

FCC 47 CFR PART 24 SUBPART E

Test Report

For

SyncUP Kids Watch

Model No.: TMUS-SKW-1, TMUS-SKW-M

Trade Name: T-Mobile

Issued to

T-mobile Usa, Inc.

12920 Se 38th Street , Bellevue, Washington, United States, 98006.

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

**No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan. (R.O.C.)**

Issued Date: July 26, 2022

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 26, 2022	Initial Issue	ALL	Allison Chen

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Report No.: TMWK2205001731KR

1. TEST RESULT CERTIFICATION

Applicant: T-mobile Usa, Inc.
12920 Se 38th Street , Bellevue, Washington, United States,
98006.

Manufacturer: T-mobile Usa, Inc.
12920 Se 38th Street , Bellevue, Washington, United States,
98006.

Equipment Under Test: SyncUP Kids Watch

Trade Name: T-Mobile

Model No.: TMUS-SKW-1, TMUS-SKW-M

Date of Test: May 26, 2022

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 24 SUBPART E	Compliance
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA -603-E and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 24 Subpart E

Approved by:



Shawn Wu
Supervisor

2. EUT DESCRIPTION

Product	SyncUP Kids Watch	
Model No.	TMUS-SKW-1, TMUS-SKW-M	
Model Discrepancy	<p>1. Preload profiles in SIM IC are different, but the SIM IC is the same. TMUS-SKW-1 is T-Mobile SKU, TMUS-SKW-M is MPCS SKU.</p> <p>2. There are two memory implements, but the function is the same:</p> <p>(1) Main source memory: Kingston Solutions, Inc. / 08EPOP08-NL3DT227-A01</p> <p>(2) Second source memory: Kingston Solutions, Inc. / 08EP08-N3GT227-GA08</p>	
Trade	T-Mobile	
Received Date	May 10, 2022	
Date of Test	May 26, 2022	
Power Supply	Power from Battery. EVE / P0963 Rated Capacity: 3.85V, 495mAh, 1.91Wh	
Frequency Range	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~1909.2MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5 MHz ~ 1908.4 MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855MHz ~1905MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5 MHz ~ 1902.5 MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860MHz ~1900MHz
Modulation Technique	LTE Band 2	QPSK, 16QAM
Antenna Specification	PIFA Antenna Band 2: -6.22 dBi	

Remark:

- For more details, please refer to the User's manual of the EUT.
- Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- Disclaimer: The variant model numbers / trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to TIA -603-E, FCC CFR 47, Part 2 and Part 24 Subpart E.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 DESCRIPTION OF TEST MODES

The EUT (Model: TMUS-SKW-1) had been tested under operating condition. The EUT be set in maximum power transmission via call box during testing.

LTE Band 2: 1850MHz ~ 1910MHz

Three channels had been tested for each channel bandwidth.

Channel	1.4MHz		3MHz		5MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Lowest	18607	1850.7	18615	1851.5	18625	1852.5
Middle	18900	1880.0	18900	1880.0	18900	1880.0
Highest	19193	1909.3	19184	1908.4	19175	1907.5
Channel	10MHz		15MHz		20MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Lowest	18650	1855.0	18675	1857.5	18700	1860.0
Middle	18900	1880.0	18900	1880.0	18900	1880.0
Highest	19150	1905.0	19125	1902.5	19100	1900.0

3.2.1 The worst mode of measurement

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Battery Mode 2: EUT power by Cradle
Worst Mode	<input type="checkbox"/> Mode 1 <input checked="" type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report.

4. TEST SUMMARY

FCC Standard Sec.	Report Section	Test Item	Result
-	2	Antenna Requirement	Pass
24.238(a)	8.1	Spurious Radiation Measurement	Pass

5. INSTRUMENT CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Bilog Antenna	Sunol Sciences	JB3	A030105	07/19/2021	07/18/2022
Bilog Antenna	Sunol Sciences	JB1	A052609	02/15/2022	02/14/2023
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/23/2022	02/22/2023
Coaxial Cable	EMCI	EMC105	190914+1111	09/17/2021	09/16/2022
Coaxial Cable	Woken	J-1099	201709090004	12/23/2021	12/22/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	12/28/2021	12/27/2022
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	1/25/2022	1/24/2023
Horn Antenna	ETS LINDGREN	3116	00026370	11/30/2021	11/29/2022
Horn Antenna	ETS LINDGREN	3117	00055165	07/29/2021	07/28/2022
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/05/2021	12/04/2022
Pre-Amplifier	EMEC	EM330	060609	02/23/2022	02/22/2023
Pre-Amplifier	HP	8449B	3008A00965	12/24/2021	12/23/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	12/06/2021	12/05/2022
S.G.	Agilent	E8257C	US42340383	07/13/2021	07/12/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 210616				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

5.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.1183
RF Output Power	± 2.6287
Channel Bandwidth	± 2.6477
Peak to average ratio	± 2.6281
Conducted Bandedge	± 2.6287
Conducted Unwanted Emissions	± 2.6292
Frequency Stability	± 2.7250
Radiated Emission_9kHz-30MHz	± 4.195
Radiated Emission_30MHz-200MHz	± 4.274
Radiated Emission_200MHz-1GHz	± 4.617
Radiated Emission_1GHz-6GHz	± 5.523
Radiated Emission_6GHz-18GHz	± 5.234
Radiated Emission_18GHz-26GHz	± 4.088
Radiated Emission_26GHz-40GHz	± 4.018

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

6. FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City Taiwan. (R.O.C.)

Tel: 886-2-2299-9720 / Fax: 886-2-2299-9721

7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

7.2 SUPPORT EQUIPMENT

Support Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	Adapter	PHIHONG TECHNOLOGY	AN05A-050E	N/A	N/A

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

8. FCC PART 24 REQUIREMENTS

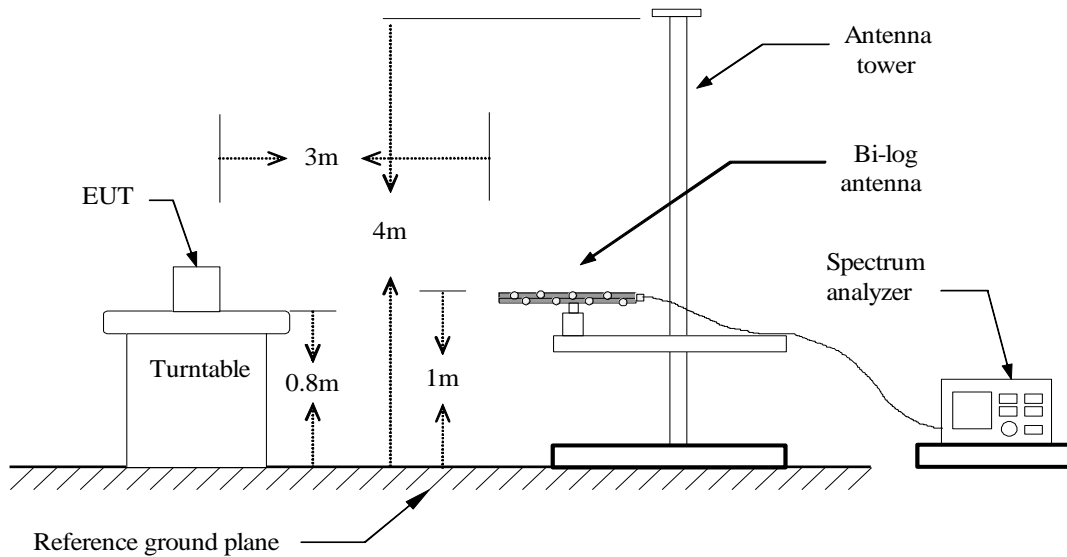
8.1 SPURIOUS RADIATION MEASUREMENT

LIMIT

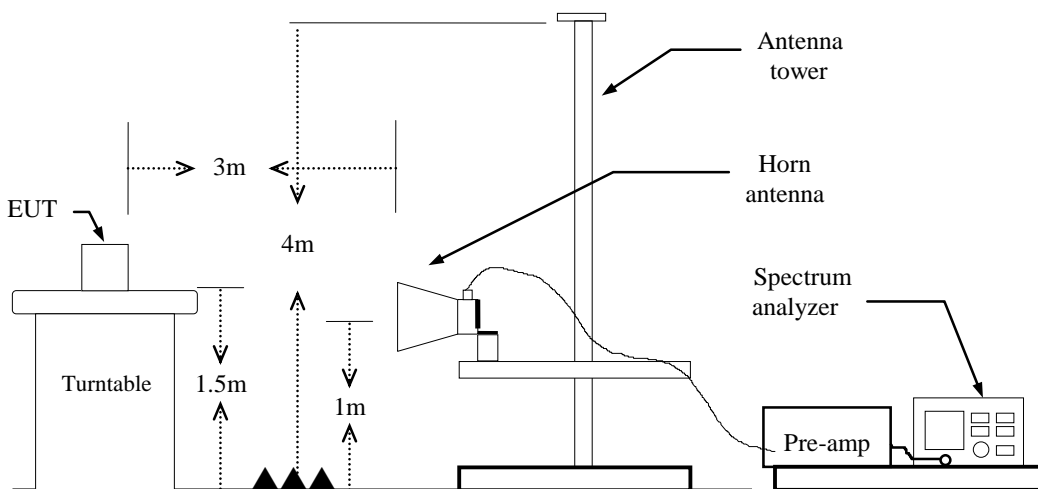
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm

Test Configuration

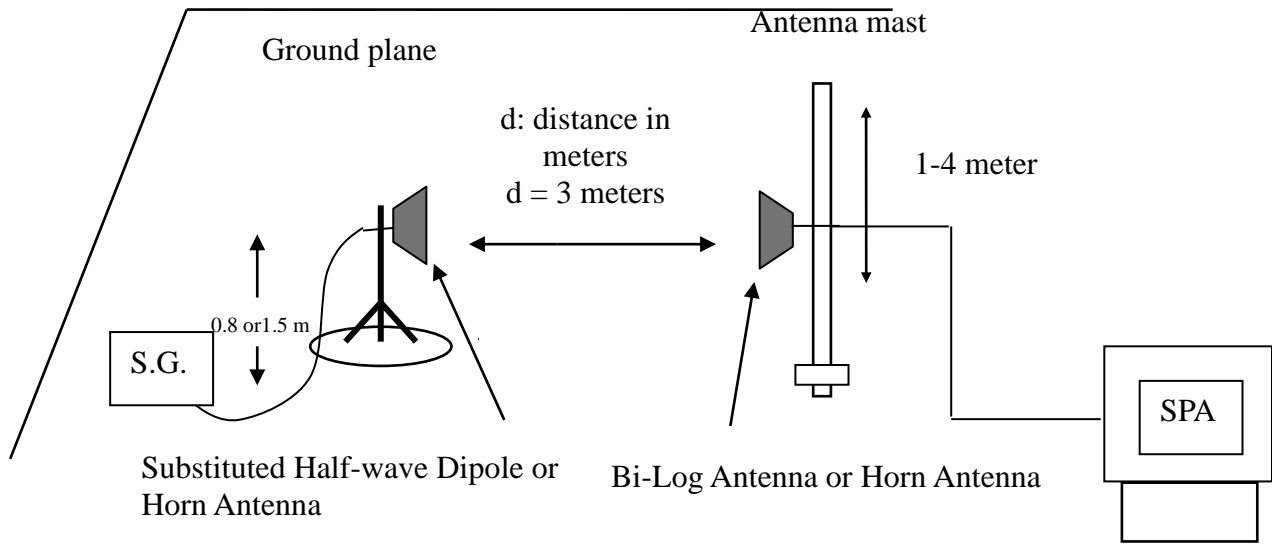
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

1. According to KDB 971168 D01 Power Meas License Digital Systems and TIA-603-E Section 2.2.12.
2. The EUT was placed on a turntable
 - (1) Below 1G : 0.8m
 - (2) Above 1G : 0.8m
 - (3) EUT set 3m from the receiving antenna
 - (4) The table was rotated 360 degrees of the highest spurious emission to determine the position.
3. Set the spectrum analyzer , RBW=1MHz, VBW=3MHz.
4. A horn antenna was driven by a signal generator.
5. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission

$$ERP = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$EIRP = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

TEST RESULTS

Refer to the attached tabular data sheets.

Remark: Above 1GHz

Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Results

LTE Band 2 / BW: 20MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: TX CH Mid

Polarity: Vertical

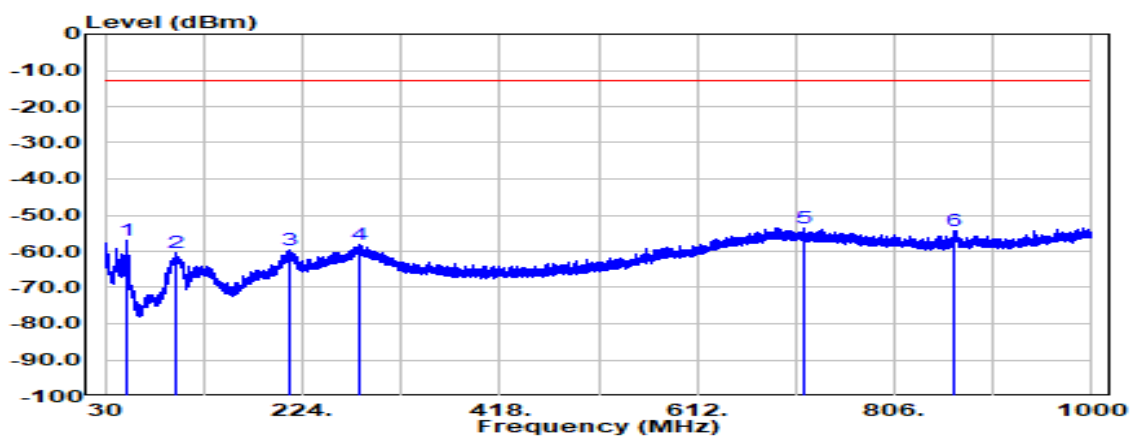
Temperature: 23.9°C

Test Date: May 26, 2022

Humidity: 65% RH

Tested by: Ray Li

EUT: Second source memory



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)
51.049	-56.80	-45.11	-11.35	0.34	-13.00	-43.80
99.549	-60.54	-52.08	-7.98	0.48	-13.00	-47.54
211.875	-59.60	-57.09	-1.81	0.70	-13.00	-46.60
280.551	-58.09	-55.09	-2.16	0.83	-13.00	-45.09
716.857	-53.51	-51.04	-1.12	1.35	-13.00	-40.51
864.879	-54.20	-54.47	1.75	1.48	-13.00	-41.20

Operation Mode: TX CH Mid

Polarity: Horizontal

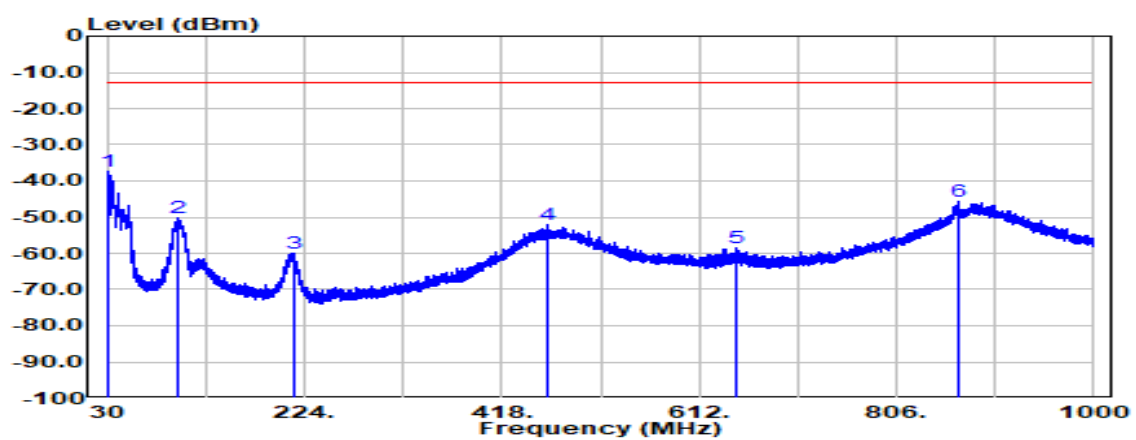
Temperature: 23.9°C

Test Date: May 26, 2022

Humidity: 65% RH

Tested by: Ray Li

EUT: Second source memory



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)
31.843	-37.49	-9.36	-27.86	0.28	-13.00	-24.49
100.713	-50.20	-41.51	-8.21	0.48	-13.00	-37.20
212.845	-60.00	-57.53	-1.77	0.71	-13.00	-47.00
461.941	-52.17	-49.48	-1.61	1.07	-13.00	-39.17
648.666	-58.52	-55.92	-1.31	1.29	-13.00	-45.52
867.595	-45.57	-44.37	0.29	1.49	-13.00	-32.57

8.2 TEST DATA RE-USE SUMMARY

Introduction Section:

The application re-uses data collected on a similar device. The subject device of this application (Model: TMUS-SKW-1, TMUS-SKW-M, FCC ID: 2ASXC-TMO-SKW-05) is electrically identical to the reference device (Model: TMUS-SKW-1, TMUS-SKW-M, FCC ID: 2ASXC-TMO-SWK-01) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 484596 D01.

Differences Brief Description:

The WLAN, Bluetooth and WWAN hardware of this device are identical to the implementation in

FCC ID: 2ASXC-TMO-SKW-05

The Product Equality Declaration document includes detailed information about the changes between the devices. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary table below.

Spot Check Verification Result Summary

Equipment Class	Reference FCC ID	Folder Test	Report Title/Section
Part 24, E	2ASXC-TMO-SKW-01	T200825W02-RP3	All Section (Except for Spurious Radiation Measurement below 1GHz)

Summary of the spot check for Unlicensed bands and Licensed bands

In order to confirm hardware similarity of the subject device with the reference device, we used same setting power to radiated emission measurement were performed on the subject device for the Band edge and Harmonic, the test result were similar with FCC ID: 2ASXC-TMO-SKW-01.

WWAN: LTE Band 2

Report	Mode / Band	Test Item	CH	Original FCC IC: 2ASXC-TMO-SKW-01)				Update FCC ID: 2ASXC-TMO-SKW-05)				Gap (dB)	
				Measured Frequency (MHz)	Peak	Average	Ant. Pol.	Measured Frequency (MHz)	Peak	Average	Ant. Pol.	Peak	Average
LTE Band 2	20 QPSK 1	Emission 3G~8G	Middle	3760	-51.17	N/A	H	3760	-50.59	N/A	H	0.58	N/A

- End of Test Report -