TEST REPORT

No.I21N04009-EMC

for

TCL Communication Ltd.

MOVETIME FAMILY WATCH

Model Name：MT40A

With

Hardware Version: PIO

Software Version: V1.0

FCC ID: 2ACCJB112

Issued Date: 2021-12-29

Designation Number: CN1210

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

Test Laboratory:

SAICT, Shenzhen Academy of Information and Communications Technology

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China. 518000.

Tel:+86(0)755-33322000, Fax:+86(0)755-33322001

Email: yewu@caict.ac.cn. www.saict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21N04009-EMC	Rev.0	1st edition	2021-12-29

Note: the latest revision of the test report supersedes all previous version.

CONTENTS

1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	MOVETIME FAMILY WATCH
Model Name	MT40A
Applicant's name	HMD Global Oy
Manufacturer's Name	HMD Global Oy

1.2. Test Standards

FCC Part 15, Subpart B (10-1-2020 Edition); ANSI C63.4-2014.

1.3. Test Result

Total test 1 items, pass 1 items. Please refer to "6.2 Test Results".

1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, China

1.5. Project data

Testing Start Date: 2021-12-18 Testing End Date: 2021-12-28

1.6. Signature

Ma Shoujian
(Prepared this test report)

Zhang Yunzhuan
(Reviewed this test report)

Cao Junfei
(Approved this test report)

2. CLIENT INFORMATION

2.1. Ap Applicant Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax	0086-755-36612000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax	0086-755-36612000-81722

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	MOVETIME FAMILY WATCH
Model Name	MT40A
FCC ID	2ACCJB112
Condition of EUT as received	No obvious damage in appearance

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
UT01aa	352213110163709	PIO	V1.0	2021-12-18

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	Description
AE1	Battery
AE2	Charger
AE3	USB Cable

AE1

Model	ZWD602531V
Manufacturer	ZWD
Capacitance	600mAh
Nominal Voltage	3.8 v

AE2

Model	UC11
Manufacturer	PUAN

AE3

Model	Micro USB Cable
Manufacturer	JUWEI

* AE ID: is used to identify the test sample in the lab internally.

AE: ancillary equipment

AE2: Just for test.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT+AE1+AE2-AE3	

3.5. General Description

The Equipment Under Test (EUT) is a model of MOVETIME FAMILY WATCH with internal antenna.
It supports GSM 850/1900MHz, WCDMA Bands 1/2/4/5, and LTE Bands 2/4/5/7/28.
It has Camera, USB memory, Bluetooth, Wi-Fi and GNSS functions.
It consists of normal options: Battery, Charger and USB Cable.
Manual and specifications of the EUT were provided to fulfill the test.
Samples (EUT+AE) undergoing test were selected by the Client. Relevant information is provided by the client.
This report is a record of MOVETIME FAMILY WATCH MT40A,which is manufactured by TCL Communication Ltd..The table below shows the difference of this record:

Model / Differences	MT40A (Original)	MT40A(Record)
Chip	SC9820E	SL8521E
	Note: The two chips only have different screen printing information, other no difference, the two chips themselves have no change, also does not affect RF performance;	

According to the declaration of differences by manufacturer, the following tests of MOVETIME FAMILY WATCH MT40A(Record) need to be performed:

NO.	Test item	EUT ID	Operating mode
1	Radiated Emission	UT01aa	Camera

Other results of are cited from the initial model MT40A (Original).
The report number for initial model is I19N01990-EMC.

4. REFERENCE DOCUMENTS

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	(10-1-2020 Edition)
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber did not exceed following limits along the EMC testing:
9.10m×6.10m×5.60m (L×W×H)

Temperature	Min. = 15 ℃, Max. = 35℃
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-18000MHz,>90dB
Electrical insulation	>2MΩ
Ground system resistance	<4Ω
Normalised site attenuation (NSA)	<±4 dB, 3 m distance, from 30 to 1000 MHz

Shield room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. =20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-10000MHz,>90dB
Electrical insulation	>2MΩ
Ground system resistance	<4Ω

Fully-anechoic chamber did not exceed following limits along the EMC testing:
9.10m×6.10m×5.60m (L×W×H)

Temperature	Min. = 15 ℃, Max. = 35℃
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-18000MHz,>90dB
Electrical insulation	>2MΩ
Ground system resistance	<4Ω
Voltage Standing Wave Ratio （VSWR）	≤ 6 dB, from 1 to 18GHz，3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

6. SUMMARY OF TEST RESULTS

6.1. Testing Environment

Normal Temperature: 15~35℃
Relative Humidity: 20~75%
Atmospheric pressure 86~106kPa

6.2. Summary of Measurement Results

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

Items	Test Name	Clause in FCC/IC rules	Section in this report	Verdict
1	Radiated Emission	15.109(a)/ Section 6.2	A.1	P

6.3. Statement

6.3.1 Statements of conformity

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

7. MEASUREMENT UNCERTAINTY

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	4.86B(*k*=2)
	1GHz-18GHz	4.82dB(*k*=2)
	18GHz-40GHz	2.90dB(*k*=2)

8. TEST FACILITIES UTILIZED

No.	Name	Model	Serial Number	MANUFACTURER	Calibration DUE DATE	CALIBRATION PERIOD
1.	Test Receiver	ESR7	101676	R&S	2022.11.24	1 year
2.	Test Receiver	ESCI	100702	R&S	2022.01.13	1 year
3.	Spectrum Analyzer	FSV40	101192	R&S	2022.01.13	1 year
4.	BiLog Antenna	3142E	0224831	ETS-Lindgren	2024.05.27	3 years
5.	Horn Antenna	3117	00066577	ETS-Lindgren	2022.04.02	3 years
6.	Chamber	FACT3-2.0	1285	ETS-Lindgren	2023.05.29	2 years
7.	Software	EMC32	V10.50.40	R&S	/	/
8.	Signal Generator	SMB100A	179725	R&S	2022.11.24	1 year
9.	Horn Antenna	QSH-SL-18-26-S-20	17013	Q-par	2023.01.06	3 years
10.	Horn Antenna	QSH-SL-8-26-40-K-20	17014	Q-par	2023.01.06	3 years

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

Reference

FCC: Part 15.109(a)

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (Data transfer mode of EUT and charging mode of EUT) at a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 -2014, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

Camera: At the beginning of measurement, the battery is completely discharged. The battery and charger are installed so that the EUT works well and keeping on taking photos.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

A.1.3 Measurement Limit

Limit from Part 15.109(a)

Frequency range (MHz)	Field strength limit (μV/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

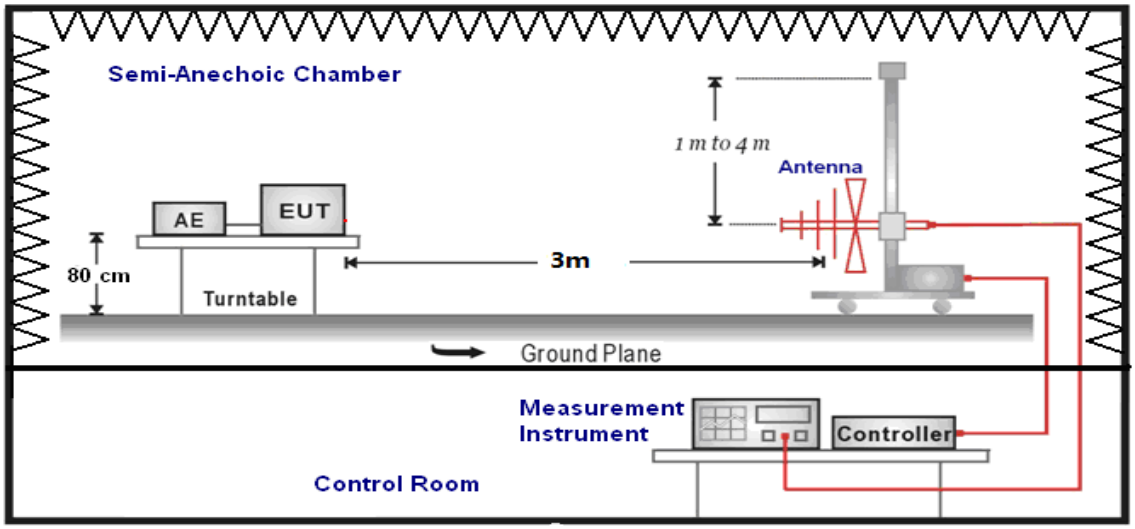
*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

A.1.4 Test Condition

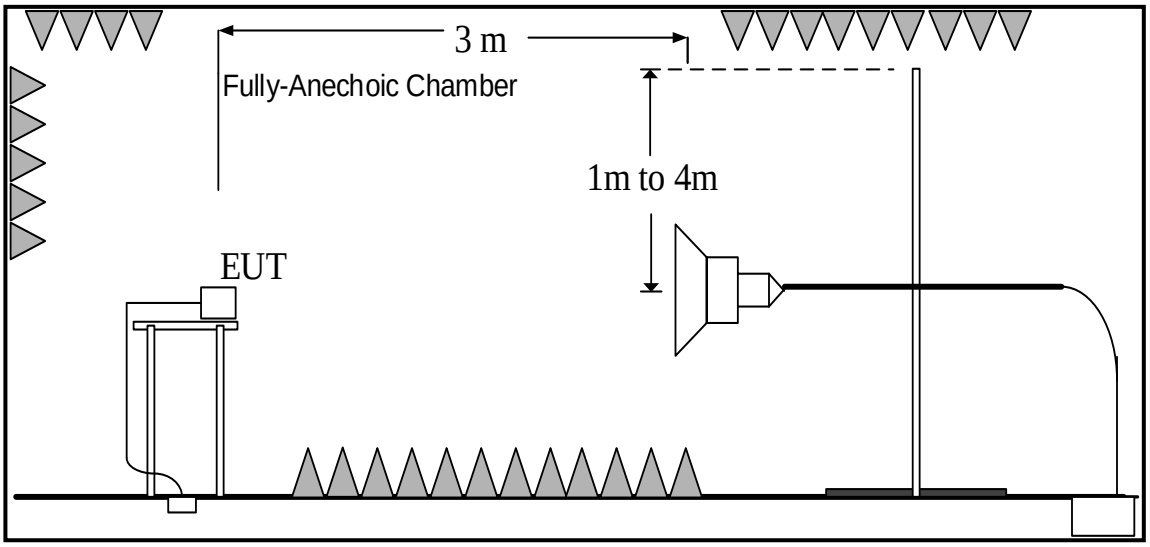
Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz (IF bandwidth)	5
Above 1000	1MHz/3MHz	15

A.1.5 Test set-up:

30MHz-1GHz



1GHz-18GHz



A.1.6 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”. It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$Result=P_{Mea}+A_{Rpl} = P_{Mea} +G_A+G_{PL}$

Where

G_A: Antenna factor of receive antenna

G_{PL}:PathLoss

P_{Mea}: Measurement result on receiver.

Result:Quasi-Peak(dBμV/m) /Average(dBμV/m)/Peak(dBμV/m)

Note: the result contains vertical part and Horizontal part

Camera

Frequency range (MHz)	Quasi-Peak Limit (dBμV/m)	Result (dBμV/m) UT01aa/Set.1	Conclusion
30-88	40.00	See Figure A.1.1.	P
88-216	43.52		
216-960	46.02		
960-1000	54.00		

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Result (dBμV/m) UT01aa/Set.1	Conclusion
1000 to 18000	54.00	74.00	See Figure A.1.2.	

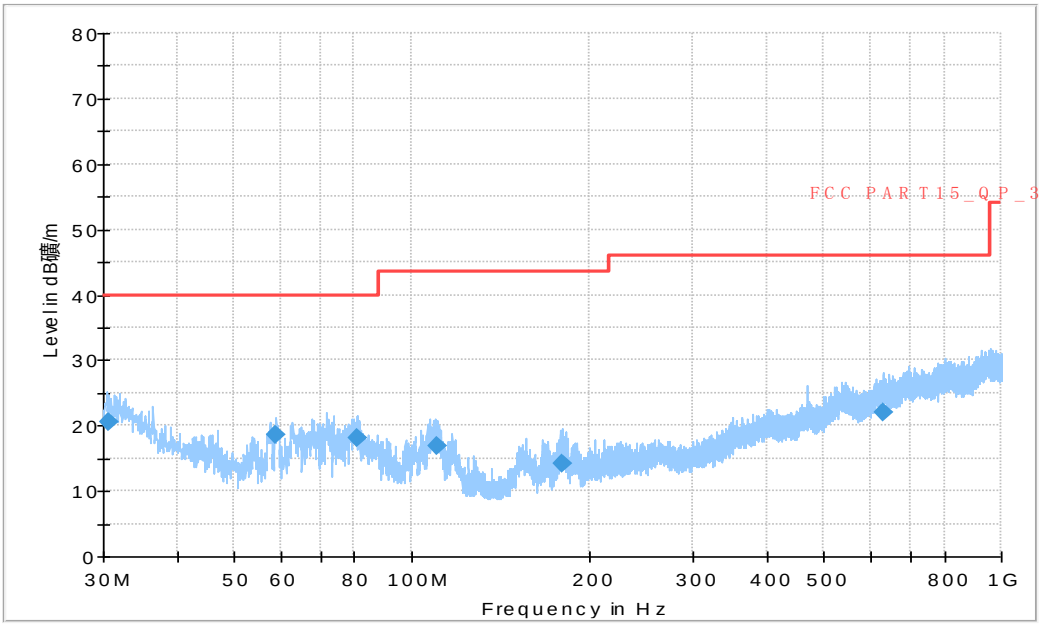


Figure A.1.1. Radiated Emission (Camera, 30MHz to 1GHz)

Final_Results

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	PMea (dBµV)
30.592778	20.62	40.00	19.38	V	-13	33.62
58.992222	18.65	40.00	21.35	V	-22	40.65
80.709444	18.19	40.00	21.81	V	-22	40.19
110.725556	16.96	43.52	26.56	V	-20	36.96
180.457778	14.08	43.52	29.44	V	-18	32.08
630.968889	22.12	46.02	23.90	V	-3	25.12

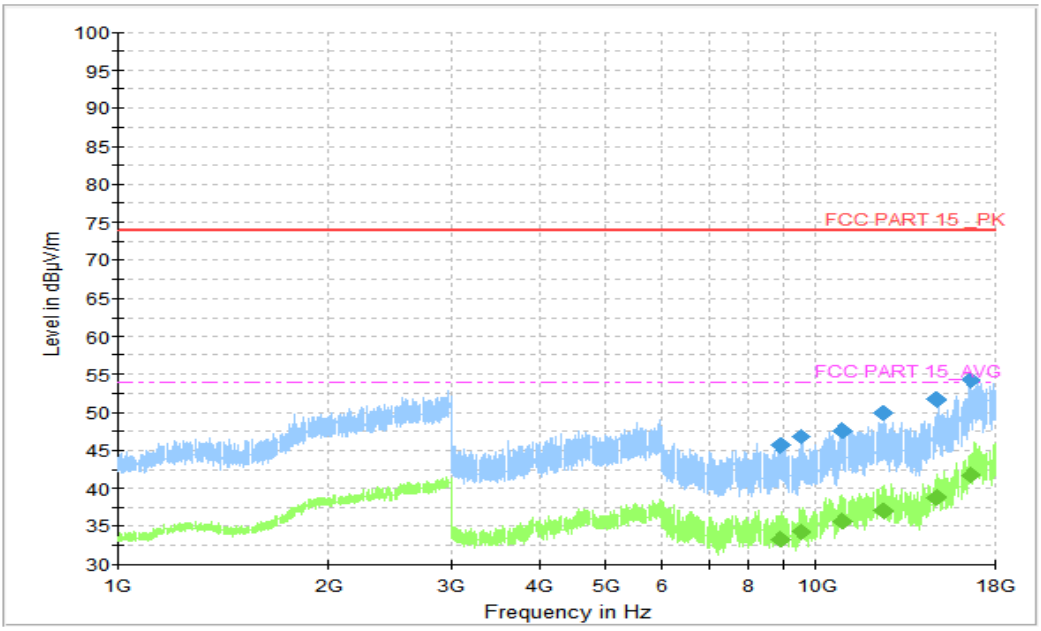


Figure A.1.2. Radiated Emission (Camera, 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBµV)
8852.142857	45.61	74.00	28.39	V	6.5	39.11
9512.571429	46.86	74.00	27.14	H	7.1	39.76
10913.142857	47.52	74.00	26.48	H	9.4	38.12
12455.142857	49.95	74.00	24.05	V	11.4	38.55
14835.000000	51.76	74.00	22.24	V	12.9	38.86
16605.000000	54.23	74.00	19.77	V	16.9	37.33

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBµV)
8852.142857	33.31	54.00	20.69	V	6.5	26.81
9512.571429	34.37	54.00	19.63	H	7.1	27.27
10913.142857	35.61	54.00	18.39	H	9.4	26.21
12455.142857	37.12	54.00	16.88	V	11.4	25.72
14835.000000	38.85	54.00	15.15	V	12.9	25.95
16605.000000	41.69	54.00	12.31	V	16.9	24.79

*****END OF REPORT*****