Test Lab
Cert 2951.01

TEST REPORT

Applicant	Playday Manufacturers Group Ltd
Address	Room 245, 2/F, Houston Centre , 63 Mody Road, TST East, Kowloon, Hong Kong

Manufacturer or Supplier	Playday Manufacturers Group Ltd
Address	Room 245, 2/F, Houston Centre , 63 Mody Road, TST East, Kowloon, Hong Kong
Product	49 MHZ Radio Control Car- Receiver (Car)
Brand Name	Playday
Model	19580
Additional Model & Model Difference	6812, 6811, 80629, etc. See section 2.1
Date of tests	Mar. 27 ~ April 08, 2014
the tests have been carried out according to the requirements of the following standard:	
☒ **FCC Part 15, Subpart B**	
CONCLUSION: The submitted sample was found to COMPLY with the test requirement	

Tested by Venless Long Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
Venless	Glyn
	Date: April 09, 2014

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FV140327N009	Original release	April 09, 2014

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1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart B			
Standard Section	**Test Item**	**Result**	**Remark**
FCC Part 15, Subpart B, Class B	Conducted Emission Test	N/A	EUT is powered by battery
	Radiated Emission Test (30MHz ~ 1GHz)	PASS	Meets Class B Limit Minimum passing margin is -19.2dB at 49.40MHz
	Radiated Emission Test (1GHz ~ 6GHz)	N/A	N/A

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	30MHz ~ 1GHz	4.81dB
	1GHz ~ 6GHz	4.3dB

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	49 MHZ Radio Control Car- Receiver (Car)
MODEL NO.	19580
FCC ID	2AB69-49MHZR
POWER SUPPLY	DC 9V by Battery
CABLE SUPPLIED	N/A
THE HIGHEST OPERATING FREQUENCY	49.86MHz

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.:140327N009) for detailed product photo.
4. Additional models 6812, 6811, 80629, 80307, 80768, 80769, 80869, 81164, 81160, 81165, 81166, 81229, 80024, 20065, 80273FF, 80470, 80629, 80648, 80668, 80742, 80770, 81019, 81192, 81768, 80052PT, 6812PT, 80681FF, 81109FF, 80308, 81228, 81296, 81215, 81218, 81220 are identical in circuitry and electrical, mechanical and physical construction with the test model 19580 except the appearance and model number for trading purpose.

2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the following modes. And the final worst mode was marked in boldface and recorded in this report.

◆ **Radiated Disturbance Test**

Test Mode
Receiving

2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

3 EMISSION TEST

3.1 RADIATED EMISSION MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30 – 88	90	39.1	100	40.0
88 – 216	150	43.5	150	43.5
216 – 960	210	46.4	200	46.0
960 – 1000	300	49.5	500	54.0

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Frequency Range 30MHz-1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESVS10	841431/004	May 19,13	May 18,14
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 27, 13	Jul. 26, 14
EMI Test Receiver	Rohde&Schwarz	ESPI	100302	May 19,13	May 18,14
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 24,14	Mar. 23,15
Signal Amplifier	Agilent	8447D	2944A10488	N/A	N/A
Test software	ADT	ADT_Radiated _V7.5.4	N/A	N/A	N/A

Frequency Range Above 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	ETS-Lindgren	3117	00062558	Oct. 18,12	Oct. 17,14
Spectrum Analyzer	Agilent	E4446A	MY46180622	April 24,13	April 23,14
Spectrum Analyzer (9KHz-25GHz)	Agilent	E7405A	MY45118807	May 14,13	May 13,14
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 14,13	May 13,14
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,13	Nov. 03,14
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA and NIM/CHINA.
2. The test was performed in 10m Chamber.

3.1.3 TEST PROCEDURE

12.1.1.1 (12.2.1.1) Super-regenerative Receiver
A signal generator, not the matching transmitter, shall be used to radiate an unmodulated continuous wave (CW) signal to a super-regenerative receiver at its operating frequency in order to "cohere" or resolve the individual components of the characteristic broadband emissions from such a receiver. The level of the signal may need to be increased for this to occur.
If a super-regenerative receiver is tested for radiated emissions with a resistive termination instead of an antenna connected to the antenna input terminals, apply the unmodulated signal at a level of approximately –60 dBm to the antenna terminals, using an impedance-matching network if necessary, to "cohere" the emissions. It may be necessary to adjust the signal level to accomplish this

The basic test procedure was in accordance with ANSI C63.4 (section 12).

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

NOTE:

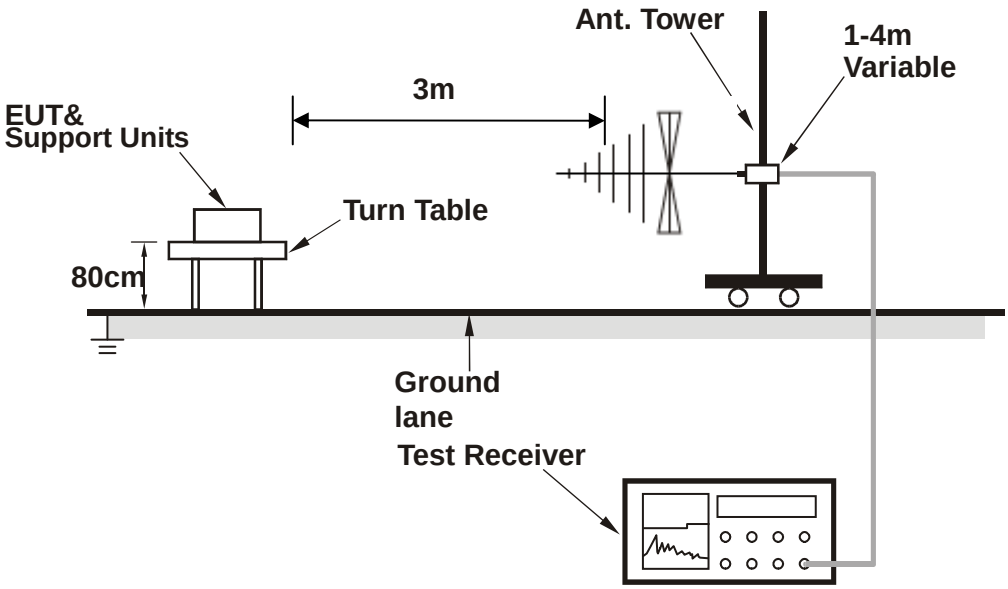
1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
4. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
5. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
6. Margin value = Emission level – Limit value.

3.1.4 DEVIATION FROM TEST STANDARD

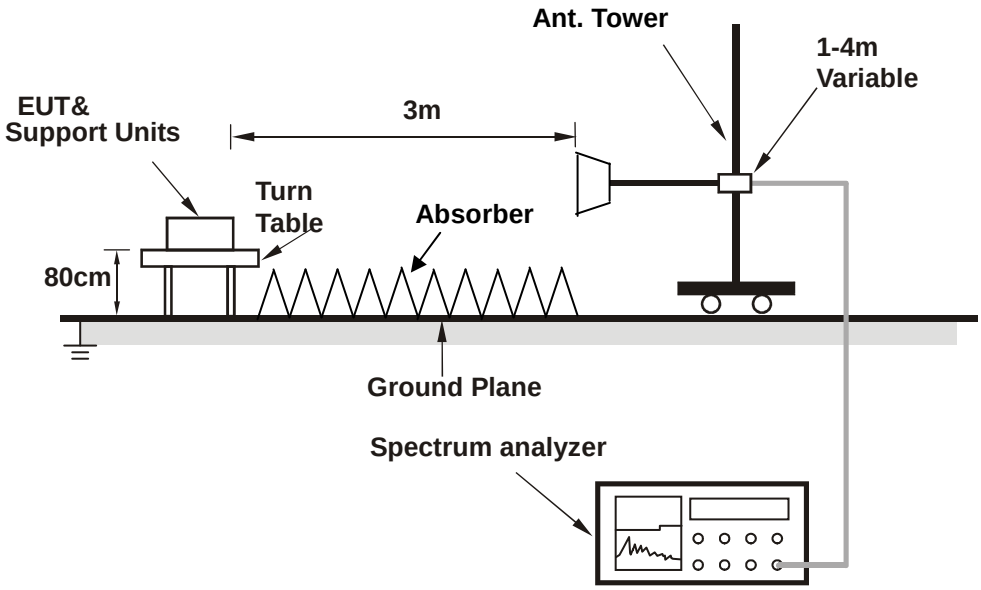
No deviation

3.1.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power of all equipment.
b. EUT was operated according to the manufacturer's specifications or the User's Manual.

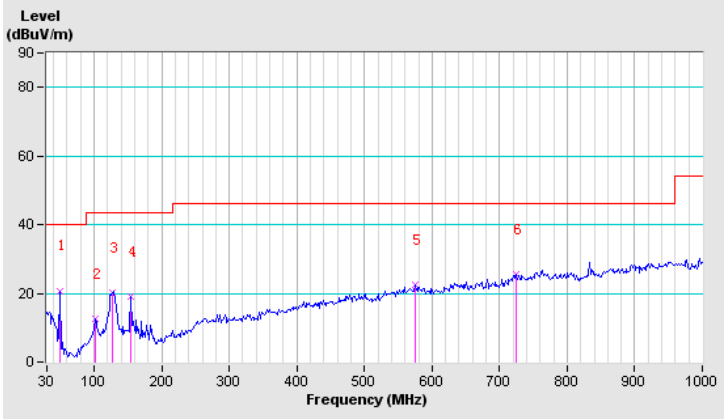
3.1.7 TEST RESULTS

TEST MODE	Receiving	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	DC 9V by Battery	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 55% RH	**TESTED BY**: Peng Ou	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	**49.40**	**20.8 QP**	**40.0**	**-19.2**	**1.52 H**	**40**	**11.23**	**9.55**
2	101.13	12.7 QP	43.5	-30.8	1.92 H	75	1.02	11.70
3	127.00	20.3 QP	43.5	-23.2	1.64 H	51	6.76	13.54
4	154.48	18.9 QP	43.5	-24.6	1.77 H	62	5.89	13.04
5	574.82	22.6 QP	46.0	-23.4	2.09 H	89	-2.24	24.85
6	725.17	25.6 QP	46.0	-20.4	2.24 H	102	-2.25	27.84

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

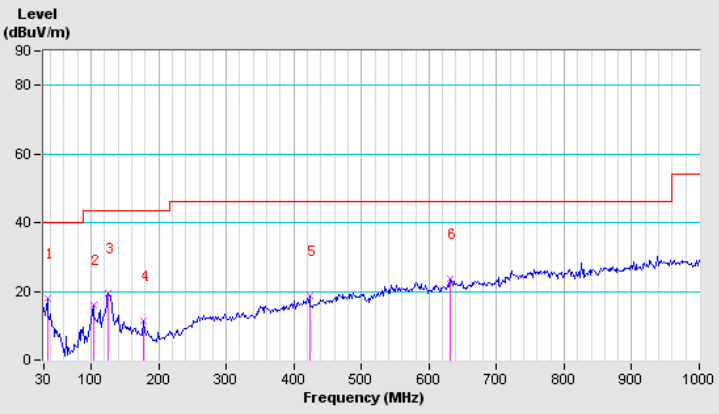


TEST MODE	Receiving	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	DC 9V by Battery	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 55% RH	**TESTED BY**: Peng Ou	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	34.85	17.8 QP	40.0	-22.2	1.00 V	183	0.37	17.41
2	102.75	16.1 QP	43.5	-27.4	1.00 V	196	4.23	11.90
3	125.38	19.4 QP	43.5	-24.1	1.00 V	254	5.88	13.54
4	177.12	11.5 QP	43.5	-32.0	1.00 V	209	0.12	11.41
5	422.85	18.6 QP	46.0	-27.4	1.00 V	239	-2.06	20.70
6	631.40	23.5 QP	46.0	-22.5	1.00 V	222	-2.05	25.59

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



4 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

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