

Test Report

Report No.:MTi231205010-01E1Date of issue:2023-12-19Applicant:Akool Technology Co., LtdProduct:4-in-1 Magnetic Wireless Charging StationModel(s):K9, K9A, K9B, K9C, K9D, K9E, K9F, K9G, K9HFCC ID:2A44F-K9

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

The test report is only used for customer scientific research, teaching, internal quality control and other purposes, and is for internal reference only.





Instructions

- 1. This test report shall not be partially reproduced without the written consent of the laboratory.
- 2. The test results in this test report are only responsible for the samples submitted
- 3. This test report is invalid without the seal and signature of the laboratory.
- 4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.
- 5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.



Table of contents

1	Gen	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 7 7
2	Sum	mary of Test Result	8
3	Test	Facilities and accreditations	9
	3.1	Test laboratory	9
4	List	of test equipment	10
5	Eval	uation Results (Evaluation)	11
	5.1	Antenna requirement	11
6	Radi	io Spectrum Matter Test Results (RF)	12
	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)	
Ph	otogr	aphs of the test setup	26
Ph	otogr	aphs of the EUT	27

Test Result Certification				
Applicant:	Akool Technology Co., Ltd			
Address:	405, B Building, Huafeng Innovation World, Hangcheng Industrial Zone, Taoyuan Community, Xixiang Sub-district, Baoan Dist., Shenzhen, China			
Manufacturer:	Akool Technology Co., Ltd			
Address:	405, B Building, Huafeng Innovation World, Hangcheng Industrial Zone, Taoyuan Community, Xixiang Sub-district, Baoan Dist., Shenzhen, China			
Product description				
Product name:	4-in-1 Magnetic Wireless Charging Station			
Trade mark:	N/A			
Model name:	К9			
Series Model(s):	K9A, K9B, K9C, K9D, K9E, K9F, K9G, K9H			
Standards:	47 CFR Part 15C			
Test Method:	ANSI C63.10-2013			
Date of Test				
Date of test:	2023-12-14 to 2023-12-19			
Test result:	Pass			

Test Engineer	•	Dowid. Cee
		(David Lee)
Reviewed By	•••	(cov chen
		(Leon Chen)
Approved By	•	Tom Xue
		(Tom Xue)



1 General Description

1.1 Description of the EUT

=	
Product name:	4-in-1 Magnetic Wireless Charging Station
Model name:	К9
Series Model(s):	K9A, K9B, K9C, K9D, K9E, K9F, K9G, K9H
Model difference:	All the models are the same circuit and module, except the model name and color.
Electrical rating:	Input: DC 9V3A Wireless Output: Phone: 5W, 7.5W, 10W, 15W(Max) Earphone: 5W(Max) Watch: 3W(Max)
Accessories:	N/A
Hardware version:	KD-K9-A0
Software version:	KD-K9-4E1FED
Test sample(s) number:	MTi231205010-01S1001
RF specification	
Operating frequency range:	Transmitter1 (Phone): 115-205KHz Transmitter2 (Earphone): 115-205KHz Transmitter3 (Watch): 300-350KHz
Modulation type:	ASK
Antenna(s) type:	Coil

1.2 Description of test modes

No.	Emission test modes
Mode1	Wireless output(5W)+Earphone(5W)+Watch(3W)
Mode2	Wireless output(7.5W)+Earphone(5W)+Watch(3W)
Mode3	Wireless output(10W)+Earphone(5W)+Watch(3W)
Mode4	Wireless output(15W)+Earphone(5W)+Watch(3W)
Mode5	Wireless output(5W)+Earphone(5W)
Mode6	Wireless output(7.5W)+Earphone(5W)
Mode7	Wireless output(10W)+Earphone(5W)
Mode8	Wireless output(15W)+Earphone(5W)
Mode9	Wireless output(5W)+Watch(3W)
Mode10	Wireless output(7.5W)+Watch(3W)
Mode11	Wireless output(10W)+Watch(3W)
Mode12	Wireless output(15W)+Watch(3W)
Mode13	Earphone(5W)+Watch(3W)
Mode14	Wireless output(5W)
Mode15	Wireless output(7.5W)
Mode16	Wireless output(10W)

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tel: (86-755)88850135Fax: (86-755)88850136Web: www.mtitest.comE-mail: mti@51mti.com



Mode17	Wireless output(15W)
Mode18	Watch(3W)
Mode19	Earphone(5W)
Mode20	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

Support equipment list						
Description	DescriptionModelwireless charging loadYBZ1.1		Manufacturer			
wireless charging load			YBZ			
earbuds	/	1	XIAOMI			
wireless charging load	YBZ1.1	1	YBZ			
Adapter	LS-65WTAQCPD	1	Lenovo			
iWatch iWatch S8		M0JVGQG1VP	APPLE			
Support cable list						
Description	Length (m)	From	То			
/	/	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

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
	Conducted Emission at AC power line					
1	EMI Test Receiver	Rohde&schwarz	ESCI3	101368	2023-04-26	2024-04-25
2	Artificial mains network	Schwarzbeck	NSLK 8127	183	2023-05-05	2024-05-04
3	Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100263	2023-06-03	2024-06-02
		20dB Oc	cupied Bandwid	th		
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2023-04-26	2024-04-25
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2023-04-25	2024-04-24
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2023-04-25	2024-04-24
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2023-04-25	2024-04-24
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2023-04-26	2024-04-25
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2023-04-26	2024-04-25
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2023-05-05	2024-05-04
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2023-04-25	2024-04-24
9	DC Power Supply	Agilent	E3632A	MY40027695	2023-05-05	2024-05-04
		Emissions in frequ	iency bands (bel	ow 30MHz)		
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2023-04-26	2024-04-25
2	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2023-06-11	2025-06-10
3	Amplifier	Hewlett-Packard	8447F	3113A06184	2023-06-26	2024-06-25
		Emissions in freque	ency bands (30N	/Hz - 1GHz)		
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2023-04-26	2024-04-25
2	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2023-06-11	2025-06-10
3	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2023-06-11	2025-06-10
4	Amplifier	Hewlett-Packard	8447F	3113A06184	2023-06-26	2024-06-25
5	Multi-device Controller	TuoPu	TPMDC	/	2023-05-04	2024-05-03



5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test Requirement:	Refer to 47 CFR 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be
	considered sufficient to comply with the provisions of this section.

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)

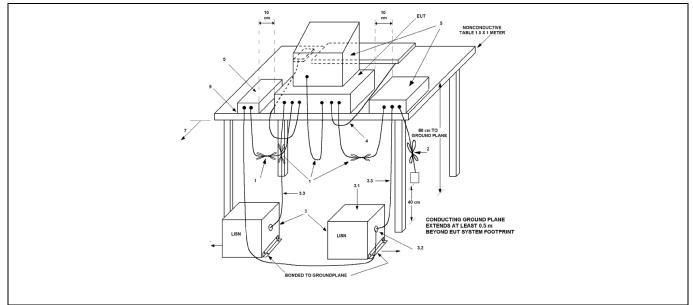
6.1 Conducted Emission at AC power line

Test Requirement:	radiator that is designed to be co the radio frequency voltage that any frequency or frequencies, wi exceed the limits in the following	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)	V)				
		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 sect line conducted emissions from u			ver-		

6.1.1 E.U.T. Operation:

Operating Environment:						
Temperature:	25.1 °C		Humidity:	55 %	Atmospheric Pressure:	101 kPa
Pre test mode: Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16, Mode1 Mode18, Mode19, Mode20						
Final test mode: All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report					of the worst mode	

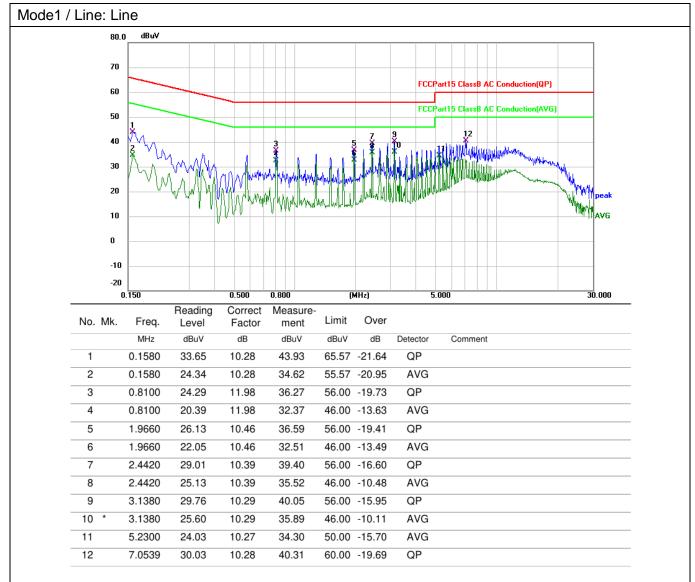
6.1.2 Test Setup Diagram:



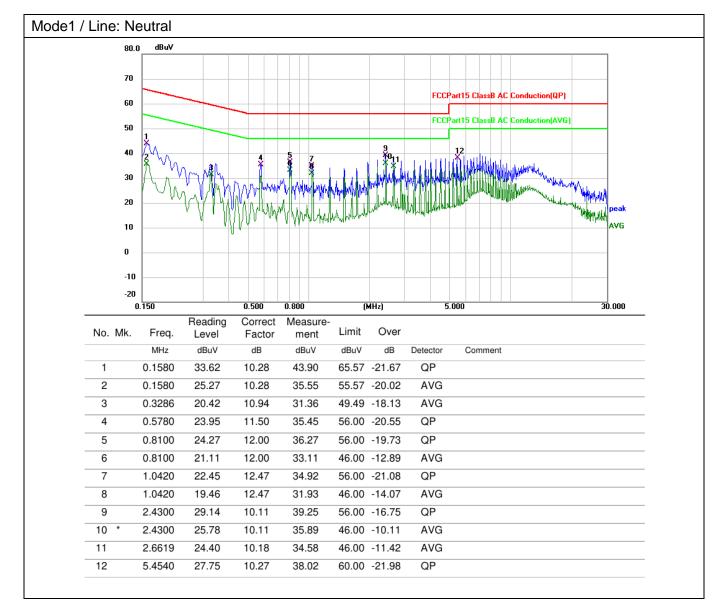




6.1.3 Test Data:









6.2 20dB Occupied Bandwidth

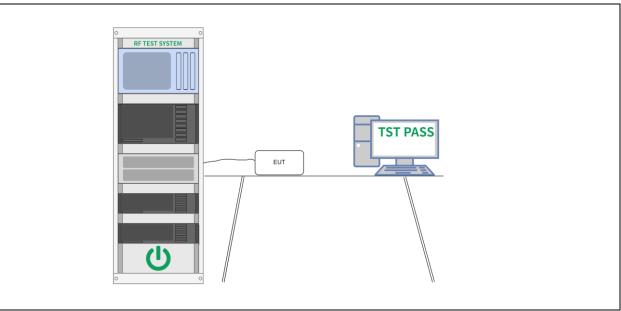
Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of 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
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 REW) 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 B 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 stat a new trace or 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. Alternatively, set a marker at the lowest frequency of the envelope of the spect



6.2.1 E.U.T. Operation:

Operating Environment:						
Temperature:	20.9 °C	Humidity:	29.1 %	Atmospheric Pressure:	101 kPa	
Pre test mode: Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16, Mode17 Mode18, Mode19, Mode20						
Final test mode:All of the listed pre-test mode were tested, only the data of the worst mode (Mode17, Mode18, Mode19) 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.

		Transmitter1			
Frequency		20 0	B occupied band	width	
kHz			Hz		
148.410		861			
Agilent Spectrum Analyzer - Occupied BW (₩ RL RF 50 ΩΔ DC Center Freq 148.410 kHz			ALIGNAUTO 04:44:12 PMDec 18 Radio Std: None I: 10/10 Radio Device: B'	Frequency	
10 dB/div Ref 10.00 dBm	rgain.Luw written.			Center Freq	
-10.0 -20.0 -30.0				148.410 kHz	
-40.0 -50.0 -60.0 -70.0					
Center 148.4 kHz #Res BW 300 Hz		/BW 1 kHz	Span 5 Sweep 68.07	kHz CF Step	
Occupied Bandwidth	<i></i>	Total Power	-7.52 dBm	Auto Man	
Occupied Bandwidth	737 Hz			Freq Offset	
Transmit Freq Error	-6 Hz	OBW Power	99.00 %	0 Hz	
x dB Bandwidth	861 Hz	x dB	-20.00 dB		
MSG			STATUS DC Coupled		



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.

	Transmit	ter2				
Frequency		20 dB occupied bandwidth				
kHz		Hz				
123.740		833				
Agilent Spectrum Analyzer - Occupied BW						
Center Freq 123.740 kHz	Center Freq: 123.740 k Trig: Free Run Free Run #Atten: 10 dB		Frequency			
10 dB/div Ref 10.00 dBm						
Log 0.00 -10.0			Center Freq 123.740 kHz			
-20.0						
-30.0						
-50.0						
-60.0						
-80.0						
Center 123.7 kHz #Res BW 300 Hz	#VBW 1 kHz	Span 5 l Sweep 68.07	KHZ MS 500 Hz			
Occupied Bandwidth	Total Po	wer -8.61 dBm	Auto Man			
	705 Hz		FreqOffset			
Transmit Freq Error	-7 Hz OBW Po	wer 99.00 %	0 Hz			
x dB Bandwidth	833 Hz x dB	-20.00 dB				
MSG		STATUS 🦺 DC Coupled				

Page 18 of 27



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.

		Transmitter3		
Frequency 20 dB occupied bandwid				width
kHz			Hz	
327.855			828	
Agilent Spectrum Analyzer - Occupied BW	s	ENSE:INT SOURCE OFF	ALIGN AUTO 03:39:08 PM Dec 19	9, 2023
Center Freq 327.855 kHz		Freq: 327.855 kHz ee Run Avg Hold	Radio Std: None 10/10 Radio Device: B1	
10 dB/div Ref 0.00 dBm				
Log -10.0				Center Freq
-20.0				327.855 kHz
-40.0		+		
-50.0				
-60.0			~~	
-80.0				\sim
-90.0				
Center 327.9 kHz #Res BW 300 Hz	#V	BW 1 kHz	Span 5 Sweep 68.07	KHZ 7 ms 500 Hz
Occupied Bandwidth		Total Power	-24.0 dBm	Auto Man
	720 Hz			Freq Offset
Transmit Freq Error	-2 Hz	OBW Power	99.00 %	0 Hz
x dB Bandwidth	828 Hz	x dB	-20.00 dB	
MSG			STATUS 1 DC Coupled	

Page 19 of 27



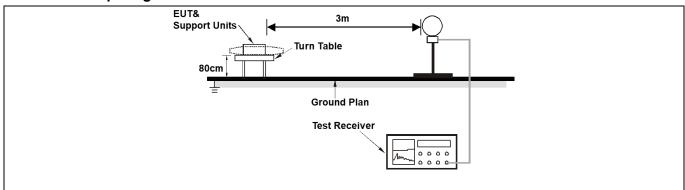
6.3 Emissions in frequency bands (below 30MHz)

Frequency (MHz)	Field strength	Measuremen		
	(microvolts/meter)			
0.000.0.400	2400/E(kHz)			
	· · · · ·			
	· · · · · ·			
88-216		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 the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other 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 measurements employing a CISPR quasi-peak detector except for the frequency bands 9–9 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a)and (b)of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b)of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth. 				
	0.009-0.490 0.490-1.705 1.705-30.0 30-88 88-216 216-960 Above 960 ** Except as provided in p intentional radiators opera frequency bands 54-72 M However, operation within sections of this part, e.g., In the emission table abo The emission limits show employing a CISPR quas kHz, 110–490 kHz and at three bands are based or As shown in § 15.35(b), f limits in paragraphs (a) an However, the peak field s maximum permitted avera any condition of modulati (b) of this section, the pea millivolts/meter at 3 mete ANSI C63.10-2013 section	(microvolts/meter)0.009-0.4902400/F(kHz)0.490-1.70524000/F(kHz)1.705-30.03030-88100 **88-216150 **216-960200 **Above 960500** Except as provided in paragraph (g), fundamental emintentional radiators operating under this section shall not frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHzHowever, operation within these frequency bands is per sections of this part, e.g., §§ 15.231 and 15.241.In the emission table above, the tighter limit applies at the emission limits shown in the above table are based employing a CISPR quasi-peak detector except for the f kHz, 110-490 kHz and above 1000 MHz. Radiated emiss three bands are based on measurements employing an As shown in § 15.35(b), for frequencies above 1000 MH limits in paragraphs (a) and (b) of this section are based of However, the peak field strength of any emission shall not exceed and the peak field strength shall not exceed to the section.	Image: Construct of the section of	

6.3.1 E.U.T. Operation:

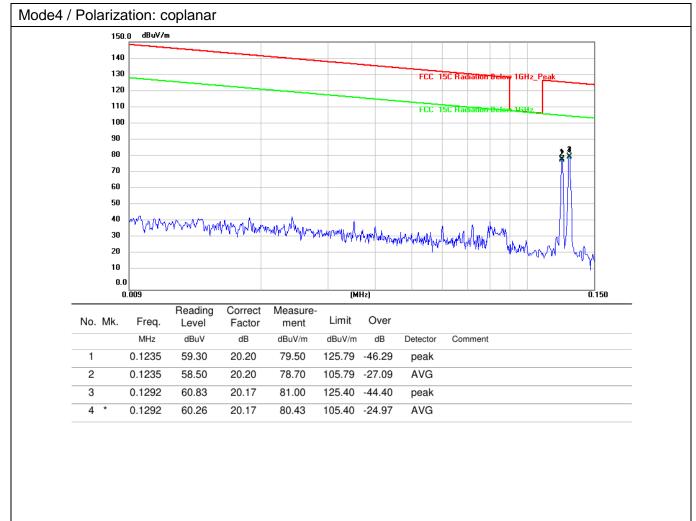
Operating Environment:							
Temperature:	22.5 °C		Humidity:	43 %	Atmospheric Pressure:	101 kPa	
Pre test mode: Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16, Mode17 Mode18, Mode19, Mode20							
Final test mode: All of the listed pre-test mode were tested, only the data of the worst mode (Mode4) is recorded in the report						of the worst mode	

6.3.2 Test Setup Diagram:

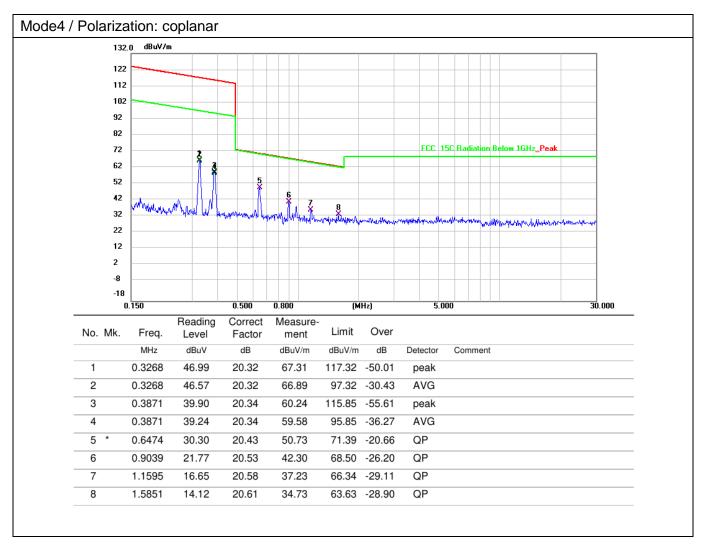




6.3.3 Test Data:









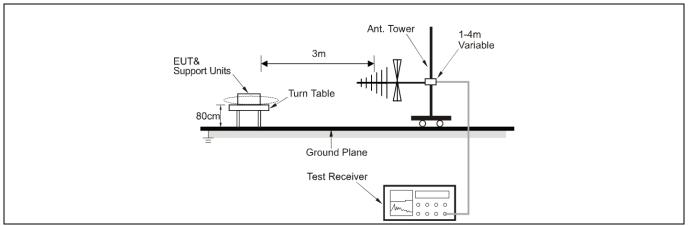
6.4 Emissions in frequency bands (30MHz - 1GHz)

Test Requirement:	47 CFR Part 15.209				
Test Limit:	Frequency (MHz)	Field strength	Measuremen		
		(microvolts/meter)	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		
Test Method:	 ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other 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 measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a)and (b)of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB unde any condition of modulation. For point-to-point operation under paragraph (b)of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth. 				
Procedure:	ANSI C63.10-2013 section	on 6.5			

6.4.1 E.U.T. Operation:

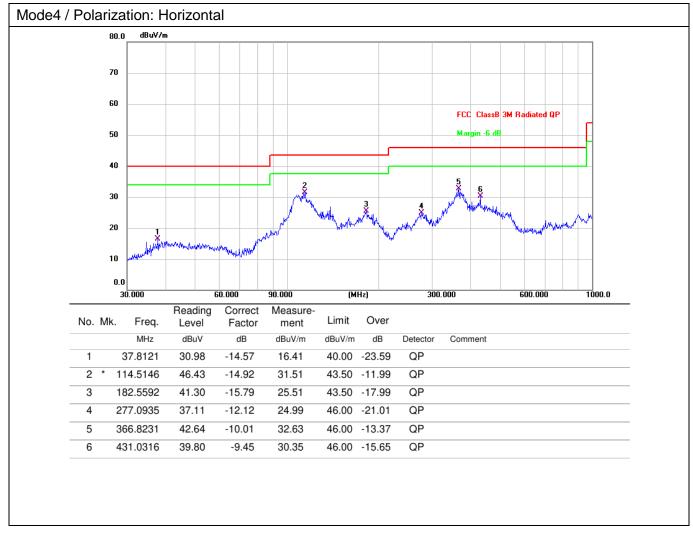
Operating Environment:						
Temperature:	22.5 °C Humidity: 43 % Atmospheric Pressure: 101 kPa					
Pre test mode: Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11, Mode12, Mode13, Mode14, Mode15, Mode16, Mode17, Mode18, Mode19, Mode20						
Final test mode: All of the listed pre-test mode were tested, only the data of the worst mode (Mode4) is recorded in the report						of the worst mode

6.4.2 Test Setup Diagram:

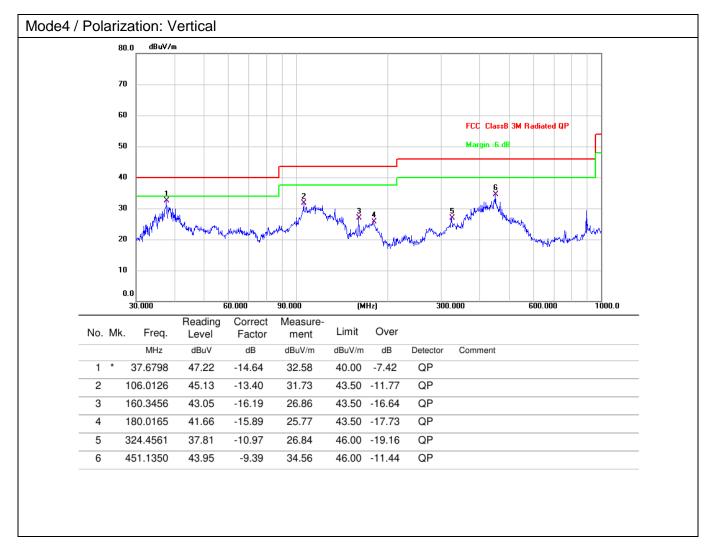




6.4.3 Test Data:









Photographs of the test setup

Refer to Appendix - Test Setup Photos



Photographs of the EUT

Refer to Appendix - EUT Photos

----End of Report----