

Test Report

Report No.: MTi240313022-12E1

Date of issue: 2024-05-17

Applicant: Shenzhen USV Technology Co., Ltd

Product: 3-IN-1 Wireless Charger

Model(s): T6, Q6, M6

FCC ID: 2AY5D-T6A

Shenzhen Microtest Co., Ltd. http://www.mtitest.cn

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Table of contents

1	Gene	eral Description	5
	1.1 1.2 1.3 1.4 1.5	Description of the EUT Description of test modes Environmental Conditions Description of support units Measurement uncertainty	5 6 6
2	Sum	mary of Test Result	7
3	Test	Facilities and accreditations	8
	3.1	Test laboratory	8
4	List	of test equipment	9
5	Eval	uation Results (Evaluation)	10
	5.1	Antenna requirement	10
6	Radi	o Spectrum Matter Test Results (RF)	11
	6.1 6.2 6.3 6.4	Conducted Emission at AC power line 20dB Occupied Bandwidth Emissions in frequency bands (below 30MHz) Emissions in frequency bands (30MHz - 1GHz)	14 19
Ph	otogra	aphs of the test setup	25
Ph	otogra	aphs of the EUT	26



Test Result Certification Applicant: Shenzhen USV Technology Co., Ltd 4th to the south, building B20, Hengfeng Industrial City, Hangchen, Bao'an Address: District, Shenzhen City, Guangdong Province, 518100 China Shenzhen USV Technology Co., Ltd Manufacturer: 4th to the south, building B20, Hengfeng Industrial City, Hangchen, Bao'an Address: District, Shenzhen City, Guangdong Province, 518100 China **Factory:** Shenzhen USV Technology Co., Ltd 4th to the south, building B20, Hengfeng Industrial City, Hangchen, Bao'an Address: District, Shenzhen City, Guangdong Province, 518100 China **Product description** Product name: 3-IN-1 Wireless Charger Trade mark: N/A T6 Model name: Series Model(s): Q6, M6 47 CFR Part 15C Standards: Test Method: ANSI C63.10-2013 **Date of Test** 2024-05-06 to 2024-05-15 Date of test: Test result: Pass

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		(Maleah Deng)
Reviewed By	:	Dowid. Cel
		(David Lee)
Approved By	:	leon chen
		(Leon Chen)



1 General Description

1.1 Description of the EUT

Product name:	3-IN-1 Wireless Charger
Model name:	T6
Series Model(s):	Q6, M6
Model difference:	All the models are the same circuit and module, except the model name and appearance color.
Electrical rating:	Input: DC 5V 3A, 9V 2A Wireless Output: Phone: 5W,7.5W,10W; Watch: 2.5W; Earphone: 3W
Accessories:	Cable: USB-C to USB-C cable 120cm
Hardware version:	V1.1
Software version:	V1.1
Test sample(s) number:	MTi240313022-12S1001
RF specification	
Operating frequency range:	Transmitter1 (Phone): 115-205KHz Transmitter2 (Earphone): 115-205KHz Transmitter3 (Watch): 326.5KHz
Modulation type:	ASK
Antenna(s) type:	Coil Antenna

1.2 Description of test modes

No.	Emission test modes
Mode1	Wireless output(5W)+Earphone(3W)+Watch(2.5W)
Mode2	Wireless output(7.5W)+Earphone(3W)+Watch(2.5W)
Mode3	Wireless output(10W)+Earphone(3W)+Watch(2.5W)
Mode4	Wireless output(5W)+Earphone(3W)
Mode5	Wireless output(7.5W)+Earphone(3W)
Mode6	Wireless output(10W)+Earphone(3W)
Mode7	Wireless output(5W)+Watch(2.5W)
Mode8	Wireless output(7.5W)+Watch(2.5W)
Mode9	Wireless output(10W)+Watch(2.5W)
Mode10	Earphone(3W)+Watch(2.5W)
Mode11	Wireless output(5W)
Mode12	Wireless output(7.5W)
Mode13	Wireless output(10W)
Mode14	Watch(2.5W)
Mode15	Earphone(3W)
Mode16	stand by



1.3 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C ~ 35°C
Humidity:	20% RH ~ 75% RH
Atmospheric pressure:	98 kPa ~ 101 kPa

1.4 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.

Support equipment list						
Description	Model	Serial No.	Manufacturer			
iwatch	iwatch S7	M0JVGQG1VP	Apple			
wireless charging load	YBZ1.1	1	YBZ			
airpods	airpods 3	1	apple			
HUAWEI QUICK CHARGE(65W)	HW-200200ZP1	JN67LSN7N03451	HUAWEI			
Support cable list						
Description	Length (m)	From	То			
/	1	1	1			

1.5 Measurement uncertainty

Measurement	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	±3.1dB
Occupied channel bandwidth	±3 %
Radiated spurious emissions (9kHz~30MHz)	±4.3dB
Radiated spurious emissions (30MHz~1GHz)	±4.7dB
Temperature	±1 °C
Humidity	± 5 %

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



2 Summary of Test Result

No.	Item	Standard	Requirement	Result
1	Antenna requirement	47 CFR Part 15C	47 CFR Part 15.203	Pass
2	Conducted Emission at AC power line	47 CFR Part 15C	47 CFR Part 15.207(a)	Pass
3	20dB Occupied Bandwidth	47 CFR Part 15C	47 CFR Part 15.215(c)	Pass
4	Emissions in frequency bands (below 30MHz)	47 CFR Part 15C	47 CFR Part 15.209	Pass
5	Emissions in frequency bands (30MHz - 1GHz)	47 CFR Part 15C	47 CFR Part 15.209	Pass



3 Test Facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.			
Test site location:	101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China			
Telephone:	(86-755)88850135			
Fax:	(86-755)88850136			
CNAS Registration No.:	CNAS L5868			
FCC Registration No.:	448573			
IC Registration No.:	21760			
CABID:	CN0093			



4 List of test equipment

Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due	
Conducted Emission at AC power line						
EMI Test Receiver	Rohde&schwarz	ESCI3	101368	2024-03-20	2025-03-19	
Artificial mains network	Schwarzbeck	NSLK 8127	183	2024-03-21	2025-03-20	
Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100263	2024-03-20	2025-03-19	
	20dB Od	cupied Bandwid	th			
Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2024-03-20	2025-03-19	
ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2024-03-21	2025-03-20	
PXA Signal Analyzer	Agilent	N9030A	MY51350296	2024-03-21	2025-03-20	
Synthesized Sweeper	Agilent	83752A	3610A01957	2024-03-21	2025-03-20	
MXA Signal Analyzer	Agilent	N9020A	MY50143483	2024-03-21	2025-03-20	
RF Control Unit	Tonscend	JS0806-1	19D8060152	2024-03-21	2025-03-20	
Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2024-03-21	2025-03-20	
ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2024-03-20	2025-03-19	
DC Power Supply	Agilent	E3632A	MY40027695	2024-03-21	2025-03-20	
	Emissions in frequ	ency bands (bel	low 30MHz)			
EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03-20	2025-03-19	
Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03-23	2025-03-22	
Amplifier	Hewlett-Packard	8447F	3113A06184	2024-03-20	2025-03-19	
	Emissions in freque	ency bands (30N	ЛHz - 1GHz)			
EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03-20	2025-03-19	
TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2023-06-11	2025-06-10	
Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03-23	2025-03-22	
Amplifier	Hewlett-Packard	8447F	3113A06184	2024-03-20	2025-03-19	
Multi-device Controller	TuoPu	TPMDC	1	2024-03-20	2025-03-19	
	EMI Test Receiver Artificial mains network Artificial Mains Network Wideband Radio Communication Tester ESG Series Analog Ssignal Generator PXA Signal Analyzer Synthesized Sweeper MXA Signal Analyzer RF Control Unit Band Reject Filter Group ESG Vector Signal Generator DC Power Supply EMI Test Receiver Active Loop Antenna Amplifier EMI Test Receiver TRILOG Broadband Antenna Active Loop Antenna Active Loop Antenna Amplifier	EMI Test Receiver Rohde&schwarz Artificial mains network Schwarzbeck Artificial Mains Network Rohde & Schwarz 20dB Octoor Wideband Radio Communication Tester ESG Series Analog Ssignal Generator PXA Signal Analyzer Agilent Synthesized Sweeper Agilent MXA Signal Analyzer Agilent RF Control Unit Tonscend Band Reject Filter Group Tonscend ESG Vector Signal Generator DC Power Supply Agilent Emissions in frequent EMI Test Receiver Rohde&schwarz Active Loop Antenna Schwarzbeck Amplifier Rohde&schwarz TRILOG Broadband Antenna Schwarzbeck Amplifier Revelet Rohde&schwarz TRILOG Broadband Antenna Schwarzbeck Amplifier Hewlett-Packard Emissions in frequent Schwarzbeck Amplifier Rohde&schwarz Rohde&schwarz	EMI Test Receiver Rohde&schwarz ESCI3 Artificial mains network Schwarzbeck NSLK 8127 Artificial Mains Network Rohde & Schwarz ESH2-Z5 20dB Occupied Bandwid Rohde&schwarz CMW500 Wideband Radio Communication Tester ESG Series Analog Ssignal Generator PXA Signal Analyzer Agilent N9030A Synthesized Sweeper Agilent N9030A Synthesized Sweeper Agilent N9020A RF Control Unit Tonscend JS0806-1 Band Reject Filter Group Tonscend JS0806-1 ESG Vector Signal Generator Agilent N5182A DC Power Supply Agilent E3632A Emissions in frequency bands (bell EMI Test Receiver Rohde&schwarz ESCI7 Active Loop Antenna Schwarzbeck FMZB 1519 B Amplifier Rohde&schwarz ESCI7 TRILOG Broadband Antenna Schwarzbeck FMZB 1519 B Amplifier Rohde&schwarz ESCI7 TRILOG Broadband Antenna Schwarzbeck FMZB 1519 B Amplifier Rohde&schwarz ESCI7 FMZB 1519 B Amplifier Rohde&schwarz ESCI7 TRILOG Broadband Schwarabeck FMZB 1519 B Amplifier FMZB 1519 B Amplifier FMZB 1519 B Amplifier FMZB 1519 B	EMI Test Receiver Rohde&schwarz ESCI3 101368 Artificial mains network Schwarzbeck NSLK 8127 183 Artificial Mains Network Rohde & Schwarz ESH2-Z5 100263 **Total Mains Network Rohde & Schwarz ESG Series Analog Schwarz Agilent PAS Signal Generator Agilent N9030A MY51350296 **Total Mains Network Rohde & Schwarz PAS	Conducted Emission at AC power line	



5 Evaluation Results (Evaluation)

5.1 Antenna requirement

5.1.1 Conclusion:

The antenna of the EUT is permanently attached.
The EUT complies with the requirement of FCC PART 15.203.



6 Radio Spectrum Matter Test Results (RF)

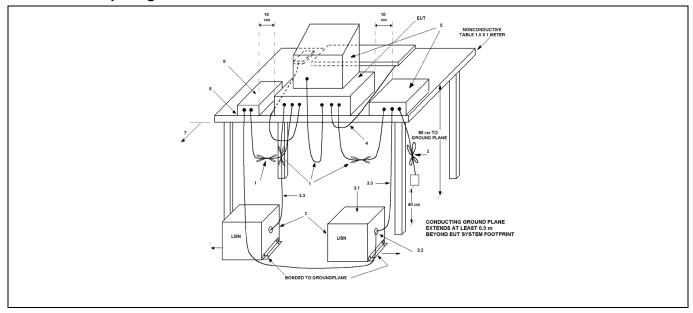
6.1 Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN).					
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBµV)				
		Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
	*Decreases with the logarithm of the frequency.					
Test Method:	ANSI C63.10-2013 section 6.2					
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices					

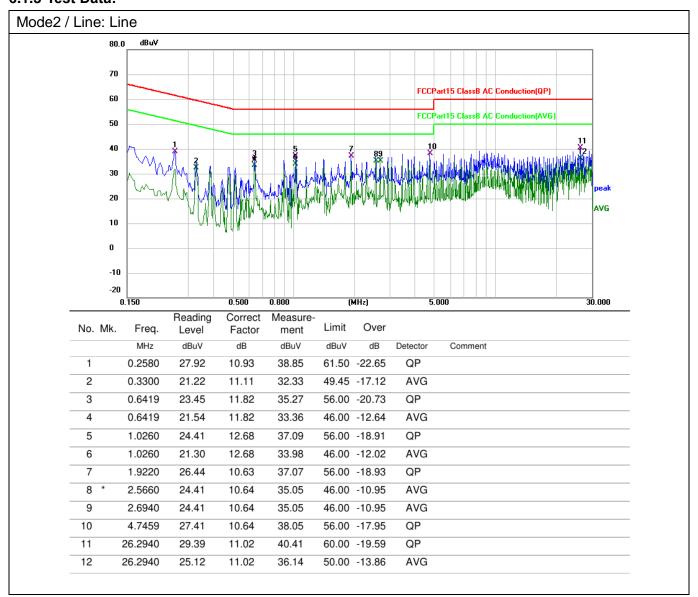
6.1.1 E.U.T. Operation:

Operating Environment:						
Temperature:	emperature: 25.6 °C			56 %	Atmospheric Pressure:	101 kPa
Pre test mode:		Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16				
Final test mode	All of the listed pre-test mode were tested, only the data of the worst mode (Mode2) is recorded in the report					

6.1.2 Test Setup Diagram:



6.1.3 Test Data:



1.9220

2.5660

26.2900

26.2900

9 10

11

12

24.65

24.68

29.64

24.99

10.63

10.64

11.02

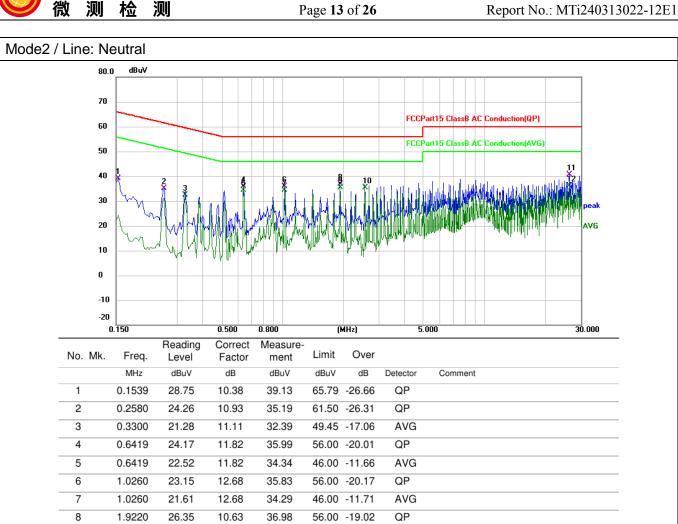
11.02

35.28

35.32

40.66

36.01



46.00 -10.72

46.00 -10.68

60.00 -19.34

50.00 -13.99

AVG

AVG

AVG

QP



6.2 20dB Occupied Bandwidth

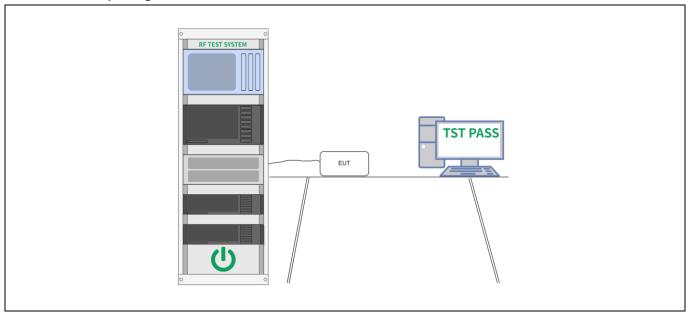
Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2013, section 6.9.2
Test Method: Procedure:	a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "-xx dB down" requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the "-xx dB down amplitude" using [(reference value) - xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "-xx dB do



6.2.1 E.U.T. Operation:

Operating Environment:						
Temperature:	23.1 °C		Humidity:	60 %	Atmospheric Pressure:	100 kPa
Pre test mode:		Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16				
Final test mode	All of the listed pre-test mode were tested, only the data of the worst mode (Mode13, Mode14, Mode15) is recorded in the report					

6.2.2 Test Setup Diagram:

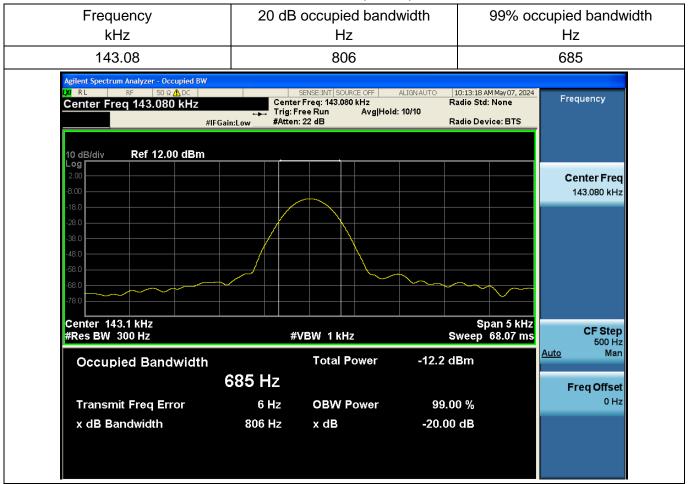




6.2.3 Test Data:

Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 300 Hz to perform the occupied bandwidth test.

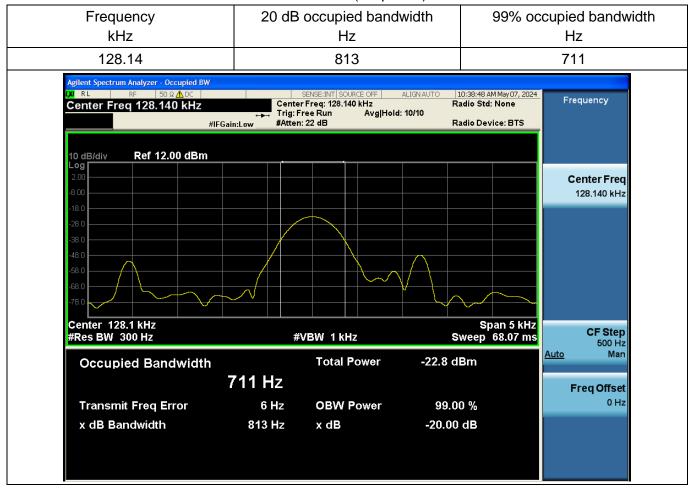
Transmitter 1(Phone)





Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 300 Hz to perform the occupied bandwidth test.

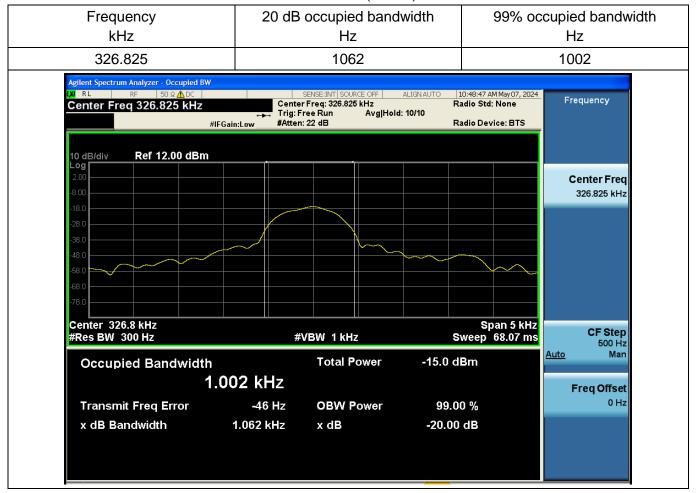
Transmitter 2(Earphone)





Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 300 Hz to perform the occupied bandwidth test.

Transmitter 3(Watch)





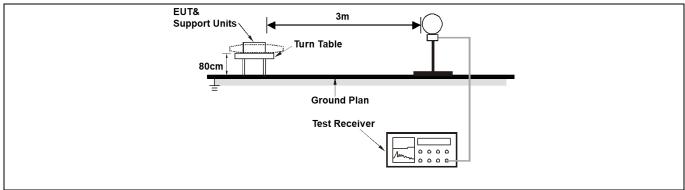
6.3 Emissions in frequency bands (below 30MHz)

Test Requirement:	47 CFR Part 15.209					
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measuremen t distance (meters)			
	0.009-0.490	2400/F(kHz)	300			
	0.490-1.705	24000/F(kHz)	30			
	1.705-30.0	30	30			
	30-88	100 **	3			
	88-216	150 **	3			
	216-960	200 **	3			
	Above 960	500	3			
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MH However, operation within these frequency bands is permitted under of sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurem employing a CISPR quasi-peak detector except for the frequency bank kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in three bands are based on measurements employing an average detect As shown in § 15.35(b), for frequencies above 1000 MHz, the field strelimits in paragraphs (a) and (b) of this section are based on average limits in paragraphs (a) and (b) of this section are based on average limits of any emission shall not exceed the maximum permitted average limits specified above by more than 20 diany condition of modulation. For point-to-point operation under paragra (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.					
Test Method:	ANSI C63.10-2013 sect	ion 6.4				
Procedure:	ANSI C63.10-2013 sect	ion 6.4				

6.3.1 E.U.T. Operation:

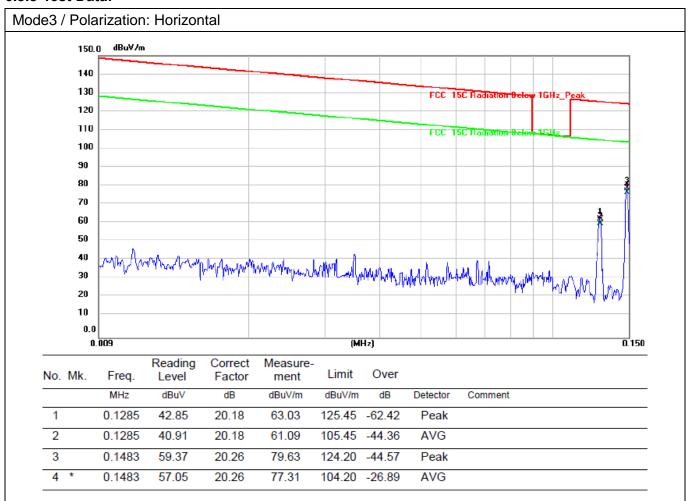
Operating Environment:						
Temperature: 22.5 °C	Humidity: 43 % Atmospheric Pressure: 101 kPa					
Pre test mode:	Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16					
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode3) is recorded in the report					

6.3.2 Test Setup Diagram:





6.3.3 Test Data:



7

8

9

0.7390

1.0319

1.3308

38.39

30.96

25.11

20.47

20.57

20.60

58.86

51.53

45.71

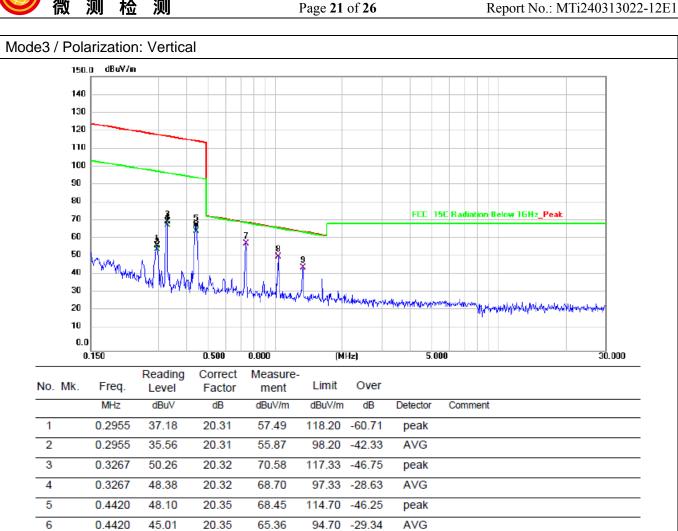
70.24

67.35

-11.38

-15.82

65.15 -19.44



QP

QΡ

QΡ



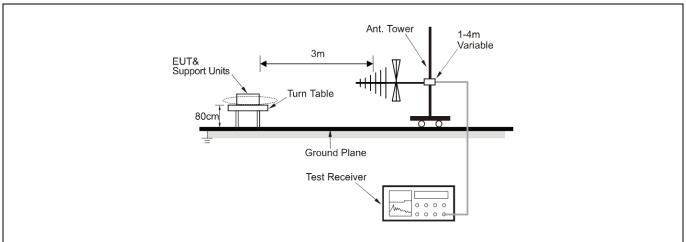
6.4 Emissions in frequency bands (30MHz - 1GHz)

Test Requirement:	47 CFR Part 15.209					
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measuremen t distance (meters)			
	0.009-0.490	2400/F(kHz)	300			
	0.490-1.705	24000/F(kHz)	30			
	1.705-30.0	30	30			
	30-88	100 **	3			
	88-216	150 **	3			
	216-960	200 **	3			
	Above 960	500	3			
	c or 470-806 MHz. rmitted under other the band edges. d on measurements frequency bands 9–90 ssion limits in these a average detector. Hz, the field strength on average limits. not exceed the more than 20 dB under n under paragraph ed 2500					
Test Method:	ANSI C63.10-2013 sect	on 6.5				
Procedure:	ANSI C63.10-2013 sect	on 6.5				

6.4.1 E.U.T. Operation:

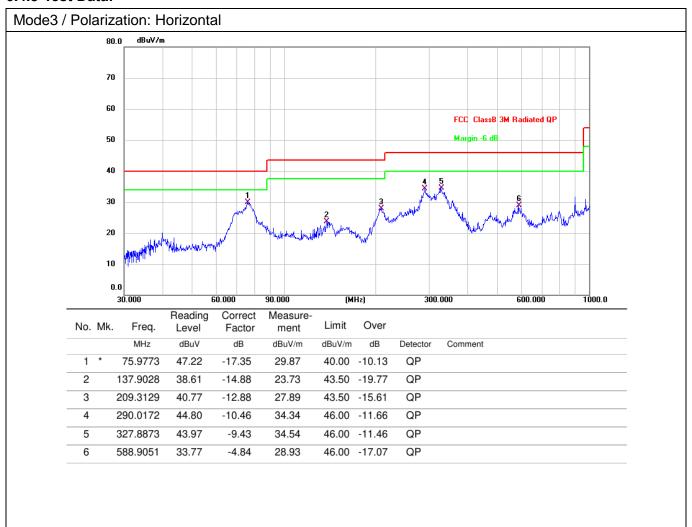
Operating Environment:								
Temperature: 22.5 °C		Hun	nidity:	43 %		Atmospheric Press	ure:	101 kPa
Pre test mode:		Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16						
Final test mode	All of the listed pre-test mode were tested, only the data of the worst mode (Mode3) is recorded in the report							

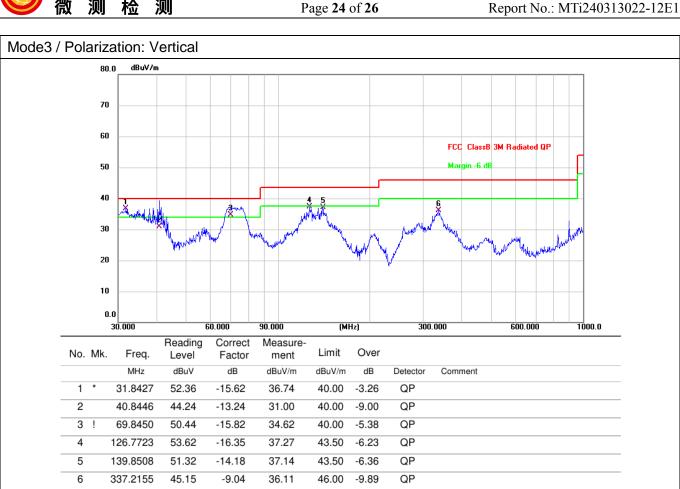
6.4.2 Test Setup Diagram:





6.4.3 Test Data:







Photographs of the test setup

Refer to Appendix - Test Setup Photos



Photographs of the EUT

Refer to Appendix - EUT Photos

----End of Report----