China

FCC - TEST REPORT

Report Number	:	60.790.18.034.01R01	Date of Issue	: June 23, 2018
Model	:	TCD		
Product Type	:	**Turbo Connect Display**		
Applicant	:	DAYTON INDUSTRIAL CO., LTD		
Address	:	2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong		
Production Facility	:	KENDY ENTERPRISE LTD		
Address	:	2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong		
Test Result	:	■Positive ☐Negative		
Total pages including Appendices	:	14		

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1 Table of Contents

2 Description of Equipment Under Test

Description of the Equipment Under Test

Product:	Turbo Connect Display
Model no.:	TCD
FCC ID:	O4GTCD
Rating:	3 VDC (1 x CR2302 battery)
Frequency:	2457MHz
Antenna gain:	0 dBi
Number of operated channel:	1
Modulation:	GFSK

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

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	NIL
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	2018-7-14
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2018-7-14
Horn Antenna	Rohde & Schwarz	HF907	102294	2018-7-14
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2018-7-14
Signal Generator	Rohde & Schwarz	SMY01	839369/005	2018-7-7
Attenuator	Agilent	8491A	MY39264334	2018-7-7
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

Bandwidth Test– Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	2018-7-7
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2018-7-7
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2018-7-7
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2018-7-7

4.2 Measurement System Uncertainty

Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	**Extended Uncertainty**
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.54dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.83dB; Vertical: 4.91dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 4.89dB; Vertical: 4.88dB;
Uncertainty for Conducted RF test	2.04dB

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	☒	☐	☐
FCC Title 47 Part 15.207 Conduct Emission (1)	NIL	☐	☐	☒
FCC Title 47 Part 15.215 20dB & 99% Bandwidth	12	☒	☐	☐
FCC Title 47 Part 15.203 Antenna Requirement	13	☒	☐	☐

Remark:

1) These requirements do not apply for equipment which employ battery power for operation and which do not operate from the AC power lines.

6 General Remarks

Remarks

NIL

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: May 30, 2018

Testing Start Date: May 31, 2018

Testing End Date: June 12, 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:	TCD
Op Condition:	Operated, TX Mode (2457MHz)
Test Specification:	FCC15.249 & 15.209, Antenna: Horizontal
Comment:	3 VDC
Remark:	9kHz to 25GHz

Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
58.722	25.88	40	-14.12	Quasi Peak
258.974	23.54	46	-22.46	Quasi Peak
767.254	26.24	46	-19.76	Quasi Peak
874.601	21.19	46	-24.81	Quasi Peak
2393.063	47.95*	54	-6.05	Peak
2457.000	90.65	114	-23.35	Peak
2457.000	82.18	94	-11.82	Average
2521.187	48.65*	54	-5.35	Peak
4914.000	40.00*	74	-34.00	Peak
6366.563	36.85*	54	-17.15	Peak
7921.875	38.94*	54	-15.06	Peak

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

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Radiated Emission

EUT: TCD
Op Condition: Operated, TX Mode (2457MHz)
Test Specification: FCC15.249 & 15.209, Antenna: Vertical
Comment: 3 VDC
Remark: 9kHz to 25GHz

Test Result
☒ Passed
☐ Not Passed

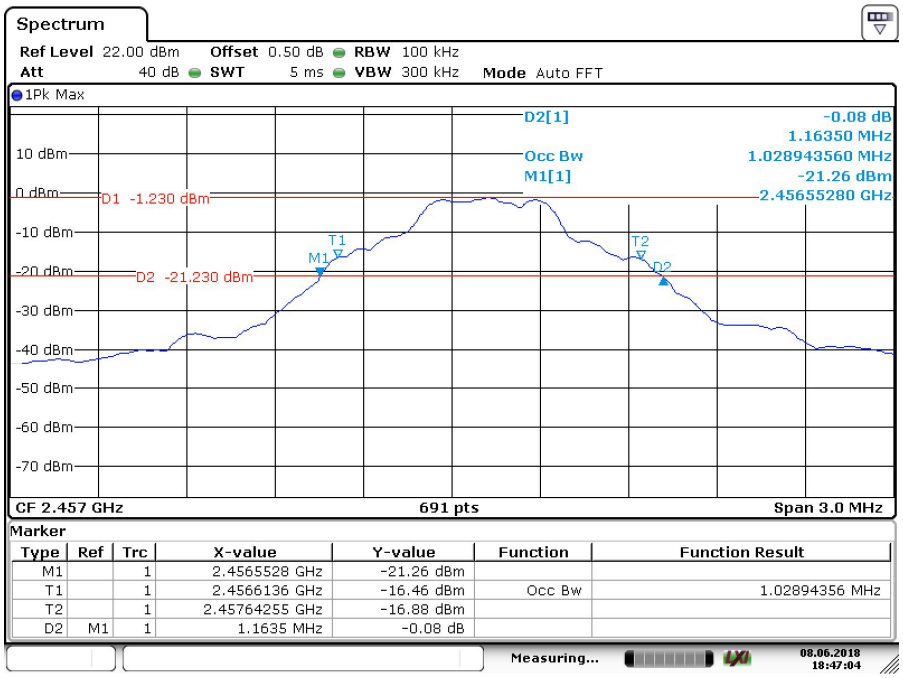
Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
44.388	22.54	40	-17.46	Quasi Peak
58.669	18.78	40	-21.22	Quasi Peak
282.847	19.78	46	-26.22	Quasi Peak
871.098	24.67	46	-21.33	Quasi Peak
2393.187	41.64*	54	-12.36	Peak
2457.000	89.24	114	-24.76	Peak
2457.000	77.35	94	-16.65	Average
2521.188	36.97*	54	-17.03	Peak
4914.000	37.32*	54	-16.68	Peak
7496.719	39.91*	54	-14.09	Peak
10080.000	41.43*	54	-12.57	Peak

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

7.2 20dB & 99% Bandwidth

EUT: TCD
Op Condition: Operated, TX Mode (2457MHz)
Test Specification: FCC15.215
Comment: 3 VDC

Test Result
☒ Passed
☐ Not Passed



Date: 8.JUN.2018 18:47:04

20dB bandwidth
1163.500 kHz

99% bandwidth
1028.944 kHz

7.3 Antenna Requirement

EUT:	TCD
Op Condition:	Operated, TX Mode
Test Specification:	FCC15.203 (b)
Comment:	3 VDC

Test Result
☒ Passed
☐ 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)
[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR

>> The fundamental frequency of the EUT is 2402-2480MHz,
the test separation distance is ≤ 20mm.
(Manufacturer specified the separation distance is: 20mm)

Step b)
>> Numeric threshold (2457MHz), mW / 20mm * √2.457GHz ≤ 3.0
Numeric threshold (2457MHz) ≤ 38.278mW

>>The power of EUT measured (2457MHz) is: -1.25dBm = 0.750mW

Which is smaller than the Numeric threshold.
Therefore, the device is exempt from stand-alone SAR test requirements.

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Appendix A - Conducted power

EUT: TCD
Op Condition: Operated, TX Mode (2457MHz)
Comment: 3 VDC
Remark: NA

Test Result
☒ Passed
☐ Not Passed