-----------------------|---------------|----------------|-------------------|--------------|
| 41.900000 | 10.9 | 13.9 | 29.1 | 40.0 | V |
| 88.100000 | 38.3 | 9.4 | - | - | V |
| 145.300000 | 10.2 | 13.9 | 33.3 | 43.5 | V |
| 264.300000 | 9.4 | 11.9 | 36.6 | 46.0 | V |
| 352.400000 | 14.6 | 13.8 | 31.4 | 46.0 | V |
| 440.500000 | 12.8 | 15.8 | 33.2 | 46.0 | ٧ |

Date: 17/01/2011 - Time: 20:53:10 Tested by: ____ Reviewed by: ___

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EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: Test Item:

Identification Test Standard:

Test Detail:

Operation Mode: Climate Condition:

Receipt No.: Report No. Result:

Comment:

Test Voltage / Freq. :

163070339 300 17018568 001 Pass

23 °C; DC 5V

K-mate

RE

FM Transmitter

AT1900-1A-MFI

FM @ 98.1MHz

FCC Part 15

Test distance is 3m, Vertical

50 %RH;

Subrange 1

Frequency Range: Receiver:

Transducer:

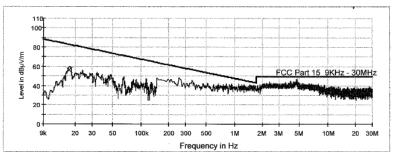
9kHz - 30MHz TUV ESCI 3

TUV SAC Active Loop Antenna ZN30900A / TUV ESCI3 -TUV SAC

101 kPa.

Active Loop Antenna ZN30900A





Result Table Single

| Frequency (MHz) | QuasiPeak (dBµV/m) | Average (dBμV/m) | Corr. (dB) | Polarization |
|--------------------|-----------------------|---------------------|---------------|--------------|
| 4.678000 | 41.7 | | 25.3 | ٧ |
| 1.274000 | 36.2 | | 25.4 | V |
| 0.017320 | | 56 1 | 26.3 | V |



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EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail:

FM @ 98.1MHz 23 ℃; 50 % DC 5V Operation Mode: Climate Condition: 50 %RH;

Test Voltage / Freq. : Receipt No.: 163070339 300

Report No. 17018568 001 Result: Pass

Comment: Test distance is 3m, Horizontal

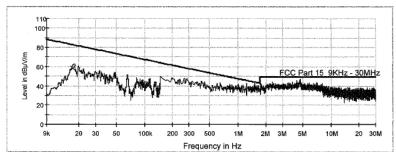
Subrange 1

9kHz - 30MHz TUV ESCI 3 Frequency Range: Receiver:

TUV SAC Active Loop Antenna ZN30900A / TUV ESCI3 -TUV SAC Active Loop Antenna ZN30900A Transducer:

101 kPa.





Result Table Single

Date: 23/11/2010 - Time: 12:08:37

| Frequency (MHz) | QuasiPeak (dBµV/m) | Average (dBµV/m) | Corr. (dB) | Polarization |
|--------------------|-----------------------|---------------------|---------------|--------------|
| 4.674000 | 41.9 | | 25.3 | Н |
| 1.506000 | 36.5 | | 25.4 | Н |
| 0.017320 | | 58.0 | 26.3 | H |

17018568 001



Produkte Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer:

Test Item: Identification Test Standard:

Test Standard: FCC Part 15
Test Detail: RE

Operation Mode: Climate Condition: Test Voltage / Freq. : FM @ 98.1MHz 23 °C; 50 %RH; DC 5V

DC 5V 163070339 300 17018568 001

FM Transmitter

AT1900-1A-MFI

Receipt No.: Report No. Result:

Pass

sult: Pass

Comment: Test distance is 3m,

Horizontal

101 kPa.

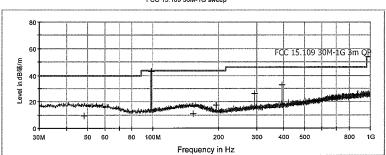
Subrange 1

Frequency Range: Receiver: 30M-1GHz TUV ESCI 3

Transducer:

TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168



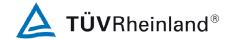


Limit and Margin QP

| Frequency (MHz) | QuasiPeak (dBµV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|-----------------------|---------------|----------------|-------------------|--------------|
| 48.200000 | 9.4 | 13.6 | 30.6 | 40.0 | Н |
| 98.100000 | 43.1 | 10.0 | | - | Н |
| 153.200000 | 11.0 | 14.2 | 32.5 | 43.5 | Н |
| 196.200000 | 17.2 | 10.1 | 26.3 | 43.5 | Н |
| 294.300000 | 26.2 | 12.7 | 19.8 | 46.0 | Н |
| 392.400000 | 32.6 | 14.6 | 13.4 | 46.0 | Н |

Date: 17/01/2011 - Time: 21:04:47 Tested by: _____ Reviewed by: _____

17018568 001



Produkte Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: RE

Operation Mode: FM @ 98.1MHz

Climate Condition: 50 %RH; 101 kPa.

23 ℃; DC 5V Test Voltage / Freq. : Receipt No.: 163070339 300 17018568 001 Report No.

Result: Pass

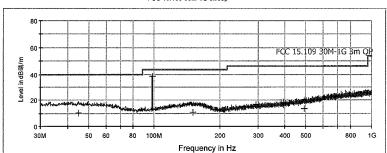
Test distance is 3m, Comment: Vertical

Subrange 1

Frequency Range: 30M-1GHz Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.109 30M-1G sweep



Limit and Margin QP

| Frequency | QuasiPeak | Corr. | Margin | Limit | Polarization |
|--------------------------|--------------|--------------|--------------|--------------|--------------|
| (MHz) | (dBµV/m) | (dB) | (dB) | (dBµV/m) | |
| 44 000000 | 40.0 | 40.7 | 20.7 | 40.0 | |
| 44.900000 98.100000 | 10.3 38.7 | 13.7 10.0 | 29.7 | 40.0 | V |
| 150.650000 | 10.6 | 14.2 | 32.9 | 43.5 | V |
| 294.300000 | 16.7 | 12.7 | 29.3 | 46.0 | V |
| 392.400000 490.500000 | 16.5 13.6 | 14.6 16.4 | 29.5 32.4 | 46.0 46.0 | V |

Date: 17/01/2011 - Time: 20:59:21 Tested by: _____ Reviewed by: ____

17018568 001



Produkte

Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15

Test Detail: RE

Operation Mode: FM @ 107.9MHz Climate Condition: Test Voltage / Freq. : 23 ℃; DC 5V 50 %RH;

Receipt No.: 163070339 300

Report No. 17018568 001 Result: Pass

Comment: Test distance is 3m, Vertical

Subrange 1

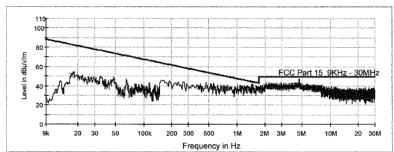
Frequency Range: 9kHz - 30MHz Receiver: TUV ESCI 3

Transducer: TUV SAC Active Loop Antenna ZN30900A / TUV ESCI3 -TUV SAC

101 kPa.

Active Loop Antenna ZN30900A

Pre TUV 9K to 30M HFH2-Z2



Result Table_Single

Date: 23/11/2010 - Time: 11:56:26

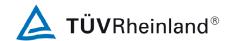
| Frequency (MHz) | QuasiPeak (dBµV/m) | Average (dBµV/m) | Corr. (dB) | Polarization |
|--------------------|-----------------------|---------------------|---------------|--------------|
| 4.678000 | 41.6 | | 25.3 | ٧ |
| 1.454000 | 36.4 | | 25.4 | ٧ |
| 0.017320 | | 50.7 | 26.3 | ٧ |





17018568 001





Produkte **Products**

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate

Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: RE

Operation Mode: FM @ 107.9MHz

23 ℃; DC 5V Climate Condition: 50 %RH;

Test Voltage / Freq. : Receipt No.: 163070339 300 17018568 001 Report No.

Result: Pass

Comment: Test distance is 3m, Horizontal

Subrange 1

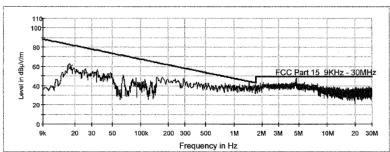
9kHz - 30MHz TUV ESCI 3 Frequency Range: Receiver:

Transducer: TUV SAC Active Loop Antenna ZN30900A / TUV ESCI3 -TUV SAC

101 kPa.

Active Loop Antenna ZN30900A

Pre TUV 9K to 30M HFH2-Z2



Result Table Single

| Frequency (MHz) | QuasiPeak (dBµV/m) | Average (dBµV/m) | Corr. (dB) | Polarization |
|--------------------|-----------------------|---------------------|---------------|--------------|
| 4.686000 | 40.4 | | 25.3 | Н |
| 1.450000 | 36.4 | | 25.4 | Н |
| 0.017480 | | 58.3 | 26.3 | Н |





Date: 23/11/2010 - Time: 11:51:49

17018568 001





Products

Produkte

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer:

Test Item: Identification Test Standard:

Test Detail: Operation Mode:

Climate Condition: Test Voltage / Freq. :

Receipt No.: Report No.

Result: Comment:

Subrange 1

Frequency Range: Receiver:

Transducer:

K-mate

FM Transmitter AT1900-1A-MFI FCC Part 15

FM @ 107.9MHz 23 °C; 50 %I DC 5V 50 %RH;

163070339 300 17018568 001

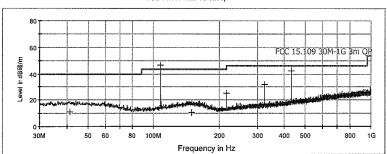
Pass Test distance is 3m, Horizontal

30M-1GHz TUV ESCI 3

TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

101 kPa.

FCC 15.109 30M-1G sweep



Limit and Margin QP

| Frequency (MHz) | QuasiPeak (dBµV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|-----------------------|---------------|----------------|-------------------|--------------|
| 41.400000 | 11.0 | 14.0 | 29.0 | 40.0 | Н |
| 107.900000 | 46.6 | 10.9 | - | - | Н |
| 149.200000 | 10.4 | 14.1 | 33.1 | 43.5 | Н |
| 215.800000 | 24.8 | 10.4 | 18.7 | 43.5 | Н |
| 323.700000 | 31.5 | 13.4 | 14.5 | 46.0 | Н |
| 431.600000 | 42.6 | 15.6 | 3.4 | 46.0 | Н |

Tested by: _____ Reviewed by: ____ Date: 17/01/2011 - Time: 20:40:13

17018568 001



Produkte Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate

Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: RE

Operation Mode: Climate Condition:

FM @ 107.9MHz 23 °C; 50 %RH; DC 5V 101 kPa.

Test Voltage / Freq. : Receipt No.: 163070339 300 Report No. 17018568 001

Result: Pass

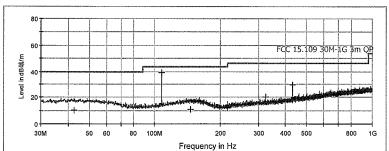
Comment: Test distance is 3m, Vertical

Subrange 1

Frequency Range: 30M-1GHz Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168





Limit and Margin QP

| Frequency (MHz) | QuasiPeak (dBµV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|-----------------------|---------------|----------------|-------------------|--------------|
| 42.750000 | 10.1 | 13.9 | 29.9 | 40.0 | ٧ |
| 107.900000 | 38.9 | 10.9 | - | - | ٧ |
| 146.900000 | 11.0 | 14.0 | 32.5 | 43.5 | ٧ |
| 215.800000 | 12.0 | 10.4 | 31.5 | 43.5 | ٧ |
| 323.700000 | 19.9 | 13.4 | 26.1 | 46.0 | ٧ |
| 431.600000 | 29.6 | 15.6 | 16.4 | 46.0 | ٧ |

Date: 17/01/2011 - Time: 20:31:31 Tested by: _____ Reviewed by: ____

17018568 001



Produkte **Products**

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Test Graphs of In- band emissions

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

101 kPa.

Test Information

Manufacturer:

K-mate FM Transmitter Test Item: Identification AT1900-1A-MFI Test Standard: FCC Part 15 200kHz Range Test Detail: Operation Mode:

FM @ 88.1MHz Climate Condition: 50 %RH;

23 ℃; DC 5V Test Voltage / Freq. : 163070339 300 17018568 001 Receipt No.: Report No.

Result: Pass

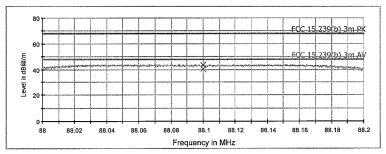
Test distance is 3m, Horizontal Comment:

Subrange 1

30M-1GHz Frequency Range: Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.109 30M-1G sweep



Limit and Margin PK

| Frequency | | Corr. | Margin | Limít | Polarization |
|-----------|----------|-------|--------|-------|--------------|
| (MHz) | (dBµV/m) | (dB) | | | |
| | | | | | |
| 88.100000 | 43.4 | 9.4 | 24.6 | 68.0 | Н |

Limit and Margin AV

| Frequency (MHz) | Average | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|---------|---------------|----------------|-------------------|--------------|
| 88.100000 | 40.3 | 9.4 | 7.7 | 48.0 | H |

Date: 17/01/2011 - Time: 21:31:57 Tested by: _____ Reviewed by: ___

17018568 001







TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer:

K-mate

Test Item:

FM Transmitter AT1900-1A-MFI

Identification

FCC Part 15

Test Standard: Test Detail:

200kHz Range

Operation Mode:

FM @ 88.1MHz

Climate Condition:

50 %RH;

Test Voltage / Freq. : Receipt No.:

23 ℃; DC 5V

Report No.

163070339 300 17018568 001

Result:

Pass

Comment:

Test distance is 3m, Vertical

Subrange 1

Frequency Range:

30M-1GHz

Receiver:

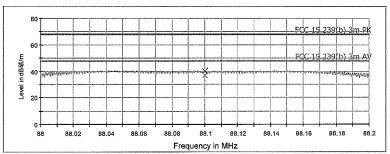
TUV ESCI 3

Transducer:

TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

101 kPa.





Limit and Margin PK

| (MHz) | (dBµV/m) | Corr. (dB) | (dB) | | | |
|-----------|----------|---------------|------|------|---|--|
| 88.100000 | 40.1 | 9.4 | 27.9 | 68.0 | V | |

Limit and Margin AV

| (MHz) | | | | Limit (dBµV/m) | |
|-----------|------|-----|------|-------------------|---|
| 88.100000 | 36.8 | 9.4 | 11.2 | 48.0 | V |

Tested by: _____ Reviewed by: ____ Date: 17/01/2011 - Time: 21:36:14

17018568 001



Produkte Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

101 kPa.

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: 200kHz Range Operation Mode:

FM @ 98.1MHz 23 ℃; 50 % DC 5V Climate Condition: 50 %RH;

Test Voltage / Freq. : Receipt No.: 163070339 300 Report No. Result: 17018568 001

Pass

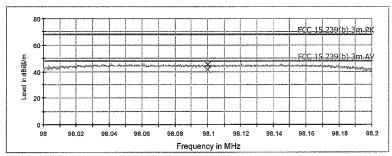
Test distance is 3m, Horizontal Comment:

Subrange 1

Frequency Range: 30M-1GHz Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.109 30M-1G sweep



Limit and Margin PK

| Frequency (MHz) | MaxPeak (dBμV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|---------------------|---------------|----------------|-------------------|--------------|
| 98.100000 | 45.4 | 10.0 | 22.6 | 68.0 | H |

Limit and Margin AV

Tested by: _____ Reviewed by: _ Date: 17/01/2011 - Time: 21:13:36

17018568 001



Produkte Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: 200kHz Range FM @ 98.1MHz 23 ℃; 50 % DC 5V Operation Mode:

Climate Condition: 50 %RH; 101 kPa.

Test Voltage / Freq. : 163070339 300 Receipt No.: 17018568 001 Report No.

Result: Pass

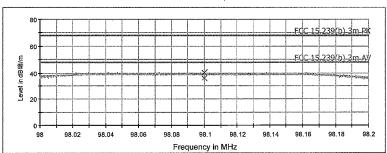
Test distance is 3m, Vertical Comment:

Subrange 1

Frequency Range: 30M-1GHz Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.109 30M-1G sweep



Limit and Margin PK

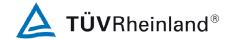
| | MaxPeak | | | | |
|-----------|---------|------|------|------|---|
| 98.100000 | 40.4 | 10.0 | 27.6 | 68.0 | V |

Limit and Margin AV

| Frequency (MHz) | Average (dBµV/m) | Corr. (dB) | | Limit (dBµV/m) | |
|--------------------|---------------------|---------------|------|-------------------|---|
| 98.100000 | 36.0 | 10.0 | 12.0 | 48.0 | V |

Date: 17/01/2011 - Time: 21:19:37 Tested by: ____ Reviewed by: ___

17018568 001



Produkte Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: 200kHz Range Operation Mode: FM @ 107.9MHz

Climate Condition: 23 °C; DC 5V 50 %RH; 101 kPa.

Test Voltage / Freq. :

163070339 300 Receipt No.: 17018568 001 Report No.

Result: Pass

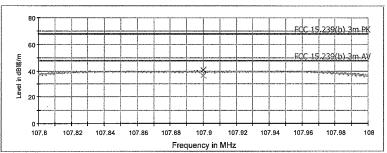
Test distance is 3m, Vertical Comment:

Subrange 1

Frequency Range: 30M-1GHz Receiver: **TUV ESCI 3**

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.109 30M-1G sweep



Limit and Margin PK

| Frequency (MHz) | MaxPeak (dBμV/m) | Corr. (dB) | Margin (dB) | | Polarization |
|--------------------|---------------------|---------------|----------------|------|--------------|
| 107.900000 | 40.8 | 10.9 | 27.2 | 68.0 | V |

Limit and Margin AV

| Frequency (MHz) | Average (dBµV/m) | Corr. (dB) | | | Polarization |
|--------------------|---------------------|---------------|------|------|--------------|
| 107.900000 | 36.4 | 10.9 | 11.6 | 48.0 | V |

Tested by: _____ Reviewed by: ____ Date: 17/01/2011 - Time: 21:23:59

17018568 001



Products



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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer:

Test Item: Identification

Test Standard:

Test Detail:

Operation Mode:

Climate Condition:

Test Voltage / Freq. :

Receipt No.:

Report No. Result:

Comment:

Subrange 1 Frequency Range:

Receiver: Transducer: K-mate

FM Transmitter AT1900-1A-MFI FCC Part 15

200kHz Range FM @ 107.9MHz

23 °C; 50 %RH;

DC 5V 163070339 300

17018568 001 Pass

Test distance is 3m, Horizontal

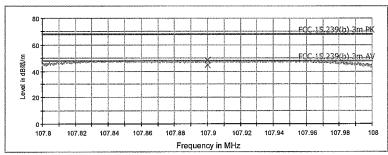
30M-1GHz

TUV ESCI 3

TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

101 kPa.





Limit and Margin PK

| | MaxPeak (dBμV/m) | Corr. (dB) | Margin (dB) | (dBµV/m) | Polarization |
|------------|---------------------|---------------|----------------|----------|--------------|
| 107.900000 | 48.4 | 10.9 | 19.6 | 68.0 | Н |

Limit and Margin AV

| Frequency (MHz) | Average (dBμV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|---------------------|---------------|----------------|-------------------|--------------|
| 107.900000 | 44.5 | 10.9 | 3.5 | 48.0 | Н |

Date: 17/01/2011 - Time: 21:27:38 Tested by: _____ Reviewed by: ___

17018568 001



Produkte **Products**

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Test Graphs of Radiated emissions

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

101 kPa.

Test Information

Manufacturer: K-mate Test Item: FM Transmitter Identification AT1900-1A-MFI Test Standard: FCC Part 15 Test Detail: RE

Operation Mode: В

Climate Condition: 23 °C; DC 5V 50 %RH;

Test Voltage / Freq. : 163070339 300 17018568 001 Receipt No.:

Report No. Result: Pass

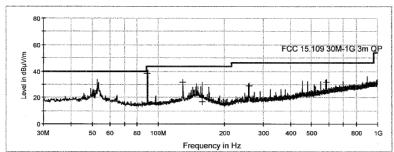
Comment: Test distance is 3m, Vertical

Subrange 1

Frequency Range: 30M-1GHz Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168





Limit and Margin QP

Date: 22/11/2010 - Time: 15:37:14

| Frequency (MHz) | QuasiPeak (dBµV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|-----------------------|---------------|----------------|-------------------|--------------|
| 52.900000 | 25.1 | 14.1 | 14.9 | 40.0 | V |
| 89.300000 | 38.1 | 10.6 | | | ٧ |
| 129.450000 | 31.7 | 14.2 | 11.8 | 43.5 | ٧ |
| 159.400000 | 16.8 | 15.6 | 26.7 | 43.5 | ٧ |
| 258.900000 | 28.9 | 13.7 | 17.1 | 46.0 | V |
| 584.700000 | 31.5 | 21.2 | 14.5 | 46.0 | ٧ |

17018568 001



Produkte

Products

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer: K-mate FM Transmitter AT1900-1A-MFI Test Item: Identification Test Standard: FCC Part 15 RE

Test Detail: Operation Mode:

В 23 ℃; DC 5V Climate Condition: 50 %RH; 101 kPa.

Test Voltage / Freq. : 163070339 300 Receipt No.: 17018568 001

Report No. Result:

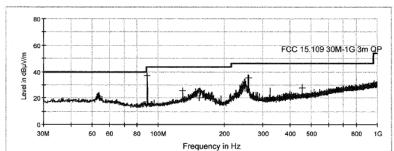
Comment: Test distance is 3m, Horizontal

Subrange 1

Frequency Range: 30M-1GHz Receiver: TUV ESCI 3

Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168





Limit and Margin QP

Date: 22/11/2010 - Time: 15:27:14

| Frequency (MHz) | QuasiPeak (dBµV/m) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Polarization |
|--------------------|-----------------------|---------------|----------------|-------------------|--------------|
| 54.000000 | 21.0 | 14.1 | 19.0 | 40.0 | Н |
| 89.300000 | 36.8 | 10.6 | | | Н |
| 129.450000 | 25.6 | 14.2 | 17.9 | 43.5 | Н |
| 155.000000 | 20.3 | 15.7 | 23.2 | 43.5 | Н |
| 258.900000 | 35.4 | 13.7 | 10.6 | 46.0 | Н |
| 454.700000 | 27.8 | 18.8 | 18.2 | 46.0 | Н |

17018568 001



Produkte **Products**

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Test Graphs of Conducted emissions

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

Test Information

Manufacturer:

Test Item: Identification: FM Transmitter AT1900-1A-MFI

Test Standard: Test Detail:

FCC Part 15 Conducted Emission

Operation Mode: Climate Condition:

22 °C;

K-mate

50 %RH;

AC 120 V/ 60 Hz(DC 5V via PC)

Test Voltage/ Freq.: Port / Line:

AC Mains

Receipt No.: Report No.:

163070339 300 17018568 001

Result: Comment:

Level Unit:

Pass

Hardware Setup:

1phase LISN ESH3-Z5 to ESCI

9kHz

dΒμV

Subrange 150kHz - 30MHz

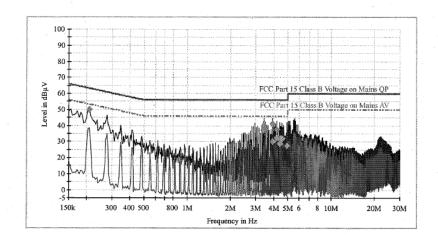
Detectors Peak; Average IF Bandwidth

Step Size 4.5kHz

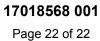
101 kPa.

Meas. Time 10ms

Receiver ESCI 3









Produkte Products

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Final Measurement Detector 1

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | PE | Line |
|--------------------|---------------------|--------------------|--------------------|-----|------|
| 0.208500 | 50.0 | 1000.000 | 9.000 | GND | L1 |
| 3.363000 | 37.1 | 1000.000 | 9.000 | GND | L1 |
| 3.435000 | 40.4 | 1000.000 | 9.000 | GND | N N |
| 3.507000 | 37.6 | 1000.000 | 9.000 | GND | N |
| 3.916500 | 41.0 | 1000.000 | 9.000 | GND | L1 |
| 4.191000 | 37.5 | 1000.000 | 9.000 | GND | . L1 |

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

| Frequency (MHz) | Corr. (dB) | Margin (dB) | Limit (dBµV) | Comment |
|--------------------|---------------|----------------|-----------------|---------|
| 0.208500 | 10.1 | 13.3 | 63.3 | |
| 3.363000 | 10.1 | 18.9 | 56.0 | |
| 3.435000 | 10.2 | . 15.6 | 56.0 | |
| 3.507000 | 10.2 | 18.4 | 56.0 | |
| 3.916500 | 10.1 | 15.0 | 56.0 | |
| 4.191000 | 10.1 | 18.5 | 56.0 | |

Final Measurement Detector 2

| manifeduation botootor 2 | | | | | | | | |
|--------------------------|-------------------|--------------------|--------------------|-----|------|--|--|--|
| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | PE | Line | | | |
| 3.916500 | 30.0 | 1000.000 | 9.000 | GND | L1 | | | |
| 4.191000 | 32.2 | 1000.000 | 9.000 | GND | L1 | | | |
| 4.398000 | 28.9 | 1000.000 | 9.000 | GND | L1 | | | |
| 4.465500 | 31.7 | 1000.000 | 9.000 | GND | Ń | | | |
| 4.537500 | 31.8 | 1000.000 | 9.000 | GND | - L1 | | | |
| 4.947000 | 27.5 | 1000.000 | 9.000 | GND | N | | | |

(continuation of the "Final Measurement Detector 2" table from column 6 ...)

| Frequency (MHz) | Corr. (dB) | Margin (dB) | Limit (dBµV) | Comment |
|--------------------|---------------|----------------|-----------------|---------|
| 3.916500 | 10.1 | 16.0 | 46.0 | |
| 4.191000 | 10.1 | 13.8 | 46.0 | 2 . |
| 4.398000 | 10.2 | 17.1 | 46.0 | 1. |
| 4.465500 | 10.2 | 14.3 | 46.0 | |
| 4.537500 | 10.2 | 14.2 | 46.0 | |
| 4.947000 | 10.1 | 18.5 | 46.0 | |