

Report No.: DL-20221022023E

FCC Part 15C Test Report FCC ID:CFS-2C2BHTRAN

Applicant: Ademco Inc. Address: 2 Corporate Center Drive Suite 100 Melville, NY 11747 GIANT ALARM SYSTEM CO., LTD Manufacturer: No.37 Yangguang Road, Optoelectronic Information Industrial park, DAXIAMEI, Nanan, Address: Fujian, China EUT: Remote control Trade Mark: N/A 0E-2C2BHTRAN Model Number: 0E-4C4BHTRAN Date of Receipt: Oct. 13, 2022 Test Date: Oct. 13, 2022 - Oct. 22, 2022 Oct. 22, 2022 Date of Report: Prepared By: Shenzhen DL Testing Technology Co., Ltd. (CAB ID:CN0118) 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Address: Street, Longgang District, Shenzhen, Guangdong, China Applicable FCC PART 15 C 15.231 Standards: ANSI C63.10:2013 Test Result: Pass DL-20221022023E Report Number: HUA Prepared (Test Engineer): **Pxing Huang**

Approved (Manager):

Reviewer (Supervisor):

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This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.231) , Subpart C								
Standard Section	Test Item	Judgment	Remark					
15.207	Conducted Emission	N/A	S ^r X					
15.209,15.231b	Fundamental &Radiated Spurious Emission Measurement	PASS						
15.231a	Dwell time	PASS						
15.231c	20dB bandwidth	PASS						
15.203	Antenna Requirement	PASS	of O					

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±2.56dB
2	RF power, conducted	±0.42dB
3 🔨	Spurious emissions,conducted	±2.76dB
4	All emissions,radiated(<1G)	±3.65dB
5 0	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7 0	Humidity	±2%



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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Remote control
Trademark	N/A
Model No.:	0E-2C2BHTRAN 0E-4C4BHTRAN
Model Difference	The product's different for model number and Number of appearance keys.
Operation Frequency:	315MHz
Channel numbers:	1 Channels
Modulation technology:	ASK
Antenna Type:	Internal Antenna
Antenna gain:	0.53dBi
Power supply:	DC 12V

Note:

1.For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. The EUT's all information provided by client.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

			()		
Pretest Mode	Description				
Mode 1		TX Mode		a the	
	For Conducted &	Radiated Emission			
Final Test Mode		Description			
Mode 1		TX Mode	C.S.	· .	

Note:

(1) New battery is used during the test



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2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Item	Equipment Model/Type No. Series No.		Series No.	Note
E-1	Remote control	0E-2C2BHTRAN	N/A	EUT
		Cert V	~~ O	CON Y

Item	Shielded Type	Ferrite Core	Length	Note
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Note:

(1) For detachable type I/O cable should be specified the length in cm in ^PLength a column.

2.5 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

None.



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2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation test, E	and-edge test and	20db bandwidth	test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
8 <	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 06, 2021 Nov. 06, 2022	Nov. 05, 2022 Nov. 05, 2023

Conduction Test equipment Item Equipment Manufacturer Type No. Serial No. Last calibration Calibrated until 843 Room Nov. 25, 2019 Nov. 24, 2022 843 Shielded Room ChengYu 843 1 Nov. 05, 2022 Nov. 06, 2021 2 ESR R&S 101421 **EMI Receiver** Nov. 05, 2023 Nov. 06, 2022 Nov. 06, 2021 Nov. 05, 2022 ENV216 3 LISN R&S 102417 Nov. 06, 2022 Nov. 05, 2023 Nov. 05, 2022 Nov. 06, 2021 ChengYu CE Cable 001 4 843 Cable 1# Nov. 06, 2022 Nov. 05, 2023

(Other	A - A	<u> </u>	OV of	
6	Item	Name	Manufacturer	Model	Software version
1	1	EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
Γ	2	EMC radiation test system	FALA	EZ_EMC	FA-03A2
K	3	RF test system	MAIWEI	MTS8310	2.0.0.0
	4	RF communication test system	MAIWEI	MTS8200	2.0.0.0



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3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits

(Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dE	Standard		
FREQUENCT (MIDZ)	Quasi-peak	Average	Standard	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC	
0.50 -5.0	56.00	46.00	FCC	
5.0 -30.0	60.00	50.00	FCC	

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting				
Attenuation	10 dB				
Start Frequency	0.15 MHz				
Stop Frequency	30 MHz				
IF Bandwidth	9 kHz				

3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

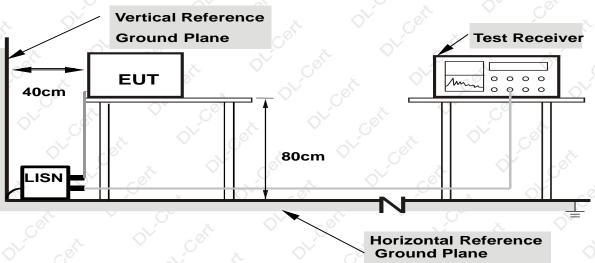
3.1.3 DEVIATION FROM TEST STANDARD

No deviation



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3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

3.1.6 TEST RESULTS

The EUT is powered by DC, no requirements for this item.



3.2 RADIATED EMISSION MEASUREMENT 3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency (MHz)	Field Strength (micorvolts/meter)	Measurement 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 of
88~216	150	3
216~960	200	3
Above 960	500	

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Field Strength of Fundamental	Field Strength of Harmonics
(millivolts/meter)	(microvolts/meter)
2250	225
1250	125
1250-3750**	1250-375**
3750	375
3750-12500**	3750-1250**
12500	1250
	(millivolts/meter) 2250 1250 1250-3750** 3750 3750-12500**

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, μ V/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, μ V/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

	Limit (dBuV/m) (at 3M)					
FREQUENCY (MHz)	PEAK	AVERAGE				
Above 1000	× 74 ° C	54				

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).



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ceiver setup:	× ×		_	
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Peak	1MHz	3MHz	Peak
Above 1GHz	Peak	1MHz	10Hz	Average

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table 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 re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
- h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

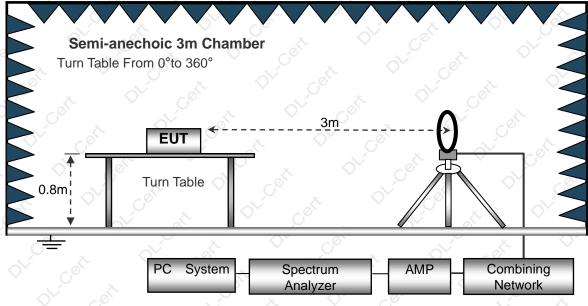
No deviation



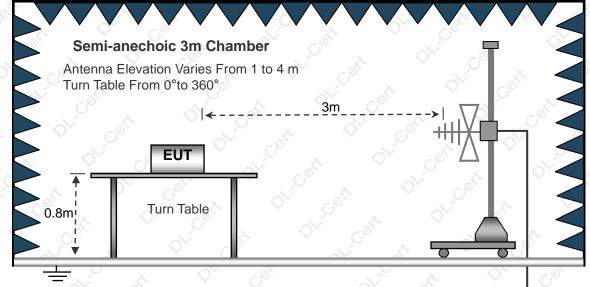
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3.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz

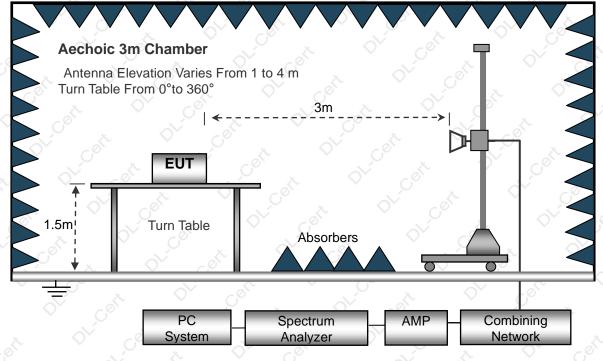


		20		
PC	Spectrum	AMP	Combining	
System	Analyzer	5	Network	i.
× ×	V CS		\sim \sim	_



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(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



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3.2.6 TEST RESULTS (BETWEEN 9KHZ - 30 MHZ)

		× *	<) ·// ·		- X.	
Temperature:	20°C	6.05	Relative Humidtity:	48%	COL	
Pressure:	1010 hPa		Test Voltage :	DC 12V	N S	5
Test Mode :	Mode 1	, C	Polarization :		× ,0°	
) Col		\bigcirc^{\vee}	Con	, at	\bigcirc^{\vee}	Ċ

Ť	Freq.	Reading	Limit	Margin	State
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
×.	O V	- 3		<u> 68</u>	PASS
	x - 0 ^V	- ²	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	or - cor	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. Distance extrapolation factor =40 log (specific distance/test distance)(dB); Limit line = specific limits(dBuv) + distance extrapolation factor.



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3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

emperature:	26 ℃	<	ov cé	Rel	ative Humi	dity:	54%		G	35
ressure:	1010 hP	a		Pol	arization :		Horizo	ontal		Š
est Voltage :	DC 12V	- of	× .	, O ^C	x.	0	C.or		\sim	
est Mode :	Mode 1	, s		l de				X	<)`
N d	× ×	S		Ň	al and a second					à
30.0 dBu∀/m						1				
70										
60										
						4 X	FCC Cla	iss B 3M	Radiated	d
0						1	Margin	6 dB	5	
										6
10										- 7
10					3					want the
								much	Martin Martin	
20	1				3	Marchan	WWW.WWW.WWW	4		
in the stand the stand	A Marghan Handling -			when which the out	in Alingette warme	W				
0	W. Martadawalany	May Way	. tot and Mary (MA) (MA)	man states .						
30.000	60.00			(MHz)		00.00				1000.0
	би. ОО			(1112)	°.	00.00				×
<u>S</u>	0		à V	a.	×	<u>0</u>	A.4		<u>N</u>	- 01

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	48.1625	34.66	-13.76	20.90	40.00	-19.10	QP
2	116.1320	34.07	-17.39	16.68	43.50	-26.82	QP
3	212.2693	34.67	-15.26	19.41	43.50	-24.09	QP
4 *	315.4749	63.66	-12.63	51.03	46.00	5.03	peak
5 X	631.5997	52.61	-6.15	46.46	46.00	0.46	peak
6	945.3369	40.94	-1.21	39.73	46.00	-6.27	peak

Remark:

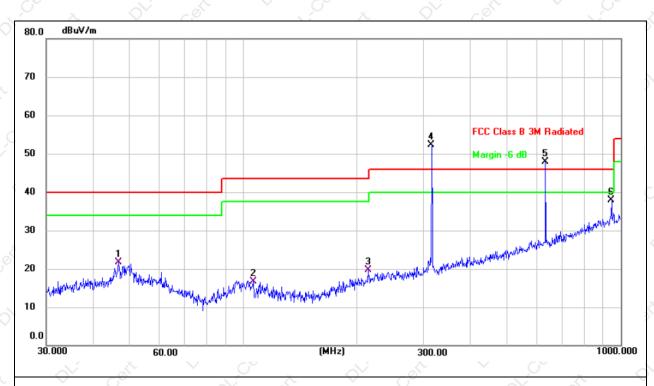
Correct Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading Level + Correct Factor; Margin = Limit – Level;



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V CO		V	
Temperature:	26°C	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 12V	it O' co'	
Test Mode :	Mode 1		
0			



s							
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	46.6662	35.73	-13.93	21.80	40.00	-18.20	QP
2	106.3850	33.20	-16.40	16.80	43.50	-26.70	QP
3	213.7633	34.97	-15.20	19.77	43.50	-23.73	QP
4 *	315.4749	64.88	-12.63	52.25	46.00	6.25	peak
5 X	631.5997	54.00	-6.15	47.85	46.00	1.85	peak
6	945.3369	39.13	-1.21	37.92	46.00	-8.08	peak

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading Level + Correct Factor; Margin = Limit – Level;



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For average Emission

Frequency MHz	Peak Level dBuV/m	Duty cycle factor	AverageLevel dBuV/m	Limit PK	Limit AV	Margin PK	Margin AV	Polarization
315.4749	52.25	-6.02	46.23	95.62	75.62	-43.37	-29.39	Vertical
631.5997	47.85	-6.02	41.83	75.62	55.62	-27.77	-13.79	Vertical
945.3369	37.92	-6.02	31.90	75.62	55.62	×-37.70	-23.72	Vertical

Notes: 1. Average emission Level = Peak Level + Duty cycle factor 2.Duty cycle level please see clause 5.

Frequency MHz	Peak Level dBuV/m	Duty cycle factor	AverageLevel dBuV/m	Limit PK	Limit AV	Margin PK	Margin AV	Polarization
315.4749	51.03	-6.02	45.01	95.62	75.62	-44.59	-30.61	Horizontal
631.5997	46.46	-6.02	40.44	75.62	55.62	-29.16	-15.18	Horizontal
945.3369	39.73	-6.02	33.71	75.62	55.62	-35.89	-21.91	Horizontal

Notes: 1. Average emission Level = Peak Level + Duty cycle factor 2.Duty cycle level please see clause 5.



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3.2.8 TEST RESULTS (1GHZ TO 10TH HARMONICS)

Frequency	Peak Reading Level	Correct Factor	Peak Level	Duty cycle factor	Average Level	Limits PK	Limits AV	Margin PK	Margin AV
(MHz)	(dBuV)	(dB)	(dBuV/m)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)		
0		N -	operati	on freque	ency:315	0 ^N	- 05		<u>у</u>
1260.00	31.23	-9.37	21.86	-6.02	15.84	75.62	55.62	-53.76	-39.78
1575.00	33.58	-9.37	24.21	-6.02	18.19	74.00	54.00	-49.79	-35.81
1890.00	27.13	-5.34 🧹	21.79	-6.02	15.77	75.62	55.62	-53.83	-39.85
2205.00	25.36	-5.34	20.02	-6.02	14	74.00	54.00	-53.98	-40.00
2520.00	25.28	-1.79	23.49	-6.02	17.47	75.62	55.62	-52.13	-38.15
2835.00	24.25	-1.79	22.46	-6.02	16.44	75.62	55.62	-53.16	-39.18
1260.00	32.17	-9.37	22.8	-6.02	16.78	75.62	55.62	-52.82	-38.84
1575.00	32.39	-9.37	23.02	-6.02	ິ 17	74.00	54.00	-50.98	-37.00
1890.00	28.15	-5.34	22.81	-6.02	16.79	75.62	55.62	-52.81	-38.83
2205.00	27.16	-5.34	21.82	-6.02	15.8	> 74.00 🛇	54.00	-52.18	-38.20
2520.00	24.68	1.79	22.89	6.02	16.87	75.62	55.62	-52.73	-38.75
2835.00	24.54	-1.79	22.75	-6.02	16.73	75.62	55.62	-52.87	-38.89
	(MHz) 1260.00 1575.00 1890.00 2205.00 2520.00 2835.00 1260.00 1575.00 1890.00 2205.00 2520.00	Frequency Reading Level (MHz) (dBuV) 1260.00 31.23 1575.00 33.58 1890.00 27.13 2205.00 25.36 2520.00 25.28 2835.00 24.25 1260.00 32.17 1575.00 32.39 1890.00 28.15 2205.00 27.16 2205.00 27.16	Frequency Reading Level Correct Factor (MHz) (dBuV) (dB) 1260.00 31.23 -9.37 1575.00 33.58 -9.37 1575.00 27.13 -5.34 2205.00 25.36 -5.34 2520.00 25.28 -1.79 1260.00 32.17 -9.37 1575.00 32.39 -9.37 1575.00 32.39 -9.37 1890.00 28.15 -5.34 2205.00 27.16 -5.34 2205.00 28.15 -5.34 2205.00 27.16 -5.34 2205.00 27.16 -5.34 2205.00 27.16 -5.34 2205.00 24.68 -1.79	Frequency (MHz)Reading LevelCorrect FactorFeak Level(MHz)(dBuV)(dB)(dBuV/m)operati1260.0031.23-9.3721.861575.0033.58-9.3724.211890.0027.13-5.3421.792205.0025.36-5.3420.022520.0025.28-1.7923.492835.0024.25-1.7922.461260.0032.17-9.3722.81575.0032.39-9.3723.021890.0028.15-5.3422.812205.0027.16-5.3421.822205.0024.68-1.7922.89	Frequency Reading Level Correct Factor Peak Level cycle factor (MHz) (dBuV) (dB) (dBuV/m) (dB/m) 0 000 31.23 -9.37 21.86 -6.02 1260.00 31.23 -9.37 21.86 -6.02 1575.00 33.58 -9.37 24.21 -6.02 1890.00 27.13 -5.34 21.79 -6.02 2205.00 25.36 -5.34 20.02 -6.02 2520.00 25.28 -1.79 23.49 -6.02 2835.00 24.25 -1.79 22.46 -6.02 1260.00 32.17 -9.37 22.8 -6.02 1260.00 32.17 -9.37 23.02 -6.02 1575.00 32.39 -9.37 23.02 -6.02 1890.00 28.15 -5.34 22.81 -6.02 2205.00 27.16 -5.34 21.82 -6.02 2520.00 24.68 -1.79 2	FrequencyReading LevelCorrect FactorPeak Levelcycle factorAverage Level(MHz)(dBuV)(dB)(dBuV/m)(dB/m)(dBuV/m)operation frequency:3151260.0031.23-9.3721.86-6.0215.841575.0033.58-9.3724.21-6.0218.191890.0027.13-5.3421.79-6.0215.772205.0025.36-5.3420.02-6.02142520.0025.28-1.7923.49-6.0216.441260.0032.17-9.3722.8-6.0216.781575.0032.39-9.3723.02-6.02171890.0028.15-5.3422.81-6.0216.792205.0027.16-5.3421.82-6.0215.82520.0024.68-1.7922.89-6.0216.79	FrequencyReading LevelCorrect FactorPeak Levelcycle factorAverage LevelLimits PK(MHz)(dBuV)(dB)(dBuV/m)(dB/m)(dBuV/m)(dBuV/m)(dBuV/m)operation frequency:3151260.0031.23-9.3721.86-6.0215.8475.621575.0033.58-9.3724.21-6.0218.1974.001890.0027.13-5.3421.79-6.0215.7775.622205.0025.36-5.3420.02-6.021474.002520.0025.28-1.7923.49-6.0216.4475.621260.0032.17-9.3722.8-6.0216.7875.621575.0032.39-9.3723.02-6.0216.7875.621575.0032.39-9.3723.02-6.0216.7975.621575.0032.39-9.3723.02-6.0216.7975.621575.0032.39-9.3723.02-6.0216.7975.621575.0032.39-9.3723.02-6.0216.7975.621575.0028.15-5.3422.81-6.0216.7975.622205.0027.16-5.3421.82-6.0216.7975.622205.0027.16-5.3421.82-6.0215.874.002520.0024.68-1.7922.89-6.0216.8775.622520.0024.68-1.79 </td <td>FrequencyReading LevelCorrect FactorPeak Levelcycle factorAverage LevelLimits PKLimits AV(MHz)(dBuV)(dB)(dBuV/m)(dB/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)operation frequency:3151260.0031.23-9.3721.86-6.0215.8475.6255.621575.0033.58-9.3724.21-6.0218.1974.0054.001890.0027.13-5.3421.79-6.0215.7775.6255.622205.0025.36-5.3420.02-6.021474.0054.002520.0025.28-1.7923.49-6.0217.4775.6255.622835.0024.25-1.7922.46-6.0216.7875.6255.621260.0032.17-9.3722.8-6.021774.0054.001890.0028.15-5.3422.81-6.0216.7875.6255.621575.0032.39-9.3723.02-6.021774.0054.001890.0028.15-5.3422.81-6.0216.7975.6255.622205.0027.16-5.3421.82-6.0216.7975.6255.622205.0027.16-5.3421.82-6.0216.8775.6255.622205.0024.68-1.7922.89-6.0216.8775.6255.622205.0024.68<</td> <td>FrequencyReading LevelCorrect FactorPeak Levelcycle factorAverage LevelLimits PKLimits AVMargin PK(MHz)(dBuV)(dB)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)1260.0031.23-9.3721.86-6.0215.8475.6255.62-53.761575.0033.58-9.3724.21-6.0218.1974.0054.00-49.791890.0027.13-5.3421.79-6.0215.7775.6255.62-53.832205.0025.36-5.3420.02-6.021474.0054.00-53.982520.0025.28-1.7923.49-6.0217.4775.6255.62-53.161260.0032.17-9.3722.8-6.0216.7875.6255.62-52.821575.0032.39-9.3723.02-6.021774.0054.00-50.981890.0028.15-5.3422.81-6.0216.7975.6255.62-52.812205.0027.16-5.3422.81-6.0216.7975.6255.62-52.812205.0024.68-1.7922.89-6.0216.7975.6255.62-52.81250.0028.15-5.3422.81-6.0216.7975.6255.62-52.812205.0024.68-1.7922.89-6.0216.8774.0054.00-52.18</td>	FrequencyReading LevelCorrect FactorPeak Levelcycle factorAverage LevelLimits PKLimits AV(MHz)(dBuV)(dB)(dBuV/m)(dB/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)operation frequency:3151260.0031.23-9.3721.86-6.0215.8475.6255.621575.0033.58-9.3724.21-6.0218.1974.0054.001890.0027.13-5.3421.79-6.0215.7775.6255.622205.0025.36-5.3420.02-6.021474.0054.002520.0025.28-1.7923.49-6.0217.4775.6255.622835.0024.25-1.7922.46-6.0216.7875.6255.621260.0032.17-9.3722.8-6.021774.0054.001890.0028.15-5.3422.81-6.0216.7875.6255.621575.0032.39-9.3723.02-6.021774.0054.001890.0028.15-5.3422.81-6.0216.7975.6255.622205.0027.16-5.3421.82-6.0216.7975.6255.622205.0027.16-5.3421.82-6.0216.8775.6255.622205.0024.68-1.7922.89-6.0216.8775.6255.622205.0024.68<	FrequencyReading LevelCorrect FactorPeak Levelcycle factorAverage LevelLimits PKLimits AVMargin PK(MHz)(dBuV)(dB)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)(dBuV/m)1260.0031.23-9.3721.86-6.0215.8475.6255.62-53.761575.0033.58-9.3724.21-6.0218.1974.0054.00-49.791890.0027.13-5.3421.79-6.0215.7775.6255.62-53.832205.0025.36-5.3420.02-6.021474.0054.00-53.982520.0025.28-1.7923.49-6.0217.4775.6255.62-53.161260.0032.17-9.3722.8-6.0216.7875.6255.62-52.821575.0032.39-9.3723.02-6.021774.0054.00-50.981890.0028.15-5.3422.81-6.0216.7975.6255.62-52.812205.0027.16-5.3422.81-6.0216.7975.6255.62-52.812205.0024.68-1.7922.89-6.0216.7975.6255.62-52.81250.0028.15-5.3422.81-6.0216.7975.6255.62-52.812205.0024.68-1.7922.89-6.0216.8774.0054.00-52.18

Remark:

1. PK Emission Level = Peak Reading Level + Correct Factor

2. Correct Factor= Antenna Factor + Cable Loss - Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Notes: 1. Average emission Level = Peak Level + Duty cycle factor 2.Duty cycle level please see clause 5.

3. Pulse Desensitization Correction Factor

Pulse Width (PW) = 138.0ms 2/PW = 2/138.0ms = 0.01kHz

RBW (100 kHz) > 2/PW (0.01kHz)

Therefore PDCF is not needed



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4. BANDWIDTH TEST

4.1 APPLIED PROCEDURES / LIMIT

	FCC Part15 (15.249) , Subpart C
Section	Description
15.231C	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating between 70 MHz to 900 MHz. Those devices operating above 900 MHz, the emission spurious shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier. B.W (20dBc) Limit = 0.25% * f(MHz) = 0.25% * 315MHz = 0.7875MHz

4.1.1 TEST PROCEDURE

- 1. Set RBW = 30 kHz.
- 2. Set VBW = 100 kHz.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.

7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

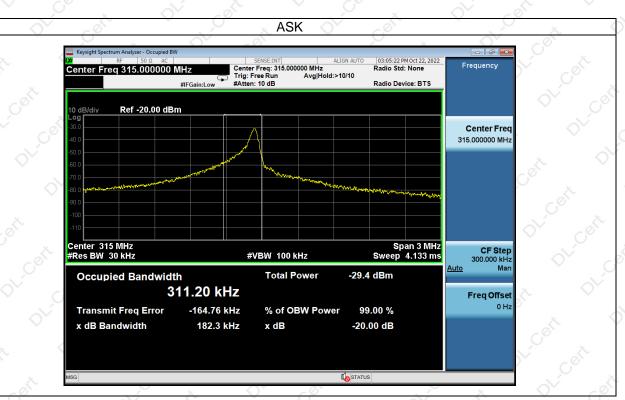
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



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4.1.5 TEST RESULTS

Frequency (MHz)	20dB bandwidth (MHz)	Result
315	0.1823	Pass
315	0.1823	Pa





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5. CALCULATION OF AVERAGE FACTOR

5.1 APPLIED PROCEDURES / LIMIT

The output field strengths of specification in accordance with the FCC rules specify measurements with an average detector. During the test, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.

The duty cycle is measured in 100 ms or the repetition cycle period, whichever is a shorter time frame. The duty cycle is measured by placing the spectrum analyzer to set zero span at 100kHz resolution bandwidth.

5.1.1 TEST PROCEDURE

- 1. Set RBW = 100 kHz.
- 2. Set VBW = 300 kHz.
- 3. Detector = Peak.
- 4. Sweep = auto couple.
- 5. Allow the trace to stabilize.

5.1.2 TEST SETUP



SPECTRUM ANALYZER

5.1.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



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5.1.4 TEST RESULTS

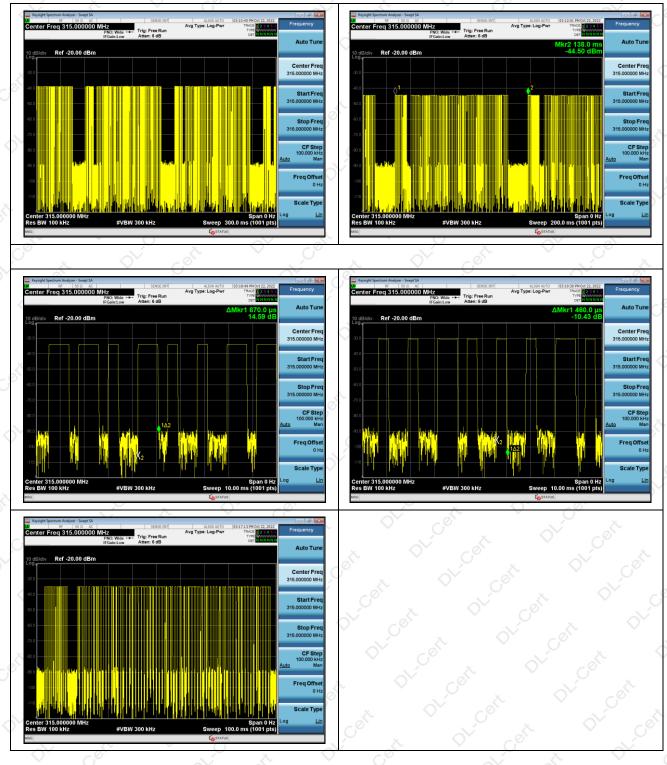
Duty Cycle= Effective time one cycle/ Total time one cycle

Averaging factor in dB =20log (duty cycle)

Duty Cycle = (0.87ms*44+0.46ms*34)/100.0

Therefore, the averaging factor is found by 20log0.5=-6.02dB

Test plot as follows:





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6. DWELL TIME

6.1 APPLIED PROCEDURES / LIMIT

	FCC Part15 (15.249), Subpart C								
Section	CO'	Ohr Ce	Description	at Oh	Cert				
15.231a	0 - 0		er shall employ a switch t in not more than 5 second		9				

6.1.1 TEST PROCEDURE

- 1. Set RBW = 100 kHz.
- 2. Set VBW = 300 kHz.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Allow the trace to stabilize.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



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Cert

DL-Cert

Cert

6.1.5 TEST RESULTS

5	× (2)		Dwell time (se	Dwell time (second)		ond)	Result		
6	Normal		0.23	Cor	<5s		Pass	Cox	
	Cert	Q	Ot Cot	Ohi C	ot x	D ¹	o.	OL	

-	Keysight S	pectrum Analyzer - Swept SA							- 7
4	X Center	RF 50 Ω AC Freq 315.000000	MHz	SENSE:INT	Avg Type: L	IGN AUTO		Oct 22, 2022	Frequency
	bonton	100 010.000000	PNO: Wide	ig: Free Run tten: 6 dB	Avg Hold: 2	/100	TYP		
			IFGain:Low A	tten. o db		٨١	Akr1 23	30.0 ms	Auto Tune
	10 dB/div	Ref -20.00 dBm					-0.	428 dB	
	^{og} ¶								
									Center Freq
	-30.0								315.000000 MHz
	-40.0								
									Start Freq
۰,	-50.0								315.000000 MHz
	-60.0								Stop Freq
	70.0								315.000000 MHz
<									
	-80.0	142-							CF Step 100.000 kHz
	Li, Maketa	wohennesterry	wellingener	mar with the first first and the start of th	walne wat you	alimpian and	monum	mummun	Auto Man
	-90.0								
~	-100								Freq Offset
	-100								0 Hz
	-110								
									Scale Type
	Center 3	15.000000 MHz		^			S	pan 0 Hz	Log <u>Lin</u>
		100 kHz	#VBW 30	0 kHz			10.00 s (⁷	001 pts)	
ħ	ISG					I STATUS			
	0V	- 05	V I	, O	0	0		-05	× ·



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7. ANTENNA REQUIREMENT

7.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

7.2 EUT ANTENNA

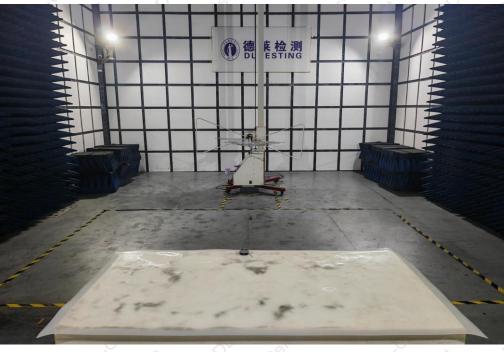
The EUT antenna is internal antenna, It comply with the standard requirement.

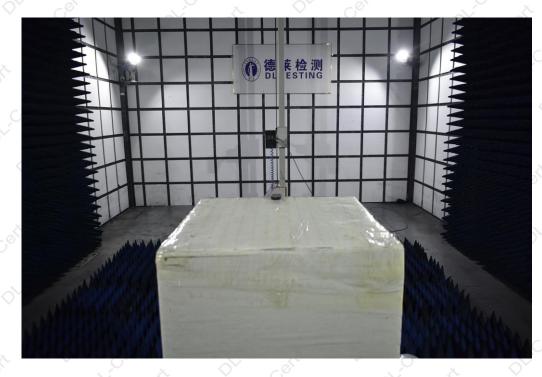


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8. TEST SEUUP PHOTO

Radiated Measurement Photos

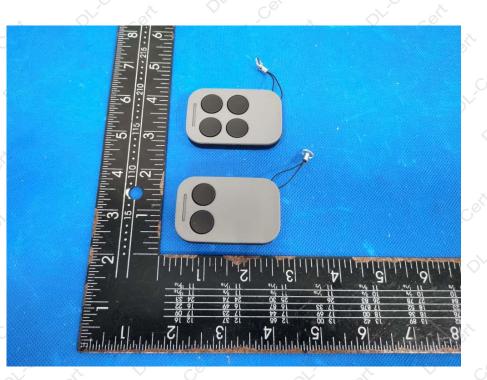






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9. EUT PHOTO



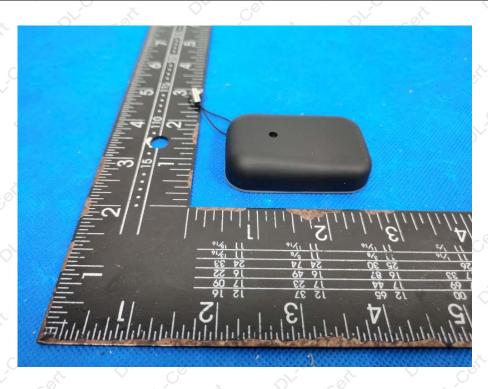






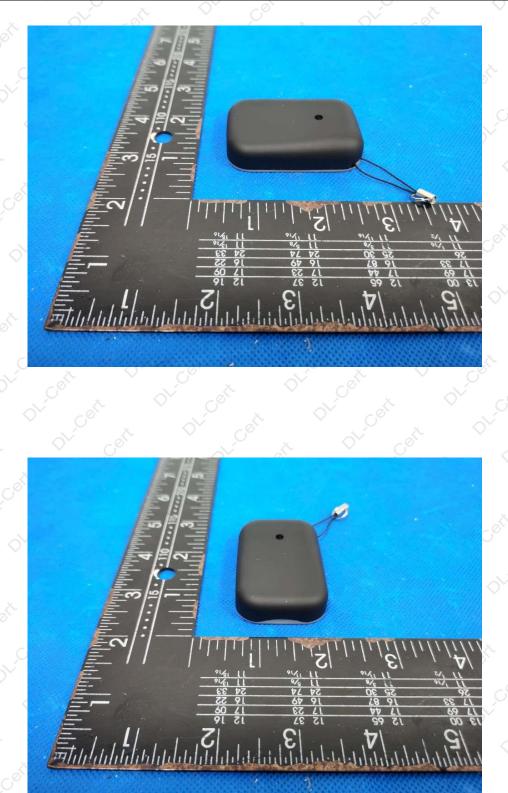




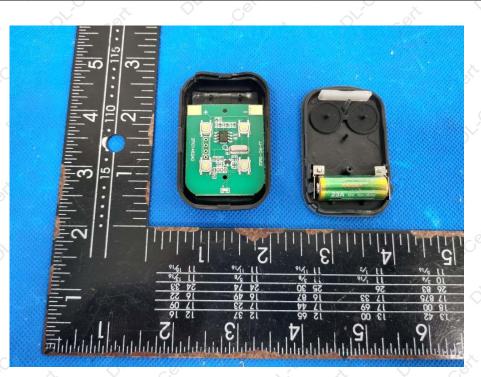


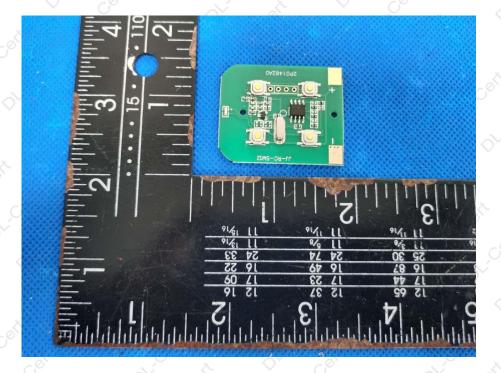




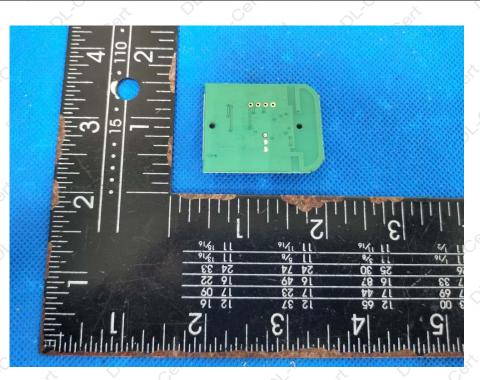










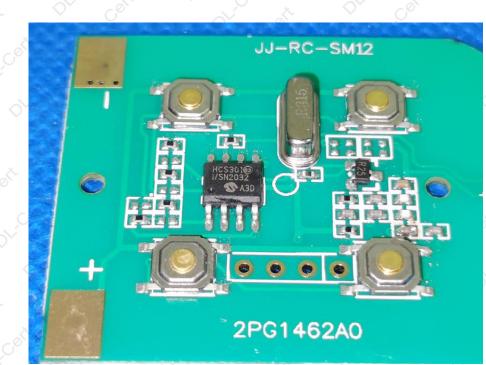






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***** END OF REPORT ****