

Prüfbericht-Nr.: Auftrags-Nr.: Seite 1 von 18 16054319 001 174009591 Test Report No.: Order No.: Page 1 of 18 Kunden-Referenz-Nr.: Auftragsdatum: 408837 01.Dec.2013 Client Reference No.: Order date .: Auftraggeber: NAMCO BANDAI Games Inc. Client: 4-5-15 Higashi-Shinagawa, Shinagawa-ku, Tokyo, 140-8590, Japan Prüfgegenstand: Goal line rush Test item: Bezeichnung / Typ-Nr.: AM0005 Identification / Type No.: Auftrags-Inhalt: TUV Rheinland - EMC service Order content: Prüfarundlage: FCC "Rules and Regulations", Part 15: October 1, 2012 Test specification: Subpart C, Section 15.207, 15.209, 15.225. Test method was quoted from ANSI C63.4:2009. Wareneingangsdatum: 02.Dec.2013 Date of receipt: Prüfmuster-Nr.: N/A Test sample No.: Prüfzeitraum: Refer to test report Testing period: Ort der Prüfung: TÜV Rheinland Place of testing: (Guangdong) Ltd. Prüflaboratorium: TÜV Rheinland Testing laboratory: (Guangdong) Ltd. Prüfergebnis*: Pass Test result*: geprüft von I tested by: kontrolliert von I reviewed by:

Jan, 2014 Chris Zhang/Project Manager Chris Zhang

Datum
Date
Name/Stellung
Name/Position
Signature

Date
Name/Position

Date
Name/Position

Name/Position

Name/Position

Date
Name/Position

Name/Position

Name/Position

Sonstiges I Other:

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt Condition of the test item at delivery: Test item complete and undamaged

1 = sehr gut 4 ≃ ausreichend * Legende: 2 = gut 3 = befriedigend 5 = mangelhalt P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = 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 only 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 test mark.



Prüfbericht - Nr.: 16054319 001

Seite 2 von 18 Page 2 of 18

Test Report No.:

TEST SUMMARY

5.1.1 CONDUCTED EMISSION FOR FCC 47 CFR PART 15 SECTION 15.207(A)

RESULT: Pass

5.1.2 RADIATED EMISSION FOR FCC 47 CFR PART 15 SECTION 15.209(A)

RESULT:

5.1.3 RADIATED EMISSIONS WITHIN THE BAND FOR FCC 47 CFR PART 15 SECTION 15.225 (A)(B)(C)

RESULT: Pass

FREQUENCY TOLERANCE OF THE CARRIER SIGNAL FOR FCC 47 CFR PART 15 SECTION 15.225 (E)

RESULT: Pass



Prüfbericht - Nr.: 16054319 001 Test Report No.:

Seite 3 von 18 Page 3 of 18

Contents

1.	CENEDAL BEMADICO	
	GENERAL REMARKS	-
1.	1 COMPLEMENTARY MATERIALS	4
2.	TEST SITES	4
2.	1 TEST FACILITIES	4
2.	2 LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
2.	3 TRACE ABILITY	5
2.	4 Calibration	6
2.	5 Measurement Uncertainty	6
2.	6 LOCATION OF ORIGINAL DATA	6
2.	7 STATUS OF FACILITY USED FOR TESTING	6
3.	GENERAL PRODUCT INFORMATION	7
3.	1 PRODUCT FUNCTION AND INTENDED USE	7
3.	2 RATINGS AND SYSTEM DETAILS	7
3.	3 INDEPENDENT OPERATION MODES	8
3.	4 SUBMITTED DOCUMENTS	8
4.	TEST SET-UP AND OPERATION MODE	9
4.	1 PRINCIPLE OF CONFIGURATION SELECTION	9
4.	2 TEST OPERATION AND TEST SOFTWARE	9
4.	3 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.	4 COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	9
4.	5 TEST SET-UP	0
5.	TEST RESULTS E M I S S I O N	1
5.	1 EMISSION IN THE FREQUENCY RANGE UP TO 30 MHz	13
6.	PHOTOGRAPHS OF THE TEST SET-UP	6
7.	LIST OF TABLES	8
8.	LIST OF PHOTOGRAPHS	8



16054319 001

Seite 4 von 18 Page 4 of 18

Test Report No.:

1. General Remarks

When applying the basic standard in this test report, the latest amendment is always included.

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

No.102, 1F of Southwest Warehouse Building, No.767 TianYuan Road, Tianhe District, Guangzhou, P.R.China, 510650



Prüfbericht - Nr.: 16054319 001

Test Report No.:

Seite 5 von 18 Page 5 of 18

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Туре	Manufacturer	S/N	Last Calibration	Calibration Interval
EMI Test Receiver	ESCS30	Rohde & Schwarz	100316	16.Mar.2014	1 Year
Artificial Mains Network	ESH2-Z5	Rohde & Schwarz	100114	16.Mar.2014	1 Year
Two-Line V-Network	ESH3-Z5	Rohde & Schwarz	100308	16.Mar.2014	1 Year
Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100701	16.Mar.2014	1 Year
EMI Test Receiver	ESCI	Rohde & Schwarz	100216	16.Mar.2014	1 Year
Spectrum Analyzer	FSP30	Rohde & Schwarz	100286	16.Mar.2014	1 Year
Double-Ridged Waveguide Horn Antenna	HF906	Rohde & Schwarz	100385	16.Mar.2014	1 Year
Trilog-Broadband Antenna	VULB9168	Schwarzbeckmess -elektronik	210	16.Mar.2014	2 Year
Loop Antenna	HFH2-Z2	Rohde & Schwarz	100111	23.Mar.2015	2 Year

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.



16054319 001

Seite 6 von 18 Page 6 of 18

Test Report No.:

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

Uncertainty of conducted emissions measurements 2.68 dB Uncertainty of radiated emissions measurements 5.16dB(30-1000MHz), 4.84dB(>1000MHz) The reported expanded uncertainty is based on a standard uncertainty multiply by a coverage factor k=2, providing a level of confidence of approximately 95%.

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 TÜV Rheinland (Guangdong) file for certification follow-up purposes.

2.7 Status of facility used for testing

TÜV Rheinland (Guangdong) Ltd. is listed on the US Federal Communications Commission list of facilities approved to perform measurements, whose registration number is 833845.



Prüfbericht - Nr.: 16054319 001

Seite 7 von 18 Page 7 of 18

Test Report No.:

3. General Product Information

The submitted sample AM0005 is a game console with a RFID transceiver. The RFID transceiver works with dozens of passive tags in order to count the scores players get in the game.

3.1 Product Function and Intended Use

Refer to Technical Documentation and User Manual.

3.2 Ratings and System Details

Type of Designation	AM0005 (RFID module and tags)
Frequency range	13.56 MHz
Modulation	Amplitude-shift keying
Antenna	Dedicated
Temperature (°C)	-20 to +55
Power Supply	Powered by internal power module (5 Vdc)
Mode of operation	Continuous

Refer to the Technical Documentation for further information.





 Prüfbericht - Nr.:
 16054319 001
 Seite 8 von 18

 Test Report No.:
 Page 8 of 18

3.3 Independent Operation Modes

The basic operation mode is:

A. Transmitting

Refer to user manual for further information.

3.4 Submitted Documents

Construction Drawing Circuit Diagram PCB Layout Parts List Rating Label User Manual



16054319 001

Seite 9 von 18 Page 9 of 18

Test Report No.:

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 following special accessories, auxiliary equipments and interface cables were connected during the measurement.

None.

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 Files. No additional measures were employed to achieve compliance.

Produkte Products

Prüfbericht - Nr.:

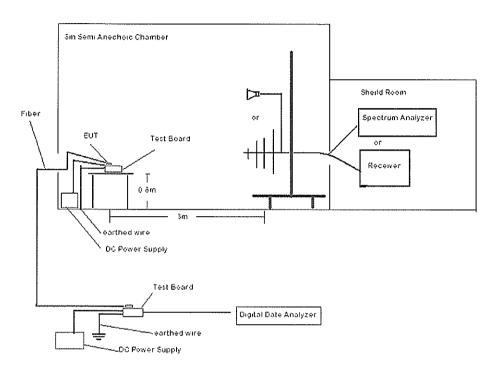
16054319 001

Seite 10 von 18Page 10 of 18

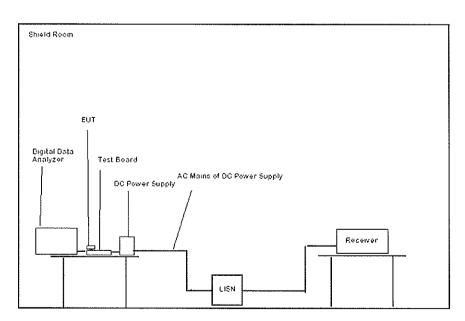
Test Report No.:

4.5 Test set-up

Radiated Emission Setup



Conducted Emission Setup





16054319 001

Seite 11 von 18 Page 11 of 18

Test Report No.:

5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Conducted Emission for FCC 47 CFR Part 15 Section 15.207(a)

RESULT: Pass

Date of testing

05.08.2013

Test procedure

ANSI C63.4:2009, Clause 7.2

Equipment class

В

Limits

FCC 47 CFR Part 15 Subpart C Section 15.207 (a), limit for

Class B equipment.

Test Setup

Input voltage

AC120V,60Hz

Operation mode

A. Transmitting with an permanent antenna and with a dummy

antenna

Temperature

22°C

Humidity

53%

Test procedure:

For tabletop device, the EUT and its peripherals were placed on a wooden table,0.8cm above the horizontal reference plane and 40cm away from vertical reference plane in a shielded room. For floor-standing device, the EUT shall be placed either directly on the reference ground plane or on insulating material as described in ANSI C63.4 Clause 6.3.2.1. The EUT was connected to input power source through a line impedance stabilization network (LISN). The excess length of the power cord between the EUT and the LISN shall be folded back and forth at the center of the lead to form a bundle not exceeding 40cm in length.

The EUT was tested in a typical model of operation in accordance with ANSI C63.4:2009, Pre-test was performed in peak and average detection mode. finial measurement was performed using quasi-peak and average detection on the live and neutral lines with the worst case.

The test software Rohde & Schwarz EMC32 was used during the test. If the result of the measurement with the Quasi Peak detector is below the Average limit,





Products Seite 12 von 18 Prüfbericht - Nr.: 16054319 001 Page 12 of 18 Test Report No.: the measurement with Average Detector may be omitted. Especially, according to FCC KDB 174176, "For a device with a permanent antenna operating at or below 30 MHz, the FCC will accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) perform the AC line conducted tests with the permanent antenna to determine compliance with the Section 15.207 limits outside the transmitter's fundamental emission band; (2) retest with a dummy load in lieu of the permanent antenna to determine compliance with the Section 15.207 limits within the transmitter's fundamental emission band." Therefore, the test has been performed in the two configurations described in the KDB 174176 Refer to appendix 1 for test result.



16054319 001

Seite 13 von 18 Page 13 of 18

Test Report No.:

5.1.2 Radiated Emission for FCC 47 CFR Part 15 Section 15.209(a)

RESULT: Pass

Date of testing

01.11.2013

Test procedure

ANSI C63.4:2009, Clause 8.3

Equipment class

P

Limits

FCC 47 CFR Part 15 Subpart C section 15.209 (a), limit for

Class B equipment.

Test Setup

Input voltage

AC120V,60Hz

Operation mode

Transmitting

Temperature

21°C

Humidity

50%

Test procedure:

For tabletop device, the and its peripherals were placed on a wooden table,80cm above ground plane in semi-anechoic chamber. For floor-standing equipment, the EUT and all cables shall be insulated, if required, from the ground plane by up to 12mm of insulating material in semi-anechoic chamber.

The EUT was set 3 meters away from the receiving antenna, which was mounted on a variable-height antenna tower. Test shall be made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height shall be varied from 1m to 4m. The table was rotated 360 degrees to detect the suspected emission frequency points. The position of the worst radiation case with both horizontal and vertical receiving antenna polarization was recorded together with the suspected emission frequency points abovementioned.

The EUT was tested in a typical model of operation in accordance with ANSI C63.4:2009, Pre-test was performed in peak detection mode. Finial measurement was performed using quasi-peak detection with the worst case.

The test software Rohde & Schwarz EMC32 was used during the test.

Refer to appendix 1 for test result.



16054319 001

Seite 14 von 18 Page 14 of 18

Test Report No.:

5.1.3 Radiated Emissions within the band for FCC 47 CFR Part 15 Section 15.225 (a)(b)(c)

RESULT:

Pass

Date of testing

01.11.2013

Test procedure

ANSI C63.4:2009, Clause 8.3

Equipment class

Limits

FCC 47 CFR Part 15 Subpart C section 15.225 (a)(b)(c)

13.553 - 13.567 MHz 15.848 uV/m at 30 m 13.410 - 13.553 MHz 334 uV/m at 30 m

13.567 – 13.710 MHz 334 uV/m at 30 m 13.110 – 13.410 MHz 13.710 – 14.010 MHz 106 uV/m at 30 m

106 uV/m at 30 m

Test Setup

Input voltage

AC120V,60Hz

Operation mode

Transmitting

Temperature

20°C

Humidity

50%

Refer to appendix 1 for test result.



16054319 001

Seite 15 von 18 Page 15 of 18

Test Report No.:

5.1.4 Frequency Tolerance of the carrier signal for FCC 47 CFR Part 15 Section 15.225 (e)

RESULT: Pass

Date of testing

20.1.2014

Test procedure

ANSI C63.4:2009, Clause 8.3

Equipment class

•

Limits

FCC 47 CFR Part 15 Subpart C section 15.225 (e)

±0.01%.

Test Setup

Input voltage

DC4.3-5.8V

Operation mode :

Transmitting

Temperature

-20, -10, 0, 10, 20, 30, 40 and 50°C

Humidity

50%

Refer to appendix 1 for test result.



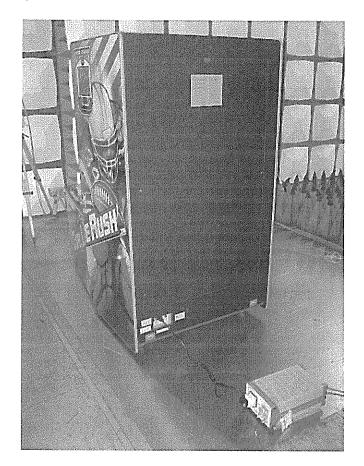
16054319 001

Seite 16 von 18Page 16 of 18

Test Report No.:

6. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission





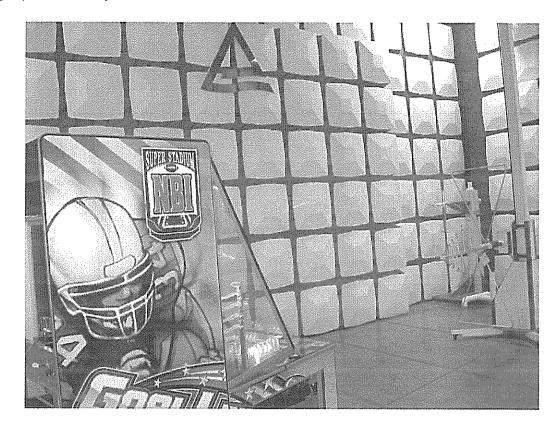


16054319 001

Seite 17 von 18Page 17 of 18

Test Report No.:

Photograph 2: Set-up for Radiated Emission





Prüfbericht - Nr.: 16054319 001 Seite 18 von 18 Page 18 of 18 Test Report No.: 7. List of Tables Table 1: List of Test and Measurement Equipment.....5 8. List of Photographs



Test Report No.

16054319 001

Seite 1 von 10

Page 1 of 10

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.: Port / Line: Receipt No.:

Report No.: Result:

Comment:

Tohei E.M.C Co., Ltd

Rush for Goal Rush for Goal FCC Part 15B Conducted Emission

22 °C; 53 %RH;

AC 120 V/ 60 Hz AC Mains(L1+N)

174009591

Pass

Hardware Setup: Level Unit:

1phase LISN ESH3-Z5 to ESCS 30

Subrange 150kHz - 30MHz Detectors Peak; Average

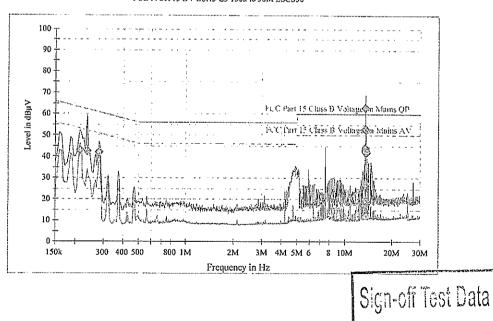
IF Bandwidth 9kHz

Step Size 4.5kHz

101 kPa.

Meas, Time 10ms

FCC PART15 DV ESH3-Z5 150k to 30M ESCS30



Tested by:

2013 -02-15 Reviewed by:

8/5/2013, 10:17:16

Appendix 1



Prüfbericht - Nr.:

Test Report No.

16054319 001

Seite 2 von 10

Page 2 of 10

TUV Rheinland (Guangdong) Ltd.

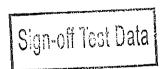
EMC Test Service Hotline: +86-20-28391188

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.235500	42.8	2000.0	9.000	GN	N	9,9	19.5	62.3	
13.524000	42.1	2000.0	9.000	GN	L1	11.4	17.9	60.0	
13.542000	43.1	2000.0	9.000	GN	L1	11.4	16.9	60.0	
13.564500	63,1	2000.0	9.000	GN	N	11.3	I	1	
13.587000	44.2	2000.0	9.000	GN	N	11.3	15.8	60.0	1-000
13.605000	41.7	2000.0	9.000	GN	N	11.3	18.3	60.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.213000	42.9	2000.0	9.000	GN	L1	10.0	10.2	53.1	
0.280500	41.7	2000.0	9,000	GN	N	10.0	9,1	50.8	
13.524000	17.9	2000.0	9.000	GN	L1	11.4	32.1	50.0	
13.542000	27.4	2000.0	9.000	GN	L1	11.4	22.6	50.0	
13.56450D	52.8	2000.0	9,000	GN	N	11.3	ī	T	
13.587000	18.8	2000.0	9,000	GN	N	11.3	31.2	50.0	









Test Report No.

16054319 001

Seite 3 von 10 Page 3 of 10

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.:

Port / Line: Receipt No.:

Report No: Result:

Comment:

Tohei E.M.C Co., Ltd

Rush for Goal

FCC Part 15B 15

Conducted Emission

22 °C; 53 %RH; AC 120 V/ 60 Hz

AC Mains(L1+N) 174009591

Pass

Hardware Setup: Level Unit:

1phase LISN ESH3-Z5 to ESCS 30

dBuV

Subrange 150kHz - 30MHz Detectors Peak; Average IF Bandwidth 9kHz

Step Size 4.5kHz

101 kPa.

Meas. Time 10ms

80 70 Level in dBµV 50 30 10 13.11 13.2 13.6 13.8 13.9 14.01 Frequency in MHz



1/18/2014, 11:51:17

Appendix 1



Prüfbericht - Nr.:

Test Report No.

16054319 001

Seite 4 von 10

Page 4 of 10

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

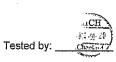
Final Result 1

	_QuasiPeak			PE	Line	Corr.	Margin	Limit	Comment
	(dBpV)	Time	(kHz)			(dB)	(dB)	(dBµV)	
		(ms).	carto al la g					ur en	
13.558000	40.4	2000.0	9.000	GN	N	11.3	19,6	60.0	
13.564500	40.2	2000.0	9.000	GN	L1	11.4	19.8	60,0	

Final Result 2

Frequency (MHz)	Average (dΒμV)	Méas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Llmit (dBµV)	Comment
13.558000	34.5	2000.0	9.000	GN	L1	11.4	15.5	50.0	
13.564500	34.4	2000.0	9.000	GN	L1	11.4	15.6	50.0	

Sign-off Test Data







Test Report No.

16054319 001

Seite 5 von 10
Page 5 of 10

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer. Test Item:

Identification: Test Standard: Test Detail:

Operation Mode: Climate Condition: Test Voltage/ Freq:

Test Voltage/ Freq: Receipt No: Report No: Result:

Result: Comment:

Subrange 1 Frequency Range:

Receiver: Transducer: Tohei E.M.C Co., Ltd Rush for goal Rush for goal

FCC Part 15
Radiated Emission
Transmitting

21 °C; 50 %RH;

101 kPa.

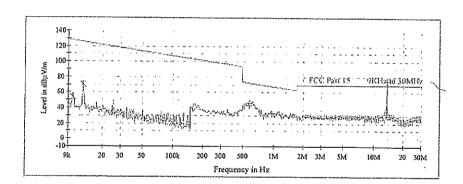
/ 174009591

Pass

Test distance is 3m

9KHz - 30MHz TUV ESCI 3

Loop antenna HFH2-Z2



Limit and Margin QP

Frequency Q (MHz) (uasiPeak IBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/	Comm ent
0.570000	42.8	1000.0	9.000	20.7	29.7	72.5	
0.970000	32.6	1000.0	9.000	20.4	35.3	67.9	
13,562000	74.4	1000.0	9.000	22.6	1	7	

Limit and Margin AV

Date: 11/1/2013 - Time: 10:25:42

-IIIII aii	Little and Margin Av										
Frequency (MHz)			Bandwidth (kHz)	Corr. (dB)	Margin - AVG (dB)	Limit- AVG (dBµV/	Comm . e⊓t				
0.010040	54.5	1000.0	0.200	21.0	73.1	127.6					
0.012760	70.1	1000.0	0.200	20.9	55,4	125.6					
0.025640	45.1	1000.0	0.200	20.5	74.4	119.5	1				
0.166000	37.6	1000.0	9.000	20.6	65.7	103.2	1				

Tested by:

Reviewed by:

Sign-off Test Data



Test Report No.

16054319 001

Seite 6 von 10

Page 6 of 10

.TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer: Tohei E.M.C. Co., Ltd
Test Item: Rush for goal
Identification: Rush for goal
Test Standard: FCC Part 15
Test Detail: Radiated Emission

Operation Mode:

Cilmate Condition: 23 °C; Test Voltage/ Freq: AC 120 \

23 °C; 50 %RH; AC 120 V /60 Hz 174009591

101 kPa.

Receipt No: Report No:

Report No:

Pass

Comment:

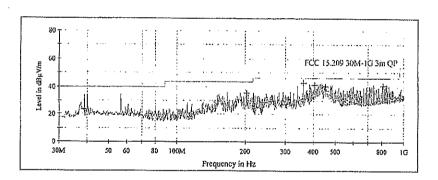
Test distance is 3m, Horizontal

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	QuasiPeak (BBUV/m)	Meas.	Bandwidth!	Polarization	Corr.	Margin	
1945-1941		(ms)	建设的	4年19年8	200	消毒	(dB)V/m)
38.950000	23.4	1000.0	120.000	H	14.7	16.6	40.0
203.750000	35.2	1000.0	120,000	H	12.5	8.3	43.5
361.300000	43.2	1000.0	120,000	H	17.6	2.8	46.0
406.450000	41.3	1000.0	120.000	Н	18.6	4.7	46.0
451.600000	40.5	1000.0	120.000	Н	19.9	5.5	46.0
814.8500D0	40.6	1000.0	120,000	Н	26.3	5.4	46.0

Sign-off Test Data







Date: 8/1/2013 - Time: 2:18:53

Tested by: __

_ Reviewed by:



Test Report No.

16054319 001

Seite 7 von 10

Page 7 of 10

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common 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:

Tohei E.M.C. Co., Ltd Rush for goal

Rush for goal FCC Part 15 Radiated Emission

23 °C; 50 %RH; AC 120 V /60 Hz

174009591

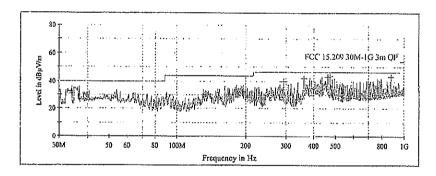
Pass

Test distance is 3m, Vertical

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

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

101 kPa.



Limit and Margin QP

Frequency (MHz): v	QuasiReak (dBgV/m)	Meas? Time:	Bandwidth (kHz)	Polarization	Con (IIB)	Margin L-QPK	Uml OPK
		级(Ma)建	ner by some	SUREDITIES.	2.12	(成9号)题	C(dBuV/m)
34.100000 293.600000	31.2 39.8	1000.D	120.000	V	14.2	8.8	40.0
361.300000	42.0	1000.0 1000.0	120.000	V	15.8 17.6	6.2 4.0	46.0 46.0
459.950000	42.8	1000.0	120.000	Ý	20.0	3.2	46.0
471.400000	43.3	1000.0	120.000	٧	20.1	2.7	46.0
875 800000	43 4	1000 8	120 000	M	27.0	70	45.0



Date: 8/1/2013 - Time: 2:27:12

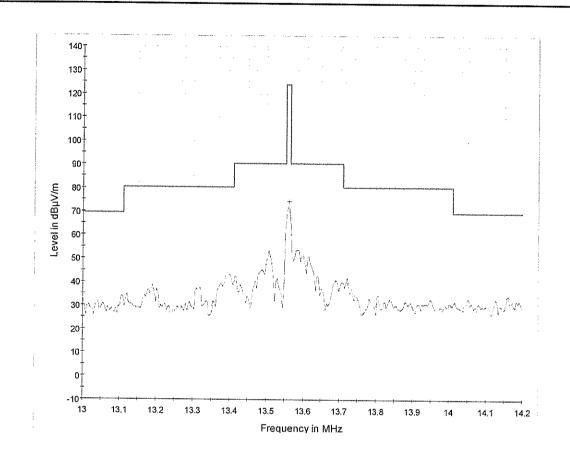




Test Report No.

16054319 001

Seite 8 von 10 Page 8 of 10





Test Report No.

16054319 001

Seite 9 von 10
Page 9 of 10

EMC	Test	Reco	rd
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Receipt No.:	17400959/	Page:	Of	
Report No.:				

EUT: Rush for good

Result: Porss

Table 1: The measurement of Frequency Tolerance (supply voltage)

Temp	Power	Low Frequency	Middle	High Frequency
eratur	supply	(MHz)	Frequency	(MHz)
е			(MHz)	(***.***)
(°C)		(/3.56)	(` ')	()
20	DC 4.3V	13,56020		
20	DCSV	13.56020		
20	DC 5.8V	13, 46020		
Frequ	uency Error:	0.21412		
Frequen	cy tolerance:	2. 201576		
Frequency Tolerance		0.005%		
Limit:				







Test Report No.

16054319 001

Seite 10 von 10

Page 10 of 10

EMC Test Record

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Receipt No.:	17400959	Page:	Of	
Report No.:				-

EUT: Rush for Good Result: Pans

The Frequency Tolerance (temperature)

Test	Power	Low Frequency	Middle	High Frequency
condition	supply	(MHz)	Frequency	(MHz)
			(MHz)	
		(13,56)	()	()
-30°C				
-20°C	DC 5V	13.56015		
-10°C	DC SV	13 -6015		
0°C	DCSV	13.56015		
10°C	DCSV	13 56020	/	
20°C	DCFN	13.56020		A-1
30°C	DC &V	13.56015		
40°C	PCSV	13.56015		
50°C	DCFV	13,56015		
Frequency Error:		0.2 KHz		
Frequency tolerance:		0.00 15%		
Frequency	Tolerance	•	0.005%	
Limit:				



