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Report Template Version: V05 Report Template Revision Date: 2021-11-03

Test Report

Report No.:	CQASZ20220801391E
Applicant:	Shenzhen Hollyland Technology Co., Ltd
Address of Applicant:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road. Shiyan Street, Baoan District Shenzhen, China.
Equipment Under Test (E	EUT):
EUT Name:	Lark C1
Model No.:	Lark C1, Lark M1, Lark C2
Test Model No.:	Lark C1
Brand Name:	Holylland, Hollyview
FCC ID:	2ADZC-6501A
Standards:	47 CFR Part 15, Subpart C
Date of Receipt:	2022-08-11
Date of Test:	2022-08-11 to 2022-08-25
Date of Issue:	2022-09-07
Test Result:	PASS*

*In the configuration tested, the EUT complied with the standards specified above

Tested By:	lewis zhou	TESTING
	(Lewis Zhou) Timo Lei	
Reviewed By:	(Timo Lei)	"是"
Approved By:	Jansi	* APPROVED *
	(Jack Ai)	_

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220801391E	Rev.01	Initial report	2022-09-07



2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2013)	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 (2013)	
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.249 (a)	C Section ANSI C63.10 (2013)	
Spurious Emissions	s Emissions 47 CFR Part 15, Subpart C Section 15.249 (a)/15.209		PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2013)	PASS



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4 General Information

4.1 Client Information

Applicant:	Shenzhen Hollyland Technology Co., Ltd	
Address of Applicant:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road. Shiyan Street, Baoan District Shenzhen, China.	
Manufacturer:	Shenzhen Hollyland Technology Co., Ltd	
Address of Manufacturer:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road. Shiyan Street, Baoan District Shenzhen, China.	
Factory:	Shenzhen Hollyland Technology Co., Ltd	
Address of Factory:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road. Shiyan Street, Baoan District Shenzhen, China.	

4.2 General Description of EUT

EUT Name:	Lark C1		
Model No.:	Lark C1, Lark M1, Lark C2		
Test Model No.:	Lark C1		
Trade Mark:	Holylland, Hollyview		
Software Version:	V2.0		
Hardware Version:	V0018		
Frequency Range:	2402MHz~2480MHz		
Modulation Type:	GFSK		
Number of Channels:	40		
Sample Type:	□ Mobile		
Test Software of EUT:	FCC_Test_Tools_V2.24(manufacturer declare)		
Antenna Type:	Chip antenna		
Antenna Gain:	0.1dBi		
Power Supply:	Power by DC 3.7V for phone		



Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH19)	2440MHz
The highest channel (CH39)	2480MHz



4.3 Test Environment and Mode

Operating Environment	Operating Environment:		
Radiated Emissions:			
Temperature:	27 °C		
Humidity:	59 % RH		
Atmospheric Pressure:	1009mbar		
Temperature:	26 °C		
Humidity:	59 % RH		
Atmospheric Pressure:	1009mbar		
Radio conducted item t	est (RF Conducted test room):		
Temperature:	25.3 °C		
Humidity:	55 % RH		
Atmospheric Pressure:	1009mbar		
Test mode:			
Transmitting mode:	Use test software (RF test) to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.		

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	SanLi Constant	SL18WQC-G	DOC	CQA
2) Cable				

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	1	/	/	/



4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Test	Range	Uncertainty	Notes
Radiated Emission	Below 1GHz	5.12dB	(1)
Radiated Emission	Above 1GHz	4.60dB	(1)
Conducted Disturbance	0.15~30MHz	3.34dB	(1)

Hereafter the best measurement capability for **CQA** laboratory is reported:

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



4.6 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.7 Test Facility

• A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

4.10 Other Information Requested by the Customer

None.



4.11 Equipment List

	Maria		Instrument	Calibration	Calibration
Test Equipment	Manufacturer	Model No.	No.	Date	Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2021/9/10	2022/9/9
Spectrum analyzer	R&S	FSU26	CQA-038	2021/9/10	2022/9/9
		AFS4-00010300-18-10P-			
Preamplifier	MITEQ	4	CQA-035	2021/9/10	2022/9/9
		AMF-6D-02001800-29-			
Preamplifier	MITEQ	20P	CQA-036	2021/9/10	2022/9/9
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2021/9/16	2024/9/15
Bilog Antenna	R&S	HL562	CQA-011	2021/9/16	2024/9/15
Horn Antenna	R&S	HF906	CQA-012	2021/9/16	2024/9/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/9/16	2024/9/15
Coaxial Cable					
(Above 1GHz)	CQA	N/A	C019	2021/9/10	2022/9/9
Coaxial Cable					
(Below 1GHz)	CQA	N/A	C020	2021/9/10	2022/9/9
Antenna Connector	CQA	RFC-01	CQA-080	2021/9/10	2022/9/9
RF					
cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2021/9/10	2022/9/9
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2021/9/10	2022/9/9
EMI Test Receiver	R&S	ESPI3	CQA-013	2021/9/10	2022/9/9
LISN	R&S	ENV216	CQA-003	2021/9/10	2022/9/9
Coaxial cable	CQA	N/A	CQA-C009	2021/9/10	2022/9/9

Note:

The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.



5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203					
15.203 requirement:					
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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or					
electrical connector is prohibited.					
electrical connector is prohibited. EUT Antenna: Image: Connector is prohibited.					
The antenna is Chip antenna. The best case gain of the antenna is 0.1dBi.					



5.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	150kHz to 30MHz				
Limit:		Limit (d	BuV)		
	Frequency range (MHz)	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 logarithn	n of the frequency.			
Test Procedure:	 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50µH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane. 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to 				
Test Setup:	Shielding Room	AE E B B C Cround Reference Plane	Test Receiver		



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Line

Line

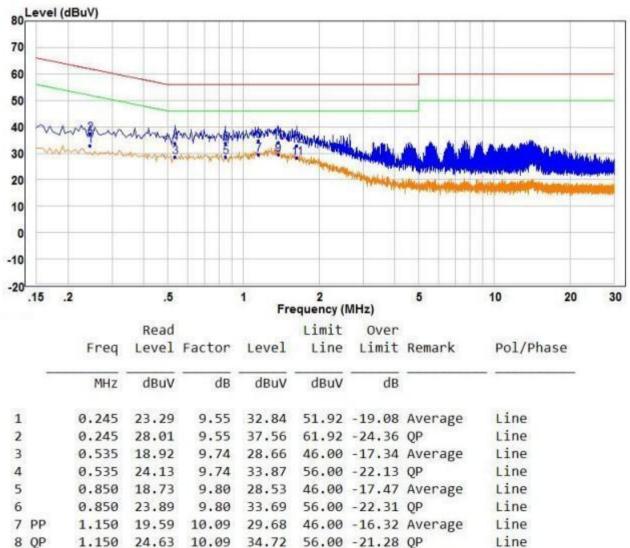
Line

Line

Test Mode:	Charge +Transmitting mode.
Final Test Mode: Charge +Transmitting mode	
Test Results:	Pass

Measurement Data:

Live line:



Remark:

9

10

12

1. The following Quasi-Peak and Average measurements were performed on the EUT:

1.375 23.66 10.59 34.25 56.00 -21.75 QP

1.635 21.96 11.08 33.04 56.00 -22.96 QP

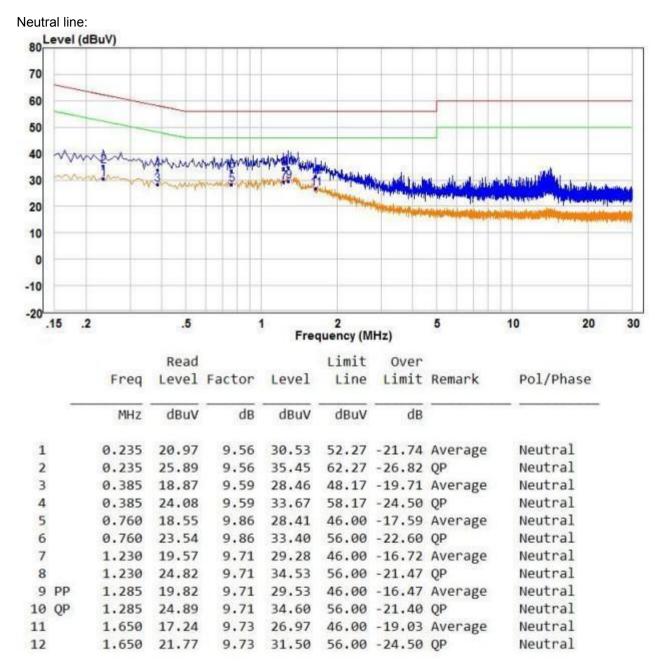
1.375 18.86 10.59 29.45 46.00 -16.55 Average

1.635 17.28 11.08 28.36 46.00 -17.64 Average

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.





Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

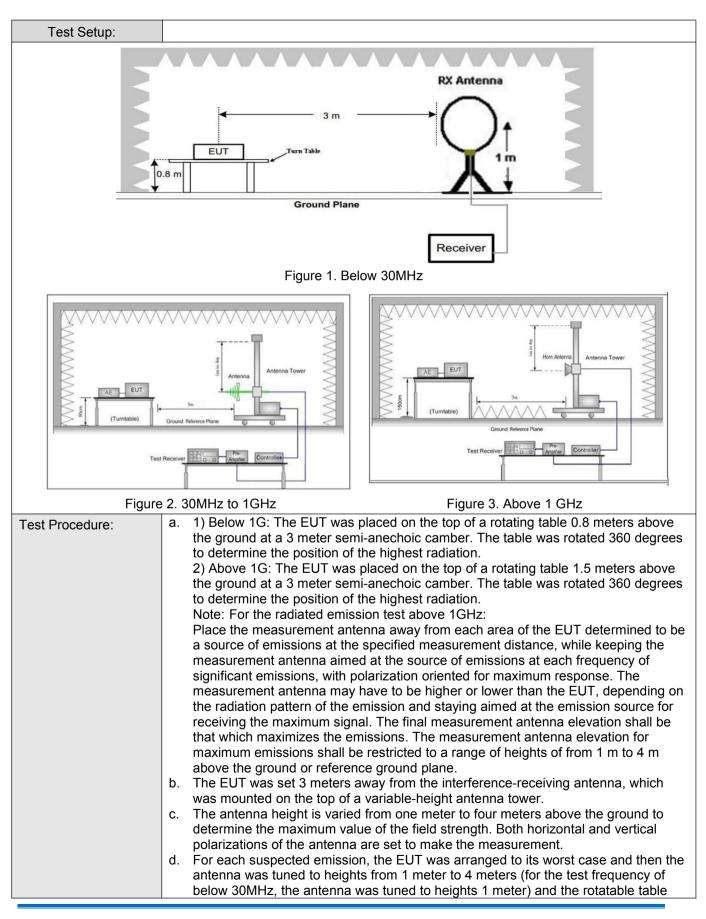
3. If the Peak value under Average limit, the Average value is not recorded in the report.



5.3 Radiated Emission

Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209 and 15.205						
Test Method:	ANSI C63.10: 2013						
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)						
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark	1	
	0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak		
	0.009MHz-0.090MHz	Average	10kHz	30KHz	Average		
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak		
	0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak	1	
	0.110MHz-0.490MHz	Average	10kHz	30KHz	Average		
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	1	
	30MHz-1GHz	Quasi-peak	100 kHz	300KHz	Quasi-peak		
		Peak	1MHz	3MHz	Peak		
	Above 1GHz	Peak	1MHz	10Hz	Average		
	Note: For fundamental f value, RMS detect	requency, RBW=5 tor is for Average v		5MHz, Peak d	letector is for	PK	
Limit: (Spurious Emissions	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark		Measurement distance (m)	
and band edge)	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300		
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30		
	1.705MHz-30MHz	30	-	-	30		
	30MHz-88MHz	100	40.0	Quasi-peak 3			
	88MHz-216MHz	150	43.5	Quasi-peak	3		
	216MHz-960MHz	200	46.0	Quasi-peak	3		
	960MHz-1GHz	500	54.0	Quasi-peak	3		
	Above 1GHz	500	54.0	Average 3			
	 Note: 1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device. 2) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation. 						
Limit:	Frequency	Limit (dBuV	//m @3m)	Rem	nark	7	
(Field strength of the		94.		Average	e Value	1	
fundamental signal)	2400MHz-2483.5MHz	z 114		Peak		-	

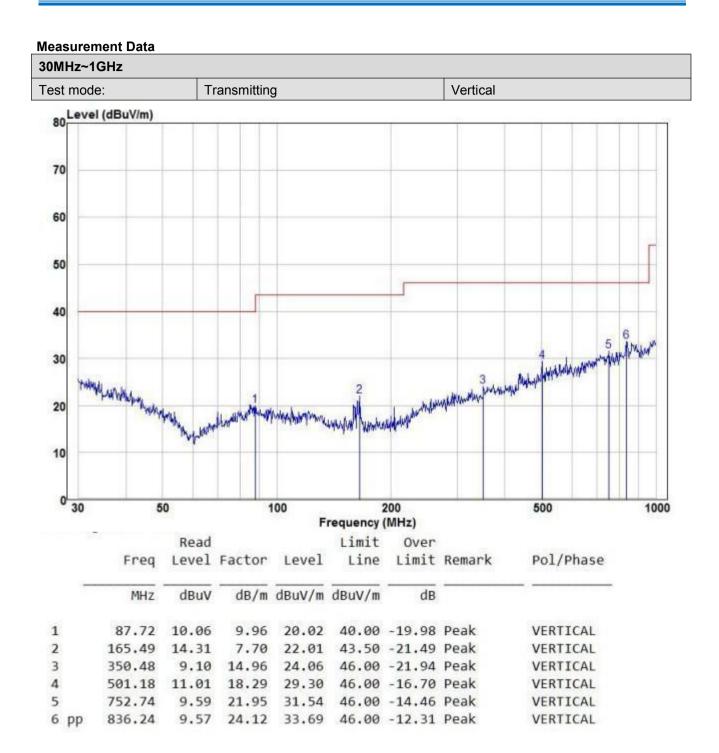






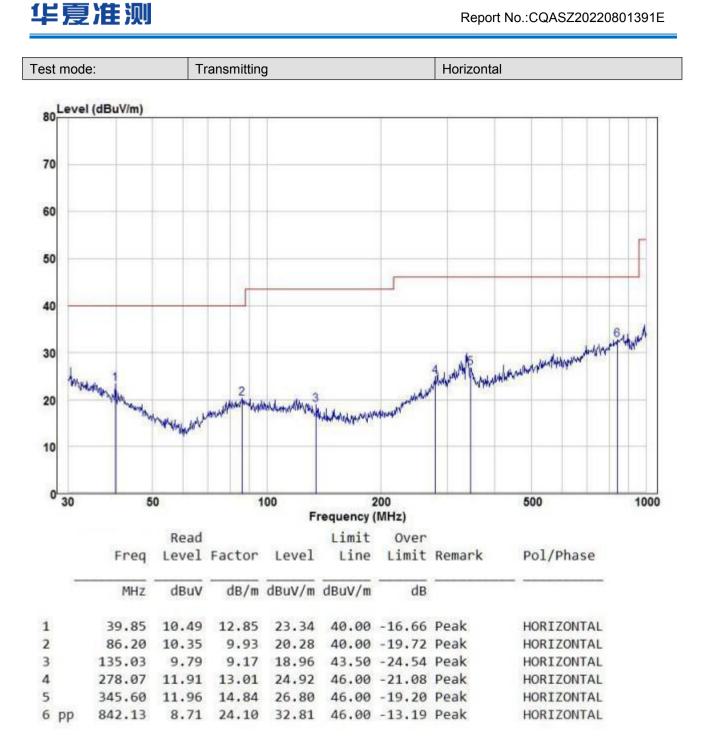
	 was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 				
	f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.				
	 g. Test the EUT in the lowest channel,the middle channel,the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete. 				
Exploratory Test Mode:	Transmitting mode, Charge + Transmitting mode.				
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Transmitting mode which it is worse case.				
	For below 1GHz part, through pre-scan, the worst case is the lowest channel.				
	Only the worst case is recorded in the report.				
Test Results:	Pass				













Above 1GHz							
Test mode:		Transmitti	ng	Test chanr	nel:	Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	H/V
2390	61.55	-9.2	52.35	74	-21.65	Peak	н
2390	44.21	-9.2	35.01	54	-18.99	AVG	н
2400	45.82	-9.39	36.43	74	-37.57	Peak	н
2400	44.03	-9.39	34.64	54	-19.36	AVG	н
2402	100.06	-9.33	90.73	114	-23.27	peak	н
2402	97.61	-9.33	88.28	94	-5.72	AVG	н
4804	55.44	-4.28	51.16	74	-22.84	peak	н
4804	41.54	-4.28	37.26	54	-16.74	AVG	н
7206	52.11	1.13	53.24	74	-20.76	peak	н
7206	37.26	1.13	38.39	54	-15.61	AVG	н
2390	62.51	-9.2	53.31	74	-20.69	peak	V
2390	44.61	-9.2	35.41	54	-18.59	AVG	V
2400	61.09	-9.39	51.70	74	-22.30	peak	V
2400	46.54	-9.39	37.15	54	-16.85	AVG	V
2402	96.39	-9.33	87.06	114	-26.94	peak	V
2402	92.26	-9.33	82.93	94	-11.07	AVG	V
4804	54.91	-4.28	50.63	74	-23.37	peak	V
4804	40.84	-4.28	36.56	54	-17.44	AVG	V
7206	51.05	1.13	52.18	74	-21.82	peak	V
7206	35.67	1.13	36.80	54	-17.20	AVG	V



Test mode:		Transmitti	ng	Test chanr	nel:	Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	H/V
2440	99.94	-9.37	90.57	114	-23.43	peak	н
2440	96.04	-9.37	86.67	94	-7.33	AVG	Н
4880	56.38	-4.14	52.24	74	-21.76	peak	н
4880	43.21	-4.14	39.07	54	-14.93	AVG	Н
7320	53.27	0.56	53.83	74	-20.17	peak	н
7320	36.75	0.56	37.31	54	-16.69	AVG	н
2440	95.02	-9.36	85.66	114	-28.34	peak	V
2440	93.94	-9.36	84.58	94	-9.42	AVG	V
4880	55.05	-4.14	50.91	74	-23.09	peak	V
4880	41.51	-4.14	37.37	54	-16.63	AVG	V
7320	52.78	0.56	53.34	74	-20.66	peak	V
7320	36.57	0.56	37.13	54	-16.87	AVG	V



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Test mode:		Transmitti	ng	Test chanr	nel:	Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	H/V
2480	97.48	-9.23	88.25	114	-25.75	peak	н
2480	97.60	-9.23	88.37	94	-5.63	AVG	н
2483.5	62.14	-9.29	52.85	74	-21.15	Peak	н
2483.5	43.77	-9.29	34.48	54	-19.52	AVG	н
4960	56.01	-4.03	51.98	74	-22.02	peak	н
4960	43.59	-4.03	39.56	54	-14.44	AVG	н
7440	51.45	1.68	53.13	74	-20.87	peak	н
7440	35.68	1.68	37.36	54	-16.64	AVG	н
2480	97.66	-9.23	88.43	114	-25.57	peak	V
2480	95.36	-9.23	86.13	94	-7.87	AVG	V
2483.5	60.27	-9.29	50.98	74	-23.02	peak	V
2483.5	43.59	-9.29	34.30	54	-19.70	AVG	V
4960	57.65	-4.03	53.62	74	-20.38	peak	V
4960	43.42	-4.03	39.39	54	-14.61	AVG	V
7440	53.63	1.68	55.31	74	-18.69	peak	V
7440	37.74	1.68	39.42	54	-14.58	AVG	V

Remark:

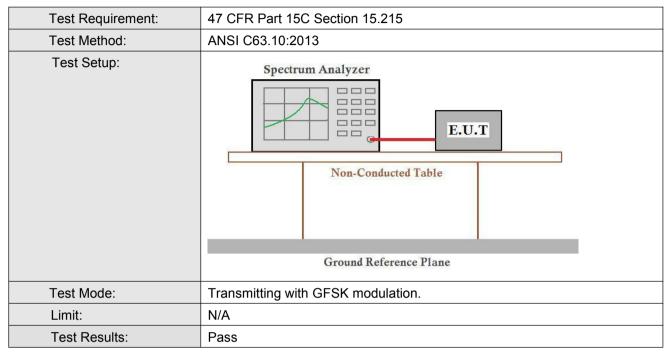
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) Scan from 9kHz to 25GHz, The disturbance above 10GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.



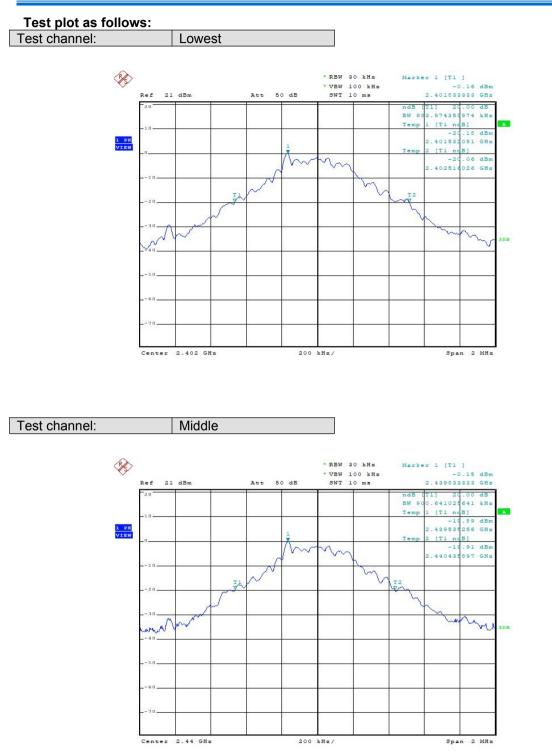
5.4 20dB Bandwidth



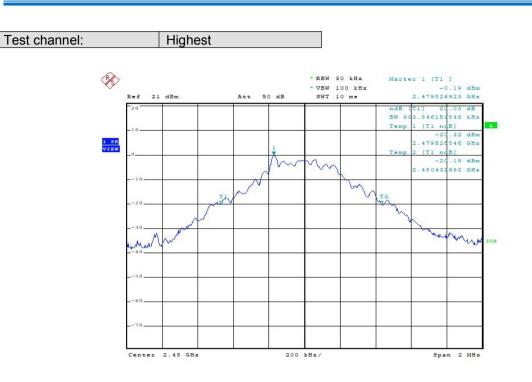
Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	0.984	Pass
Middle	0.901	Pass
Highest	0.904	Pass











6 Photographs

6.1 Radiated Emission Test Setup







6.2 Conducted Emission Test Setup



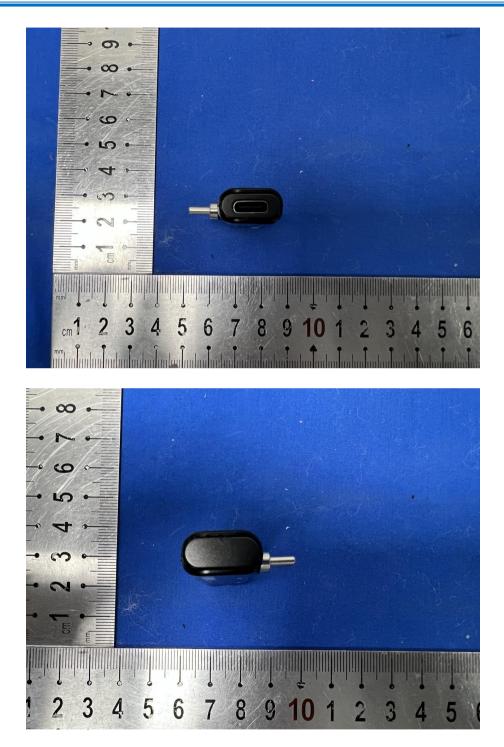


6.3 EUT Constructional Details

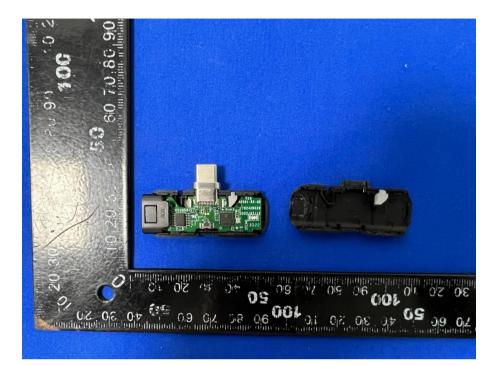


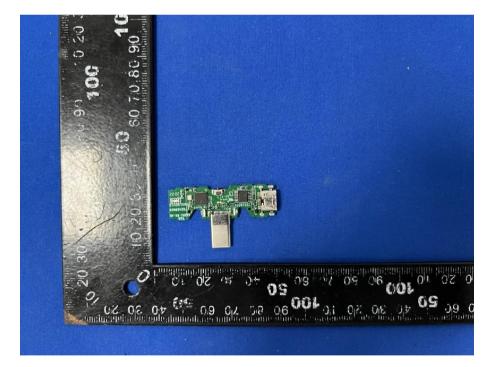






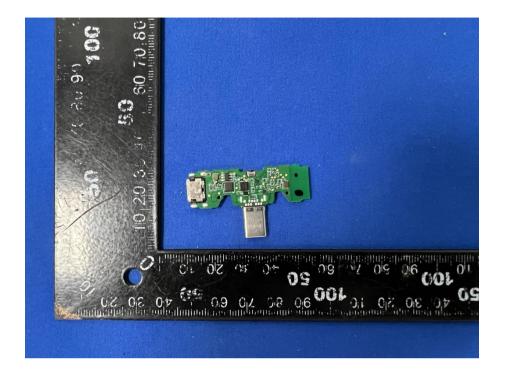








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*** END OF REPORT ***