

FCC - TEST REPORT

Report Number : **60.790.18.050.01R01** Date of Issue : February 20, 2019

Model : **75003PP01**

Product Type : **BLE Smart Watch**

Applicant : TITAN COMPANY LTD

Address : Integrity, #193, Veerasandra, Electronics City P.O., Off Hosur Main Road, Bangalore, India

Production Facility : Kendy Electronics (Dongguan) Co. Ltd

Address : Xingsi Huangtang Village, Hengli Town, Dongguan City, Guangdong Province, P.R.China

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including Appendices : 17

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2 Description of Equipment Under Test

Description of the Equipment Under Test

Product:	BLE Smart watch
Model no.:	75003PP01
FCC ID:	2AK9F-7500
Rating:	3.8V DC form internal rechargeable battery 5V DC form USB charging cable
Frequency:	2457MHz
Antenna gain:	0 dBi
Number of operated channel:	1
Modulation:	GFSK

Auxiliary Equipment and Software Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.	S/N
Adapter	Apple	A1357	/

- Note: 1. Adapter is used as a supporting device for Conducted Emission test.
2. Manufacture pre-installed the test mode firmware, to keep continuous transmitting at wanted channel for RF testing.

3 Summary of Test Standards

Test Standards
FCC Part 15 Subpart C 10-1-17 Edition Federal Communications Commission, PART 15 — Radio Frequency Devices, Subpart C — Unintentional Radiators

All the tests were performed using the procedures from ANSI C63.4(2014) and ANSI C63.10 (2013).

4 Details about the Test Laboratory

Site 1

Company name: TÜV SÜD Hong Kong Ltd.
3/F, West Wing, Lakeside 2,
10 Science Park West Avenue,
Science Park, Shatin, Hong Kong

Site 2

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13 Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2,
Shenzhen 518052, P.R.China
FCC Registration Number: 502708

Emission Tests	
Test Item	Test Site
FCC Part 15 Subpart C	
FCC Title 47 Part 15.205, 15.209 & 15.249 & Radiated Emission	Site 2
FCC Title 47 Part 15.207 Conduct Emission	Site 2
FCC Title 47 Part 15.215 20dB & 99% Bandwidth	Site 2
FCC Title 47 Part 15.203 Antenna Requirement	Site 2

4.1 Test Equipment Site List

Radiated emission Test – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2019-7-6
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2019-7-6
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398	2019-7-6
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2019-7-12
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2019-7-6
Signal Generator	Rohde & Schwarz	SMY01	839369/005	2019-7-6
Attenuator	Agilent	8491A	MY39264334	2019-7-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

Conducted Emission Test – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2019-7-6
LISN	Rohde & Schwarz	ENV4200	100249	2019-7-6
LISN	Rohde & Schwarz	ENV432	101318	2019-7-6
LISN	Rohde & Schwarz	ENV216	100326	2019-7-6
ISN	Rohde & Schwarz	ENY81	100177	2019-7-6
ISN	Rohde & Schwarz	ENY81-CA6	101664	2019-7-6
High Voltage Probe	Rohde & Schwarz	TK9420(VT9420)	9420-584	2019-6-30
RF Current Probe	Rohde & Schwarz	EZ-17	100816	2019-6-30
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2019-7-6
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A

20dB & 99% Bandwidth – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	2019-7-6
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2019-7-6
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2019-7-6

4.2 Measurement System Uncertainty

Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.46dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Conducted Emission at AC Power Line 150kHz-30MHz	3.21dB
Uncertainty for frequency test	0.6×10^{-7}

5 Summary of Test Results

Emission Tests				
FCC Part 15 Subpart C				
Test Condition	Pages	Test Result		
		Pass	Fail	N/A
FCC Title 47 Part 15.205,15.209 & 15.249 Radiated Emission	10-11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.207 Conduct Emission (1)	12-13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.215 20dB & 99% Bandwidth	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.203 Antenna Requirement	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remark:

1. This test is performed on the AC power port of the assist adaptor which supply the 5V DC power to charge EUT.

6 General Remarks

Remarks

Client informs that the **75501PP01, 75001PP02, 75001PP03, 75002PP01, 75002PP02, 75002PP03, 75002PP04, 75003PP02, 75004PP01, 75004PP02, 75004PP03** has the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with **75003PP01**. The difference lies only with removal of barometer and compass sensor in **75001PPxxx & T75004PPxx** (xx represent variant of color). (Client's conformation letter shown at appendix B)

EMC Tests were performed on model: **75003PP01**.

This submittal(s) (test report) is intended for FCC ID: **2AK9F-7500**, complies with Section 15.203, 15.205, 15.207, 15.209, 15.249 of the FCC Part 15, Subpart C rules.

The TX and RX range is 2457MHz.

SUMMARY:

- All tests according to the regulations cited on page 5 were

☒ - Performed

☐ - **Not** Performed

- The Equipment Under Test

☒ - **Fulfills** the general approval requirements.

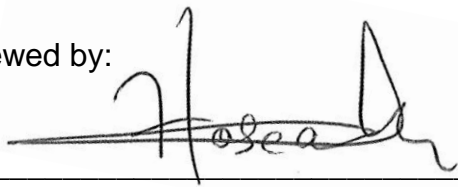
☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: October 10, 2018

Testing Start Date: October 12, 2018

Testing End Date: December 17, 2018

Reviewed by:



Hosea CHAN
EMC Project Engineer

Prepared by:



Eric LI
EMC Senior Project Engineer

7 Emission Test Results

7.1 Radiated Emission

EUT: 75003PP01
 Op Condition: Operated, TX Mode (2457MHz)
 Test Specification: FCC15.249 & 15.209, Antenna: Horizontal
 Comment: 3.8 VDC
 Remark: 9kHz to 25GHz

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	Result dBμV/m	Limit dBμV/m	Margin dB	Detector
47.650	15.55	40.00	-24.45	Quasi Peak
175.015	17.83	43.50	-25.67	Quasi Peak
438.855	18.69	46.00	-27.31	Quasi Peak
871.956	27.32	46.00	-18.68	Quasi Peak
1123.78	27.87	54.00	-26.13	Peak
2457.000	76.92	114.00	-37.08	Peak
2457.000	63.78	94.00	-30.22	Average
3493.687	34.89	54.00	-19.11	Peak
7602.375	40.06	54.00	-13.94	Peak
12764.531	43.42	54.00	-10.58	Peak

Remark: As the peak value were below the average limit, so average value no need to be measured.

Radiated Emission

EUT: 75003PP01
 Op Condition: Operated, TX Mode (2457MHz)
 Test Specification: FCC15.249 & 15.209, Antenna: Vertical
 Comment: 3.8 VDC
 Remark: 9kHz to 25GHz

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	Result dBμV/m	Limit dBμV/m	Margin dB	Detector
63.681	16.45	40.00	-23.55	Quasi Peak
175.015	14.07	43.50	-29.43	Quasi Peak
436.322	16.88	46.00	-29.12	Quasi Peak
870.343	29.12	46.00	-16.88	Quasi Peak
1124.656	31.02	54.00	-22.98	Peak
2457.000	71.89	114.00	-42.11	Peak
2457.000	58.98	94.00	-35.02	Average
6053.250	36.12	54.00	-17.88	Peak
9651.937	40.07	54.00	-13.93	Peak
12894.687	43.89	54.00	-10.11	Peak

Remark*: As the peak value were below the average limit, so average value no need to be measured.

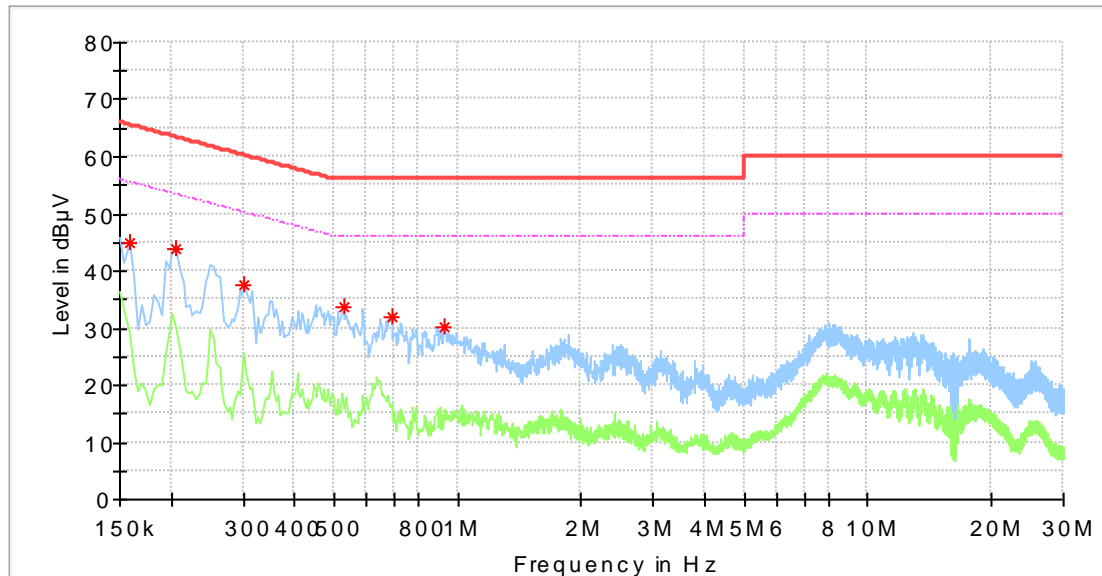
7.2 Conducted Emission at AC Power line

EUT: 75003PP01
 Op Condition: Operated, TX Mode
 Test Specification: FCC15.207
 Comment: 120V AC
 Remark: L Line

Test Result

☒ Passed

☐ Not Passed

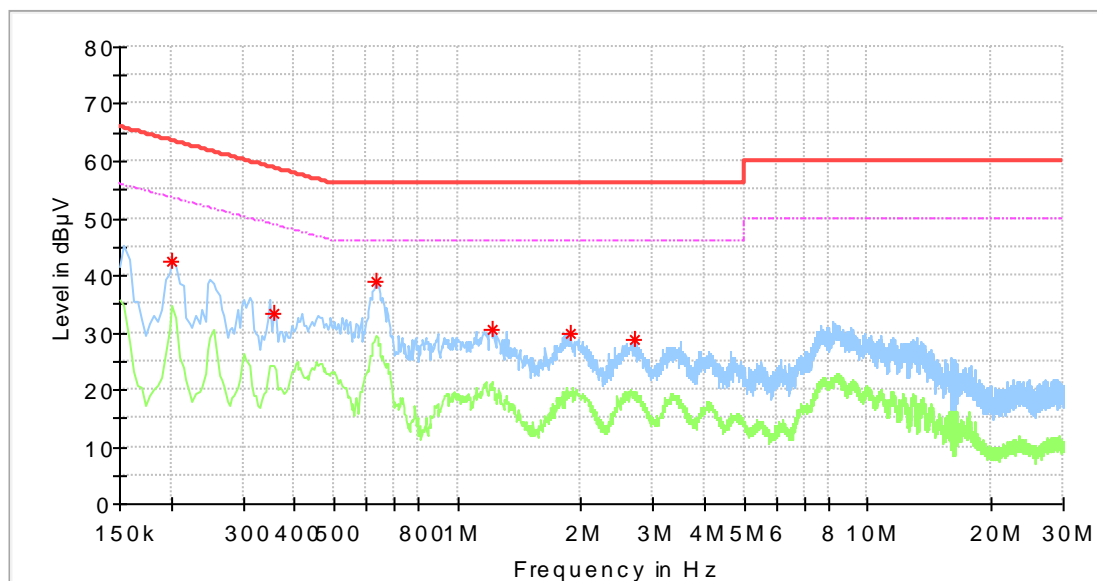


Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)
0.158000	44.81	---	65.57	-20.76
0.206000	43.84	---	63.37	-19.52
0.302000	37.63	---	60.19	-22.55
0.526000	33.59	---	56.00	-22.41
0.690000	31.89	---	56.00	-24.11
0.930000	30.13	---	56.00	-25.87

Conducted Emission at AC Power line

EUT: 75003PP01
 Op Condition: Operated, TX Mode
 Test Specification: FCC15.207
 Comment: 120V AC
 Remark: N Line

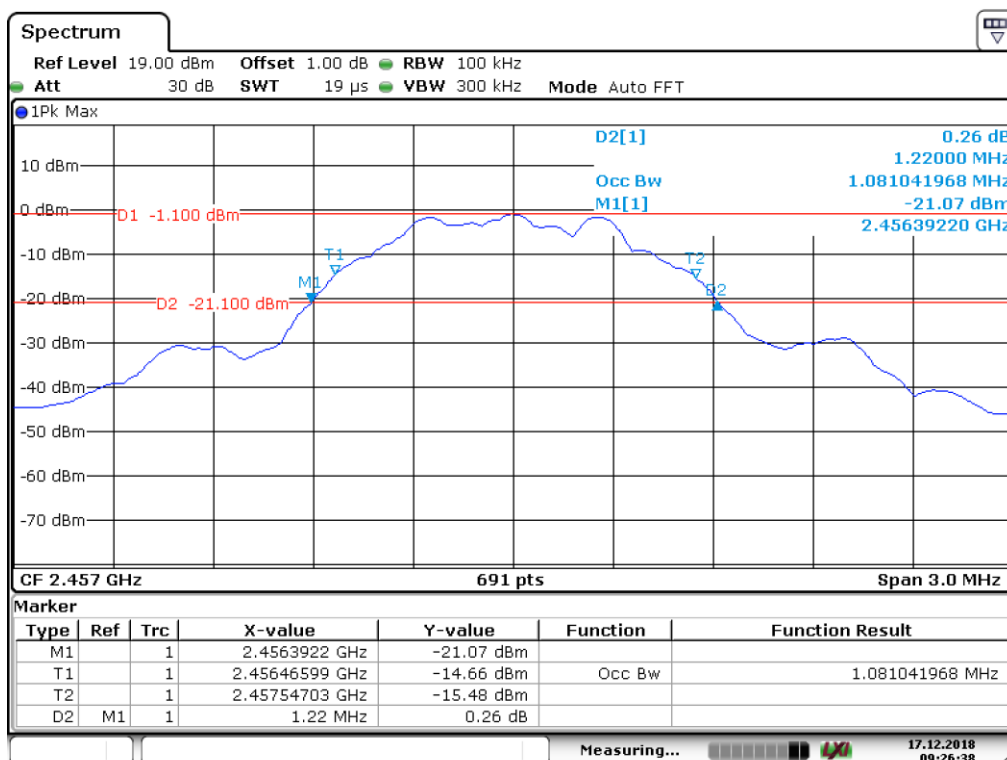
Test Result
☒ Passed
☐ Not Passed



Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)
0.202000	42.62	---	63.53	-20.91
0.358000	33.49	---	58.77	-25.28
0.634000	38.84	---	56.00	-17.16
1.214000	30.62	---	56.00	-25.38
1.882000	29.70	---	56.00	-26.30
2.710000	28.90	---	56.00	-27.10

7.3 20dB & 99% Bandwidth

EUT: 75003PP01
Op Condition: Operated, TX Mode (2457MHz)
Test Specification: FCC15.215
Comment: 3.8 VDC

Test Result☒ Passed☐ Not Passed**20dB bandwidth**

1220.000 kHz

99% bandwidth

1081.042kHz

7.4 Antenna Requirement

EUT: 75003PP01
Op Condition: Operated, TX Mode
Test Specification: FCC15.203 (b)
Comment: 3.8 VDC

Test Result	
<input checked="checked" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Limit

For intentional device, according to FCC Title 47 Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connector Construction

The antenna used in this product is integrated antenna on PCB, which in accordance to section 15.203, is considered sufficient to comply with the antenna requirement.

8 Appendix A - General Product Information

Radiofrequency radiation exposure evaluation

According to KDB 447498 D01v06 section 4.3.1, For frequencies between 100 MHz to 6GHz and test separation distances ≤ 50 mm, the Numeric threshold is determined as:

Step a)

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR

>> The fundamental frequency of the EUT is 2402-2480MHz,
the test separation distance is ≤ 50 mm.
(Manufacturer specified the separation distance is: 5mm)

Step b)

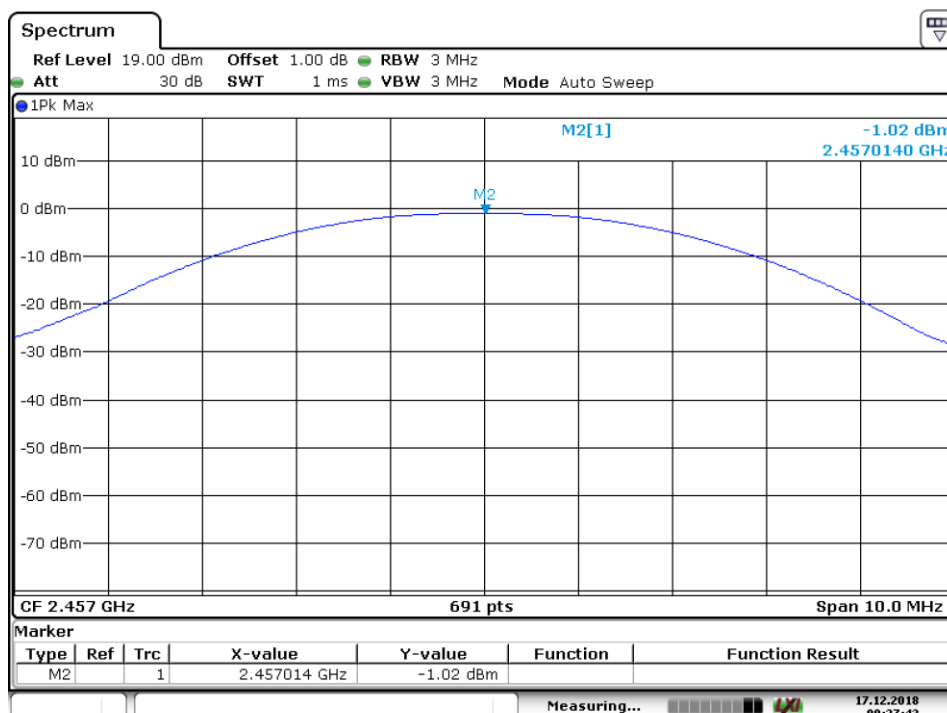
>> Numeric threshold (2457MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.457\text{GHz}} \leq 3.0$
Numeric threshold (2457MHz) $\leq 9.906\text{mW}$

>>The power of EUT measured (2457MHz) is: $-1.02\text{dBm} = 0.791\text{mW}$

Which is smaller than the Numeric threshold.

Therefore, the device is exempt from stand-alone SAR test requirements.

Power Plot



9 Appendix B - General Product Information



To: TÜV SÜD HKG Ltd.

Attention: Mr. Edmond Fung
From: L.F. Wong
Fax No:

Date: February 14, 2019
Total Page (Cover Included): 1

Declaration Letter

Subject: Declaration Letter for Model Number

We:

Officially notify TÜV SÜD HKG Ltd. that the
<<75001PP01>>, <<75001PP02>>, <<75001PP03>>,
<<75002PP01>>, <<75002PP02>>, <<75002PP03>>,<<75002PP04>>,
<<75003PP02>>,
<<75004PP01>>, <<75004PP02>>, <<75004PP03>>,
have the same technical construction including circuit diagram, PCB Layout, and component layout,
all electrical construction and mechanical construction, with <<75003PP01>>,
The difference lies only with removal of barometer and compass sensor in 75001PPxx &
75004PPxx (xx represent variant of color).

<<Additional Model >>: 75001PP01, 75001PP02, 75001PP03;
75002PP01, 75002PP02, 75002PP03; 75002PP04
75003PP02;
75004PP01, 75004PP02, 75004PP03

<<Main Test Model >>: 75003PP01

<<Product>>: BLE Smart Watch

Applicant: Titan Company Ltd.

14/2/19
(Date)

(Applicant's authorized signature and company Chop)

Titan Company Limited

'INTEGRITY' No.193, Veerasandra, Electronics City P.O Off Hosur Main Road, Bengaluru - 560 100 India, Tel : 91 80 - 67047000, Fax : 91 80 - 67046262
Registered Office No. 3, SIPCOT Industrial Complex Hosur 635 126 TN India, Tel 91 4344 664 199, Fax 91 4344 276037, CIN: L74999TZ1984PLC001456

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