

Test Report

Report No.:	MTi240530015-06E1
Date of issue:	2024-08-14
Applicant:	Shenzhen Xiangdangwen Technology Co., Ltd.
Product name:	LISEN 3-IN-1 MAGNETIC WIRELESS CHARGER STAND
Model(s):	2E586
FCC ID:	2AW73-2E586

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

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Test Result Certification			
Applicant:	Shenzhen Xiangdangwen Technology Co., Ltd.		
Address:	106, 1/F, No.313-4 Building, Huachang Road, Langkou Community, Dalang Street, Longhua District, Shenzhen, China		
Manufacturer:	Huizhou Yimai Electronics Technology Co., Ltd.		
Address:	3rd Floor, Building B, Huakai High-tech Industrial Park, Electronic City Road, Longxi Street, Boluo Country		
Factory:	SHENZHEN GTL TECHNOLOGY CO., LTD		
Address:	2/F&6/F of Building B11, Hengfeng Industrial city, Hangcheng Street, Baoan District, Shenzhen, Guangdong, China.518126		
Product description			
Product name:	LISEN 3-IN-1 MAGNETIC WIRELESS CHARGER STAND		
Trademark:	LISEN, AINOPE, VEICO		
Model name:	e: 2E586		
Series Model(s):	N/A		
Standards:	47 CFR Part 15C		
Test Method:	ANSI C63.10-2013		
Date of Test			
Date of test:	2024-07-27 to 2024-08-12		
Test result:	Pass		

Test Engineer	:	Yamice Xie	
		(Yanice.Xie)	
Reviewed By	:	Dowid. Cee	
		(David Lee)	
Approved By	:	leon chen	
		(Leon Chen)	



1 General Description

1.1 Description of the EUT

•		
Product name:	LISEN 3-IN-1 MAGNETIC WIRELESS CHARGER STAND	
Model name:	2E586	
Series Model(s):	N/A	
Model difference:	N/A	
Electrical rating:	Input:DC 5V/3A, 9V/3A, 12V/3A PHONE OUTPUT:5W/7.5W/10W/15W(QI2) Earbus OUTPUT:5W WATCH OUTPUT:5W	
Accessories:	Cable:Typc-C to Typc-C 1.5m	
Hardware version:	AMZ0309-V1.1-D	
Software version:	V1.0	
Test sample(s) number:	nber: MTi240530015-06S1001	
RF specification		
Operating frequency range:	Coil 1 (Phone-5W-10W): 115-205kHz Coil 1 (Phone-15W):360kHz Coil 2 (Earphone-5W): 115-205kHz Coil 3 (Watch-5W): 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(5W)		
Mode2	Wireless output(7.5W)+Earphone(5W)+Watch(5W)		
Mode3	Wireless output(10W)+Earphone(5W)+Watch(5W)		
Mode4	Wireless output(15W)+Earphone(5W)+Watch(5W)		
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(5W)		
Mode10	Wireless output(7.5W)+Watch(5W)		
Mode11	Wireless output(10W)+Watch(5W)		
Mode12	Wireless output(15W)+Watch(5W)		
Mode13	Wireless output Earphone(5W)+Watch(5W)		
Mode14	Wireless output(5W)		
Mode15	Wireless output(7.5W)		
Mode16	Wireless output(10W)		



Mode17	Wireless output(15W)
Mode18	Wireless Watch(5W)
Mode19	Wireless 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

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		
wireless charging load	YBZ1.1	/	YBZ		
wireless charging load	YBZ3.0	/	YBZ		
Air Pods	MQD83CH/A	/	Apple		
iwatch	iwatch S7	M0JVGQG1VP	Apple		
Support cable list	Support cable list				
Description	Length (m)	From	То		
/	/	/	/		

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	Requirement	Result
1	Antenna requirement	47 CFR Part 15.203	Pass
2	Conducted Emission at AC power line	47 CFR Part 15.207(a)	Pass
3	20dB Occupied Bandwidth	47 CFR Part 15.215(c)	Pass
4	Emissions in frequency bands (below 30MHz)	47 CFR Part 15.209	Pass
5	Emissions in frequency bands (30MHz - 1GHz)	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	2024-03-20	2025-03-19					
2	Artificial mains network	Schwarzbeck	NSLK 8127	183	2024-03-21	2025-03-20					
3	Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100263	2024-03-20	2025-03-19					
		20dB Oc	cupied Bandwid	th							
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2024-03-20	2025-03-19					
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2024-03-21	2025-03-20					
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2024-03-21	2025-03-20					
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2024-03-21	2025-03-20					
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2024-03-21	2025-03-20					
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2024-03-21	2025-03-20					
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2024-03-21	2025-03-20					
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2024-03-20	2025-03-19					
9	DC Power Supply	Agilent	E3632A	MY40027695	2024-03-21	2025-03-20					
		Emissions in frequ	iency bands (bel	ow 30MHz)							
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03-20	2025-03-19					
2	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03-23	2025-03-22					
3	Amplifier	Hewlett-Packard	8447F	3113A06184	2024-03-20	2025-03-19					
	Emissions in frequency bands (30MHz - 1GHz)										
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03-20	2025-03-19					
2	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2023-06-11	2025-06-10					
3	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03-23	2025-03-22					
4	Amplifier	Hewlett-Packard	8447F	3113A06184	2024-03-20	2025-03-19					



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)

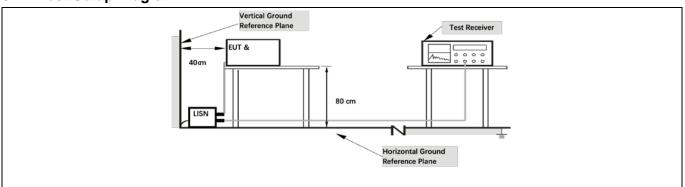
6.1 Conducted Emission at AC power line

Test Requirement:	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 μ H/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:	26 °C	Humidit	y: 41 %	Atmospheric Pressure:	101 kPa		
Pre test mode:		'	e11, Mode12	ode4, Mode5, Mode6, Mode7 , Mode13, Mode14, Mode15			
Final test mode	e:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode4) is recorded in the report					

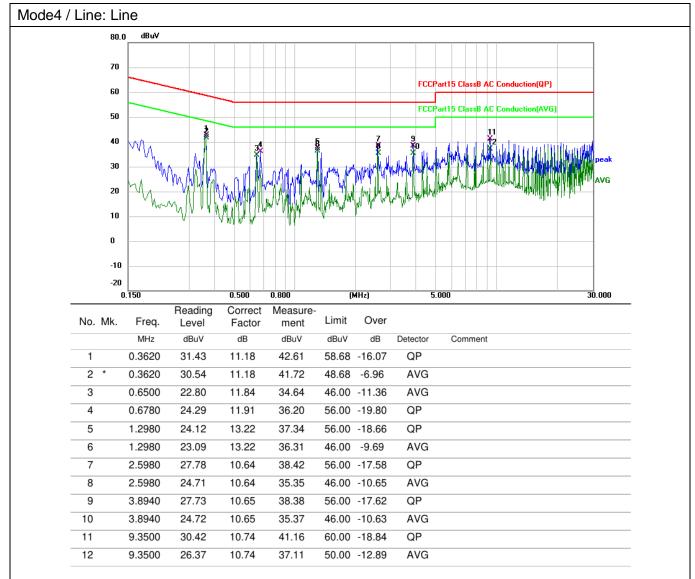
6.1.2 Test Setup Diagram:



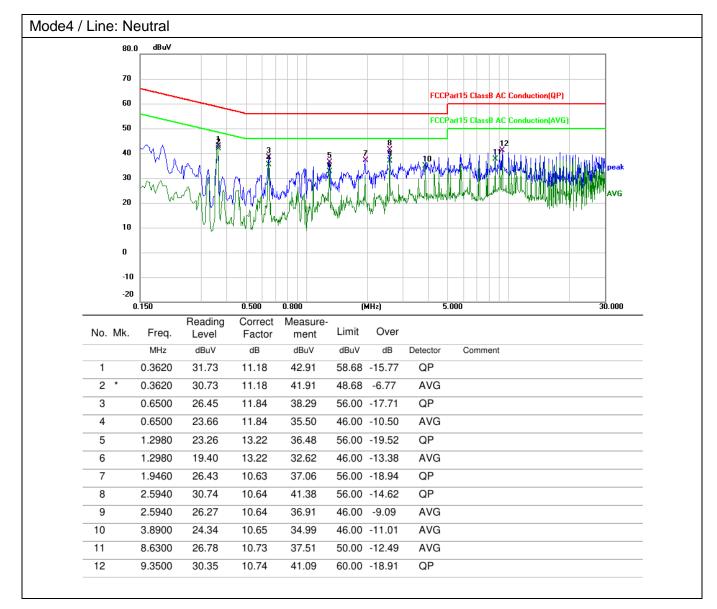




6.1.3 Test Data:









6.2 20dB Occupied Bandwidth

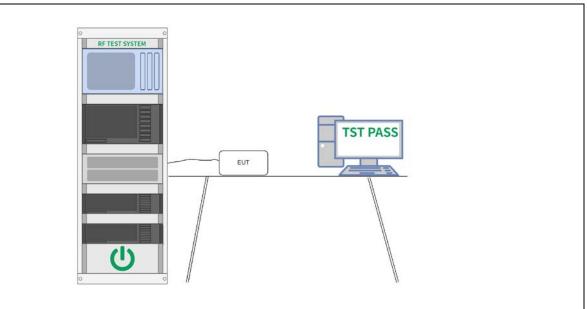
Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of 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 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. 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 slight



6.2.1 E.U.T. Operation:

Operating Environment:							
Temperature:	26 °C		Humidity:	55 %	Atmospheric Pressure:	101 kPa	
Pre test mode:		Mode		1, Mode12, Mo	, Mode5, Mode6, Mode7, de13, Mode14, Mode15,		
Final test mode	All of the listed pre-test mode were tested, only the data of the worst mode (Mode2, Mode17, Mode19) is recorded in the report						

6.2.2 Test Setup Diagram:

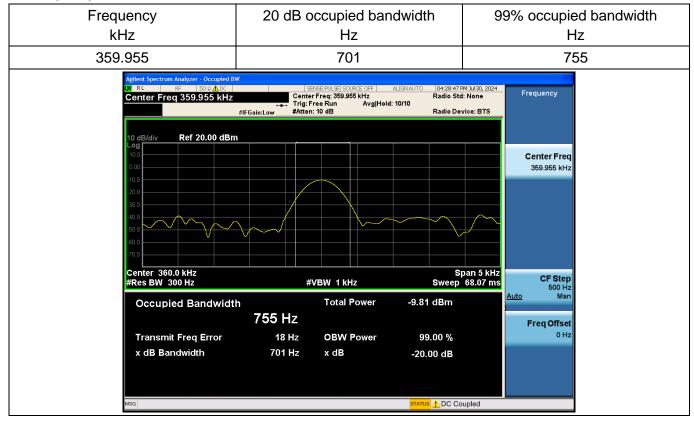




6.2.3 Test Data:

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.

Coil 1(15W):





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.

Coil 1(10W):

Frequency kHz	20 dB occupied bandwidth			99% occupied bandwidth		
145.015		Hz 811			Hz 691	
		011			031	
Agilent Spectrum Analyzer - Occupied BW			Rad 1: 10/10	30:34 PM Jul 30, 2024 io Std: None io Device: BTS	Frequency	
10 dB/div Ref -20.00 dBm Log						
-30.0					Center Freq 145.015 kHz	
-60.0						
-80.0	\sim			\frown		
-100						
Center 145 kHz #Res BW 300 Hz	#VI	BW 1 kHz	Sw	Span 5 kHz eep 68.07 ms	CF Step 500 Hz	
Occupied Bandwidth		Total Power	-36.2 dB	m	<u>Auto</u> Man	
	691 Hz				Freq Offset	
Transmit Freq Error	3 Hz	OBW Power	99.00	%	0 Hz	
x dB Bandwidth	811 Hz	x dB	-20.00 d	В		
MSG			<mark>status</mark> 🔔 D	C 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.

Coil 2(5W):

Frequency	20 dB occupied bandwidth			99% occupied bandwidth		
kHz		Hz		Hz		
129.380		812			690	
Agilent Spectrum Analyzer - Occupied BW	SENSE:PUI	E SOURCE OFF	ALIGN AUTO	4:35:02 PM Jul 30, 2024		
Center Freq 129.380 kHz	Center Freq:	129.380 kHz	Ra I: 10/10	adio Std: None	Frequency	
#IFG	ain:Low#Atten: 10 dB		Ra	adio Device: BTS		
10 dB/div Ref 20.00 dBm						
10.0					Center Freq 129.380 kHz	
-10.0					129.360 KH2	
-20.0		\mathbf{X}				
-30.0						
-50.0						
-60.0						
Center 129.4 kHz		4 1411-		Span 5 kHz	CF Step	
#Res BW 300 Hz	#VBW			weep 68.07 ms	500 Hz Auto Man	
Occupied Bandwidth		tal Power	-9.15 di	Bm		
	690 Hz		~~~~~		Freq Offset 0 Hz	
Transmit Freq Error		BW Power	99.00		0112	
x dB Bandwidth	812 Hz x (<u>ав</u>	-20.00	ub-		
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.

Coil 3(5W):





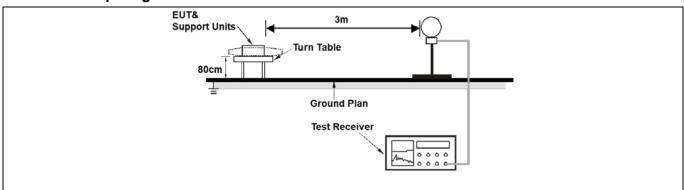
6.3 Emissions in frequency bands (below 30MHz)

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 frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MH However, operation within these frequency bands is permitted under oth 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 measureme employing a CISPR quasi-peak detector except for the frequency bands kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in th three bands are based on measurements employing an average detect As shown in § 15.35(b), for frequencies above 1000 MHz, the field strent limits in paragraphs (a)and (b)of this section are based on average limit However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB any condition of modulation. For point-to-point operation under paragrapt (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 sec				

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, Mode19, Mode20					
Final test mode	All of the listed pre-test mode were tested, only the data of the worst mode (Mode3-4) is recorded in the report						

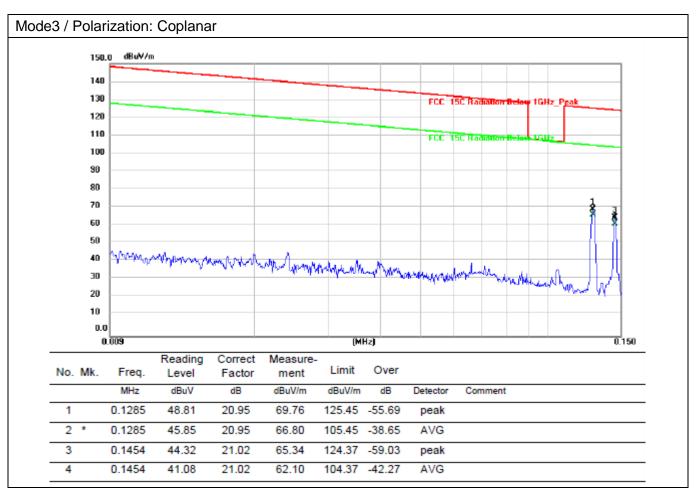
6.3.2 Test Setup Diagram:



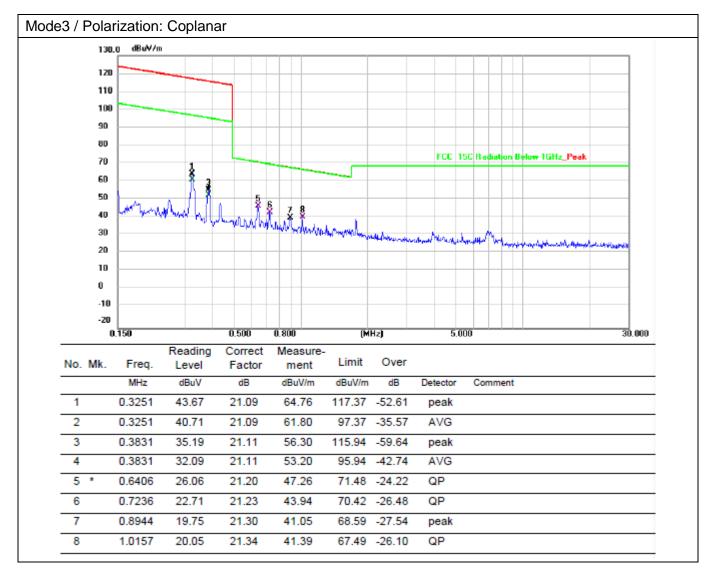


6.3.3 Test Data:

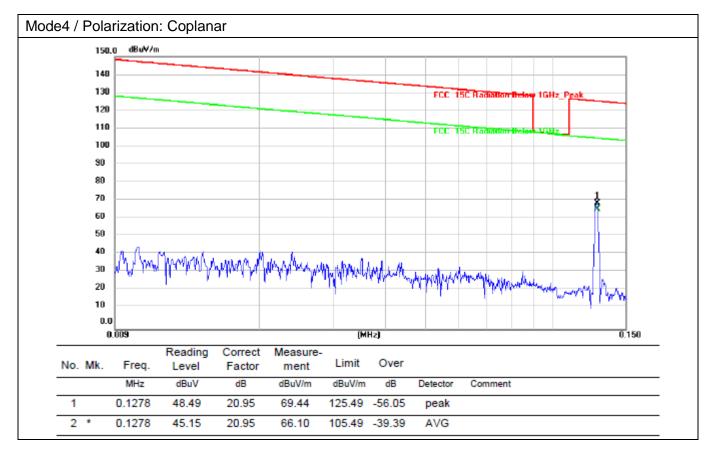




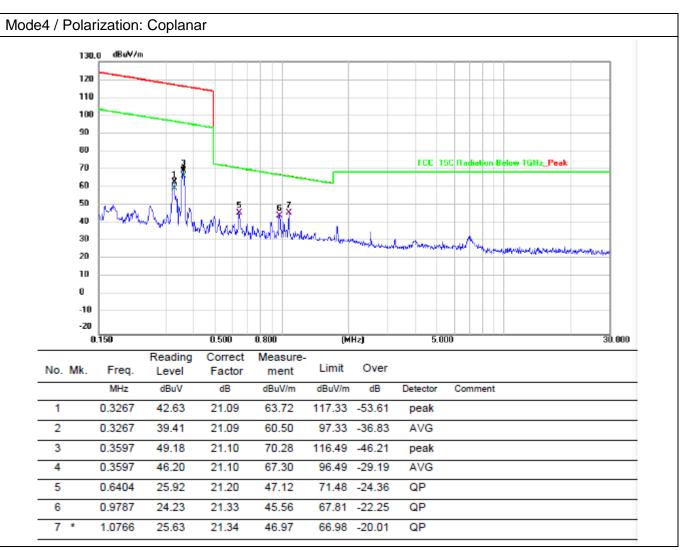














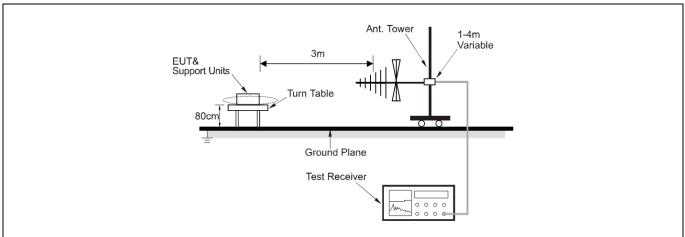
6.4 Emissions in frequency bands (30MHz - 1GHz)

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: Procedure:	** 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- 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 un- 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.				

6.4.1 E.U.T. Operation:

Operating Environment:							
Temperature:	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, 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						

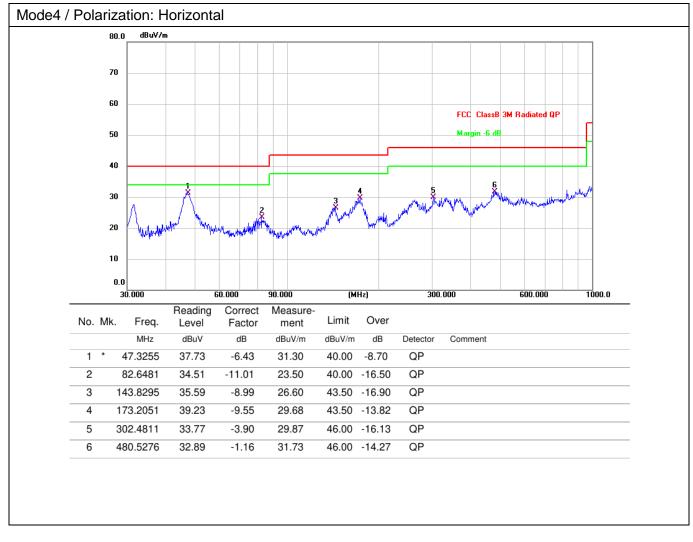
6.4.2 Test Setup Diagram:



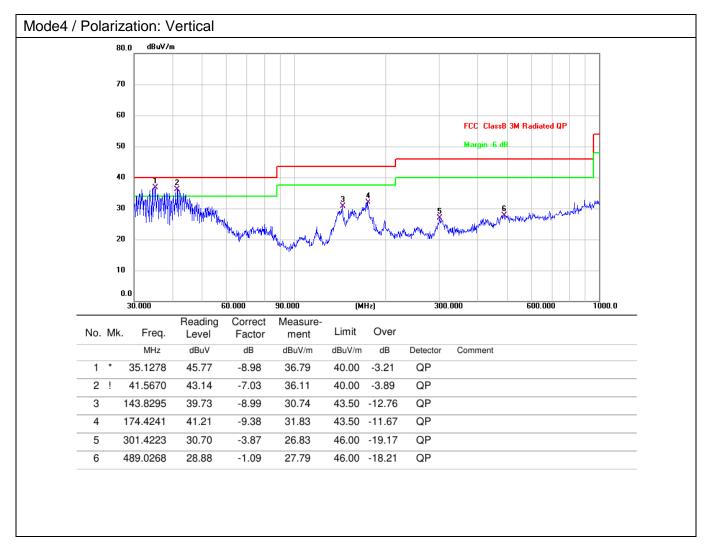




6.4.3 Test Data:









Photographs of the test setup

Refer to Appendix - Test Setup Photos



Photographs of the EUT

Refer to Appendix - EUT Photos

----End of Report----