

Test Report

Report No.: MTi241021004-12E1

Date of issue: 2024-11-15

Applicant: Ningbo Youdian Electronic Technology Co., Ltd.

Product name: 3-in-1 Magnetic Wireless Power Bank

Model(s): KH69, KH70

FCC ID: 2AZKB-KH69

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



Instructions

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- 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.

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Test Result Certification Applicant: Ningbo Youdian Electronic Technology Co., Ltd. Room 1902, 19th Floor, East area of Weijiachuangyi Building, No.35 of Address: Shucheng Road, Hongshan District, Wuhan, Hubei, China Ningbo Youdian Electronic Technology Co., Ltd. Manufacturer: Room 1902, 19th Floor, East area of Weijiachuangyi Building, No.35 of Address: Shucheng Road, Hongshan District, Wuhan, Hubei, China **Product description** Product name: 3-in-1 Magnetic Wireless Power Bank Trademark: **KPON** Model name: KH69 Series Model(s): KH70 Standards: 47 CFR Part 15C Test Method: ANSI C63.10-2013 **Date of Test** Date of test: 2024-10-30 to 2024-11-01 Test result: **Pass**

Test Engineer	:	Modern Tony
		(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 Magnetic Wireless Power Bank		
Model name:	KH69		
Series Model(s):	KH70		
Model difference:	All the models are the same circuit and module, except the model name and support.		
Electrical rating:	Input: Type-C: DC 5V3A,9V2A Output: Type-C: DC 5V3A,9V2.22A,12V1.5A Wireless Output: Phone: 5W/7.5W/10W/15W; Watch: 2.5W Battery: DC 3.85V 10000mAh		
Accessories:	Cable: USB-C to USB-C cable 80cm		
Hardware version:	V1.3-20230830		
Software version:	WE9127-F150		
Test sample(s) number:	MTi241021004-12S1001(KH69) MTi241021004-12S1002(KH70)		
RF specification			
Operating frequency range:	Phone: 115 kHz – 205 kHz Watch: 300kHz - 350kHz		
Modulation type:	ASK		
Antenna(s) type:	Coil Antenna		

1.2 Description of test modes

No.	Emission test modes
Mode1	Charging+Wireless Output(5W)
Mode2	Charging+Watch Output(2.5W)
Mode3	Wireless Output(5W)
Mode4	Wireless Output(7.5W)
Mode5	Wireless Output(10W)
Mode6	Wireless Output(15W)
Mode7	Watch Output(2.5W)
Mode8	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	less charging load YBZ1.1		YBZ			
iwatch iwatch SE		1	Apple			
HUAWEI QUICK CHARGE(65W)	HW-200200ZP1	JN67LSN7N03451	HUAWEI			
Support cable list						
Description	Length (m)	From	То			
/	/	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

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 Od	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	ency 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 freque	ency bands (30N	/lHz - 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

Refer to 47 CFR Part 15.203, an intention ensure that no antenna other than that further shall be used with the device. The use of of an antenna that uses a unique coupling considered sufficient to comply with the part of	rnished by the responsible party f a permanently attached antenna or g to the intentional radiator shall be
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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)

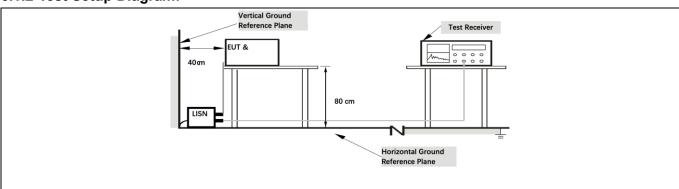
6.1 Conducted Emission at AC power line

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					

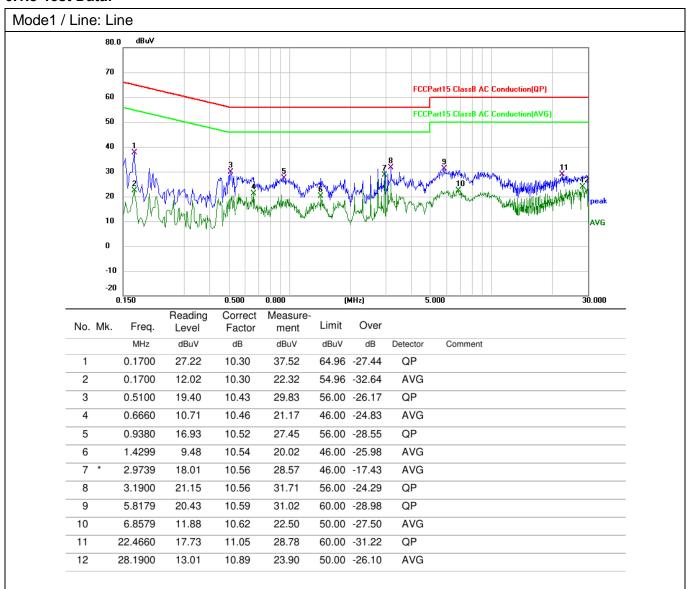
6.1.1 E.U.T. Operation:

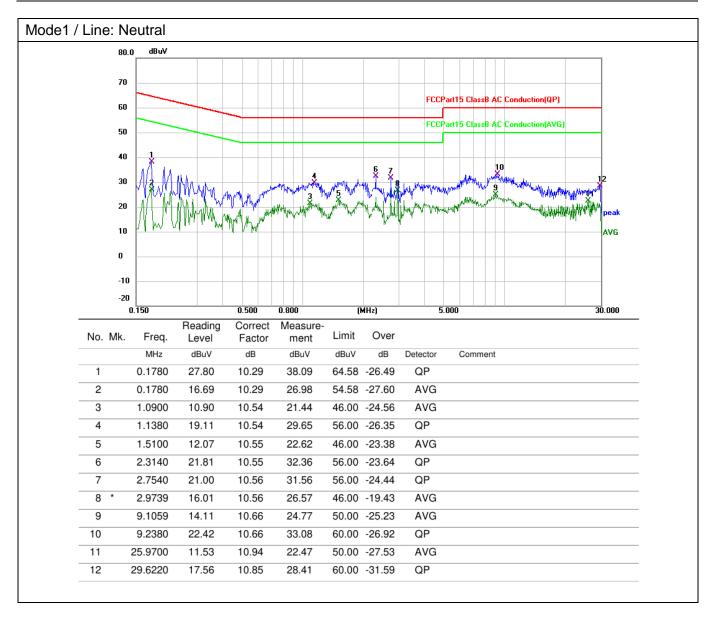
Operating Environment:								
Temperature:	25.9 °C		Humidity:	44 %	Atmospheric Pressure:	101 kPa		
Pre test mode:		Mode	Mode1, Mode2					
Final test mode	e:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report						

6.1.2 Test Setup Diagram:



6.1.3 Test Data:







6.2 20dB Occupied Bandwidth

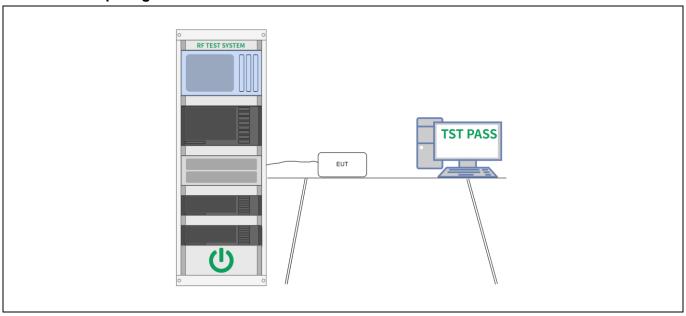
Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of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



6.2.1 E.U.T. Operation:

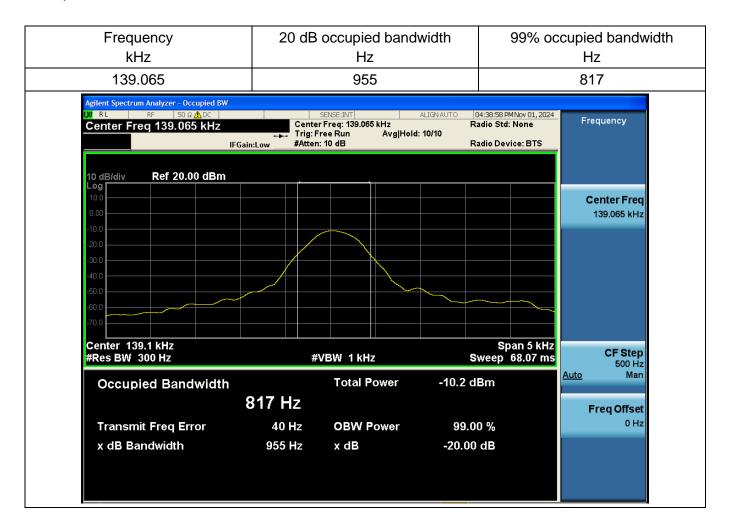
Operating Environment:							
Temperature: 24 °C Humidity: 54 % Atmospheric Pressure: 101 kPa						101 kPa	
Pre test mode: Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, M					, Mode5, Mode6, Mode7,	Mode8	
Final test mode	e:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode6, Mode7) is recorded in the report					

6.2.2 Test Setup Diagram:

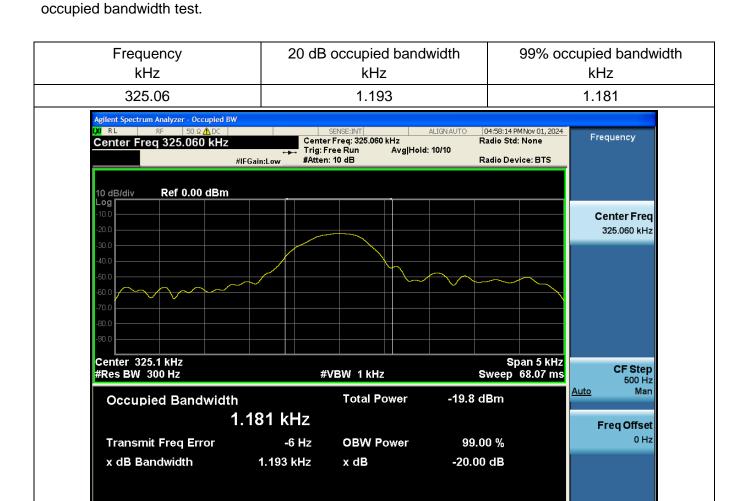


6.2.3 Test Data:

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.



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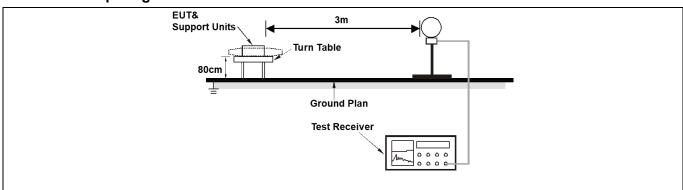
6.3 Emissions in frequency bands (below 30MHz)

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					
		n paragraph (g), fundamenta						
		erating under this section sha						
		MHz, 76-88 MHz, 174-216 M						
		nin these frequency bands is	permitted under other					
		g., §§ 15.231 and 15.241.						
		oove, the tighter limit applies						
		wn in the above table are ba						
		asi-peak detector except for a above 1000 MHz. Radiated						
	• • • • • • • • • • • • • • • • • • •	on measurements employing						
		, for frequencies above 1000						
		and (b)of this section are bas						
		strength of any emission sh						
		,						
	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							
		ters along the antenna azimu						
Test Method:	ANSI C63.10-2013 sec							
Procedure:	ANSI C63.10-2013 sec	tion 6.4						

6.3.1 E.U.T. Operation:

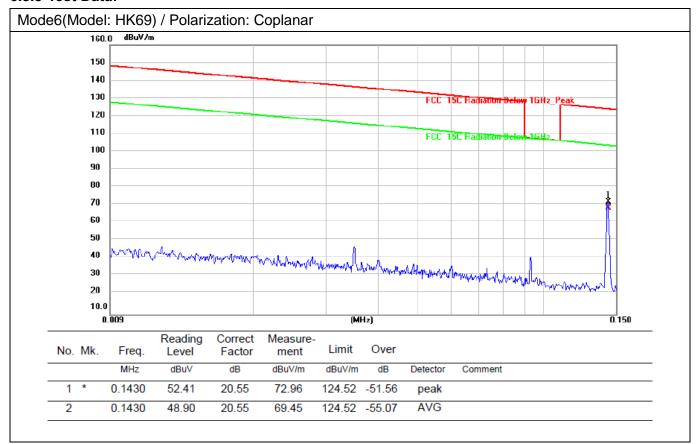
Operating Environment:							
Temperature: 23.5 °C			Humidity:	59 %	Atmospheric Pressure:	101 kPa	
Pre test mode:		Mode	e1, Mode2,	Mode3, Mode4	, Mode5, Mode6, Mode7,	Mode8	
Final test mode	All of the listed pre-test mode were tested, only the data of the worst mode (Mode6, Mode7) is recorded in the report						

6.3.2 Test Setup Diagram:





6.3.3 Test Data:



0.9997

1.2824

21.85

17.68

22.60

23.17

44.45

40.85

8

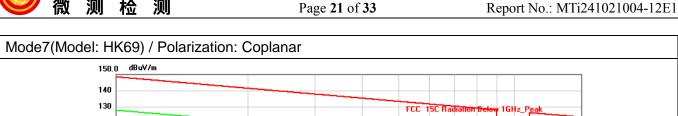
9

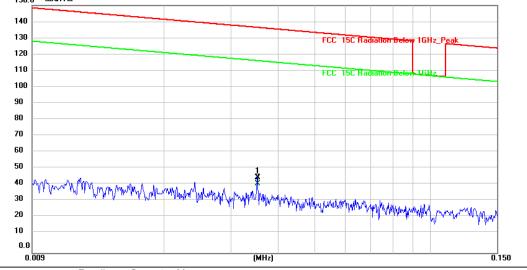
Report No.: MTi241021004-12E1 Mode6(Model: HK69) / Polarization: Coplanar dBuV/m 140.0 130 120 110 100 90 80 FCC 15C Radiation Below 1GHz_Peak 70 60 50 40 30 20 10 0 -10 0.150 0.500 0.800 (MHz) 5.000 30.000 Reading Correct Measure-Over Limit No. Mk. Freq. Level Factor ment MHz dBuV dB dBuV/m dBuV/m dΒ Detector Comment 1 0.2847 38.09 20.90 58.99 118.52 -59.53 peak 2 0.2847 35.11 20.90 56.01 98.52 -42.51 AVG 0.3791 27.46 21.13 116.03 -67.44 3 48.59 peak 4 0.3791 23.86 21.13 44.99 96.03 -51.04 AVG 5 0.4282 35.25 21.24 56.49 114.97 -58.48 peak 6 0.4282 31.99 21.24 53.23 94.97 -41.74 AVG 7 0.7122 26.81 21.90 48.71 70.56 -21.85 QP

67.62 -23.17

65.47 -24.62

QP





No.	Mk.	Freq.		Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0351	24.88	20.95	45.83	136.64	-90.81	peak	
2	*	0.0351	21.41	20.95	42.36	116.64	-74.28	AVG	

1.6276

8

12.50

23.89

36.39

Report No.: MTi241021004-12E1 Mode7(Model: HK69) / Polarization: Coplanar dBuV/m 130.0 120 110 100 90 80 FCC 15C Radiation Below 1GHz_Peak 70 60 50 40 30 20 10 0 -10 -20 0.150 0.500 0.800 (MHz) 5.000 30.000 Reading Correct Measure-Over Limit No. Mk. Freq. Level Factor ment dBuV MHz dB dBuV/m dBuV/m dB Detector Comment 1 0.3251 45.09 21.01 66.10 117.37 -51.27 peak 2 0.3251 42.96 21.01 63.97 97.37 -33.40 AVG 3 0.3771 34.36 21.12 116.08 -60.60 55.48 peak 4 0.3771 31.21 21.12 52.33 96.08 -43.75 AVG QP 5 0.6474 30.03 21.76 51.79 71.39 -19.60 6 0.9735 17.36 22.53 39.89 67.85 -27.96 QP 7 1.3029 13.00 23.22 36.22 65.33 -29.11 QP

63.40 -27.01

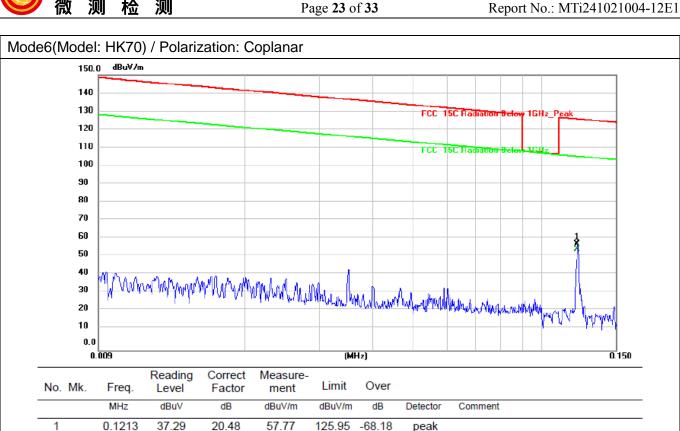
2

0.1213

34.84

20.48

55.32

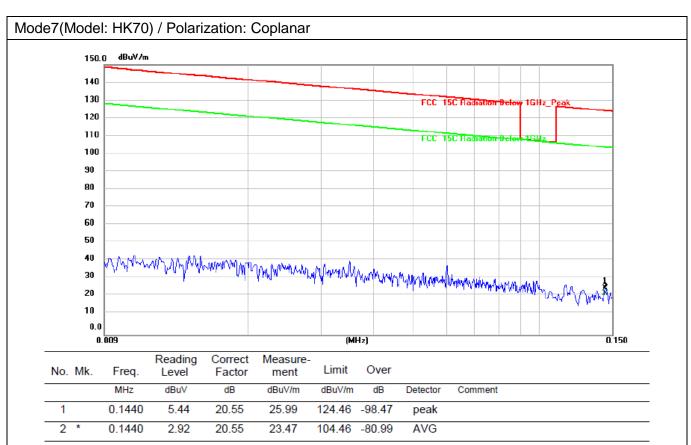


105.95 -50.63

AVG

Page 24 of 33 Report No.: MTi241021004-12E1 Mode6(Model: HK70) / Polarization: Coplanar dBuV/m 150.0 140 130 120 110 100 90 80 FCC 15C Radiation Below 1GHz_Peak 70 60 50 40 30 20 10 0.0 (MHz) 5.000 30.000 0.150 0.800

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.2455	31.62	20.83	52.45	119.81	-67.36	peak	
2	0.2455	29.47	20.83	50.30	99.81	-49.51	AVG	
3	0.3653	25.50	21.10	46.60	116.36	-69.76	peak	
4	0.3653	23.03	21.10	44.13	96.36	-52.23	AVG	
5	0.5854	16.89	21.61	38.50	72.26	-33.76	QP	
6	0.7751	16.29	22.07	38.36	69.83	-31.47	QP	
7 *	1.5112	10.23	23.65	33.88	64.05	-30.17	QP	
8	2.3334	5.66	25.34	31.00	69.50	-38.50	QP	



1.3098

2.5131

3.9639

11.27

4.15

8.24

23.24

25.71

20.81

34.51

29.86

29.05

4

5

6

Report No.: MTi241021004-12E1 Mode7(Model: HK70) / Polarization: Coplanar dBuV/m 120 110 100 90 80 FCC 15C Radiation Below 1GHz_Peak 70 60 50 40 30 20 10 n -10 -20 0.150 (MHz) 5.000 30.000 0.800 Reading Correct Measure-Limit Over No. Mk. Freq. Level Factor ment MHz dB dBuV dBuV/m dBuV/m dB Detector Comment 1 0.3215 45.89 20.99 66.88 117.47 -50.59peak 2 0.3215 43.81 20.99 64.80 97.47 -32.67 AVG 3 QP 0.7751 15.79 22.07 37.86 -31.97 69.83

65.28

69.50

69.50

-30.77

-39.64

-40.45

QP

QP



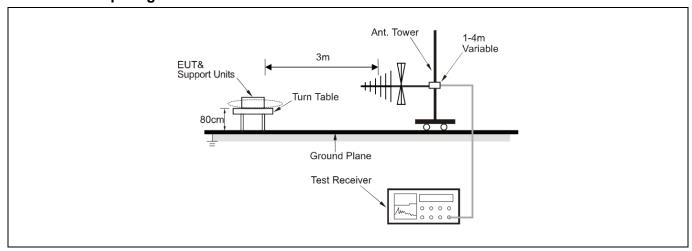
6.4 Emissions in frequency bands (30MHz - 1GHz)

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			
	** 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.					
Test Method:	ANSI C63.10-2013 sect	ion 6.5				
Procedure:	ANSI C63.10-2013 sect	ion 6.5				

6.4.1 E.U.T. Operation:

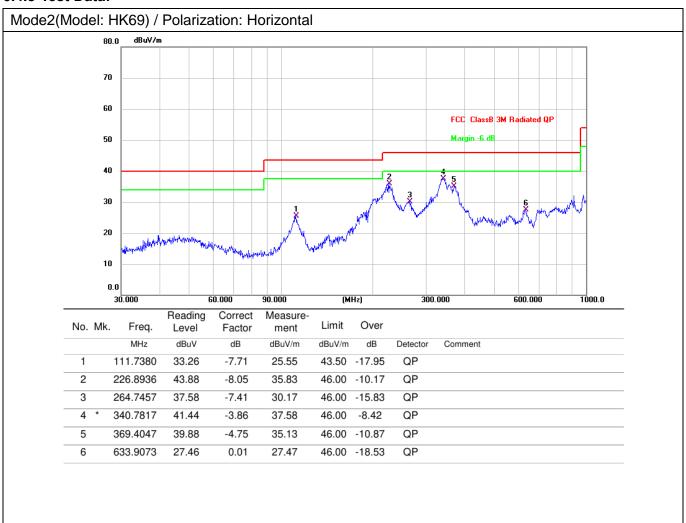
Operating Environment:							
Temperature:	26 °C		Humidity:	54 %	Atmospheric Pressure:	98.3 kPa	
Pre test mode: Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8						Mode8	
Final test mode	e:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode2) is recorded in the report					

6.4.2 Test Setup Diagram:





6.4.3 Test Data:



6

564.6389

31.70

-1.80

29.90

Page 29 of 33 Report No.: MTi241021004-12E1 Mode2(Model: HK69) / Polarization: Vertical dBuV/m 80.0 70 60 FCC ClassB 3M Radiated QP Margin -6 dB 50 30 20 10 0.0 30.000 (MHz) 300.000 600.000 60.000 90.000 1000.0 Reading Correct Measure-Limit Over Freq. No. Mk. Level Factor ment dBuV dB MHz dB dBuV/m dBuV/m Detector Comment 37.9450 37.80 -9.09 28.71 40.00 -11.29 QP 2 110.9571 33.23 -7.48 25.75 43.50 -17.75 QP QP 3 227.6906 43.16 -7.87 35.29 46.00 -10.71 39.70 4 338.4001 -4.00 35.70 46.00 -10.30 QP 37.04 QP 5 399.0302 -5.15 31.89 46.00 -14.11

46.00 -16.10

337.2155

560.6928

614.2142

40.87

28.66

30.43

-4.08

-1.48

-2.47

36.79

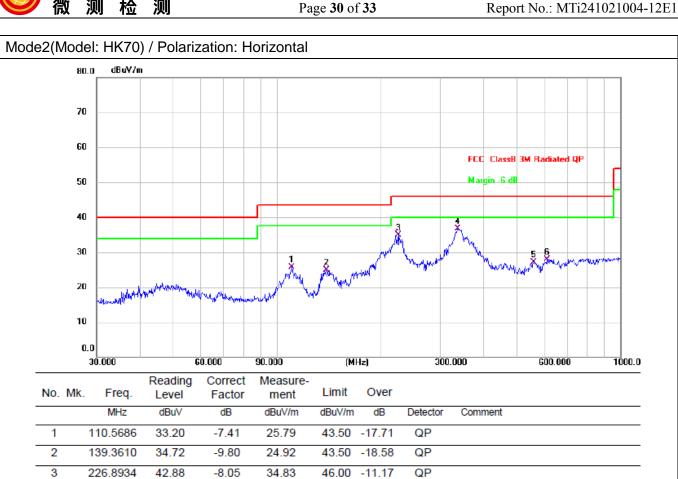
27.18

27.96

4

5

6



46.00

-9.21

46.00 -18.82

46.00 -18.04

QΡ

QP

337.2155

399.0300

564.6387

4

5

6

38.32

37.54

32.20

-4.08

-5.15

-1.80

34.24

32.39

30.40

Page 31 of 33 Report No.: MTi241021004-12E1 Mode2(Model: HK70) / Polarization: Vertical 80.0 dBuV/m 70 60 FCC ClassB 3M Radiated QF 50 Margin -6 di 40 30 20 10 0.0 30.000 60.000 (MHz) 300.000 600.000 1000.0 90.000 Reading Correct Measure-Limit Over No. Mk. Freq. Level Factor ment MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 1 40.2754 35.67 -8.54 27.13 40.00 -12.87 QP 2 110.9569 31.23 -7.48 23.75 43.50 -19.75 QP 3 216.7828 -8.91 32.53 46.00 -13.47 QP 41.44

46.00 -11.76

46.00 -13.61

46.00 -15.60

QP

QP



Photographs of the test setup

Refer to Appendix - Test Setup Photos



Photographs of the EUT

Refer to Appendix - EUT Photos

----End of Report----