APPLICATION CERTIFICATION FCC Part 15C & RSS-210
On Behalf of
Godox Photo Equipment Co.,Ltd.

TTL Li-ion Round Head Camera Flash
Model No.: V1C, V1N, V1S, V1O, V1F, V1P

FCC ID: 2ABYN001
IC: 20034-001

Prepared for	:	Godox Photo Equipment Co.,Ltd.
Address	:	19th Floor, Room 1902, Building Jinshan, 5033 Shennan East Road, Luohu District, Shenzhen, China
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
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Report Number	:	ATE20190752
Date of Test	:	May 13-May 14, 2019
Date of Report	:	June 22, 2019

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Description Page

Test Report Certification

Applicant	:	Godox Photo Equipment Co.,Ltd.
Address	:	19th Floor, Room 1902, Building Jinshan, 5033 Shennan East Road, Luohu District, Shenzhen, China
Product	:	TTL Li-ion Round Head Camera Flash
Model No.	:	V1C, V1N, V1S, V1O, V1F, V1P

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.10: 2013
RSS-210 Issue 9 August 2016
RSS-Gen Issue 5 April 2018

The EUT was tested according to FCC 47CFR 15.249 for compliance to FCC 47CFR 15.249 requirements

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.249 and RSS-210 limits. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test :	May 13-May 14, 2019
Date of Report :	June 22, 2019

Prepared by : (Stanley Yang, Engineer)

Approved & Authorized Signer : (Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	TTL Li-ion Round Head Camera Flash
Model No.	:	V1C, V1N, V1S, V1O, V1F, V1P (Note: We hereby state that these models are identical in interior structure, electrical circuits and components, just model name is difference, Therefore, only model V1C is for tested.)
HVIN	:	V1C, V1N, V1S, V1O, V1F, V1P
Operate Frequency	:	2413.00MHz-2464.5MHz
Number of channel	:	32
Modulation mode	:	MSK
Antenna Gain	:	0dBi
Antenna type	:	Integral Antenna
Power Supply	:	DC 7.2V Li-ion

1.2.Carrier Frequency of Channels

Channel Number	Frequency (GHz)	Channel Number	Frequency (GHz)
1	2.412999634	17	2.439499908
2	2.414499664	18	2.440999939
3	2.415999695	19	2.442999847
4	2.418000000	20	2.444499878
5	2.419499634	21	2.445999908
6	2.420999664	22	2.447999817
7	2.422999969	23	2.449499847
8	2.424500000	24	2.450999878
9	2.425999634	25	2.452999786
10	2.427999939	26	2.454499817
11	2.429499969	27	2.455999847
12	2.431000000	28	2.457999756
13	2.432999908	29	2.459499786
14	2.434499939	30	2.460999817
15	2.435999969	31	2.462999725
16	2.437999878	32	2.464499756

1.3.Special Accessory and Auxiliary Equipment

N/A

1.4.Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 Listed by Innovation, Science and Economic Development Canada (ISEDC) The Registration Number is 5077A-2 Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Cal. Interval
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 05, 2019	One Year
EMI Test Receiver	Rohde&Schwarz	ESR	101817	Jan. 05, 2019	One Year
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 05, 2019	One Year
Pre-Amplifier	Agilent	8447D	294A10619	Jan. 05, 2019	One Year
Pre-Amplifier	Compliance Direction	RSU-M2	38322	Jan. 05, 2019	One Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 05, 2019	One Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 05, 2019	One Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 05, 2019	One Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 05, 2019	One Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 05, 2019	One Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 05, 2019	One Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 05, 2019	One Year
Conducted Emission Measurement Software: ES-K1 V1.71					
Radiated Emission Measurement Software: EZ_EMC V1.1.4.2					

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **Transmitting mode**

Low Channel: 2412.999634 MHz
Middle Channel: 2437.999878 MHz
High Channel: 2464.499756 MHz

3.2.Configuration and peripherals

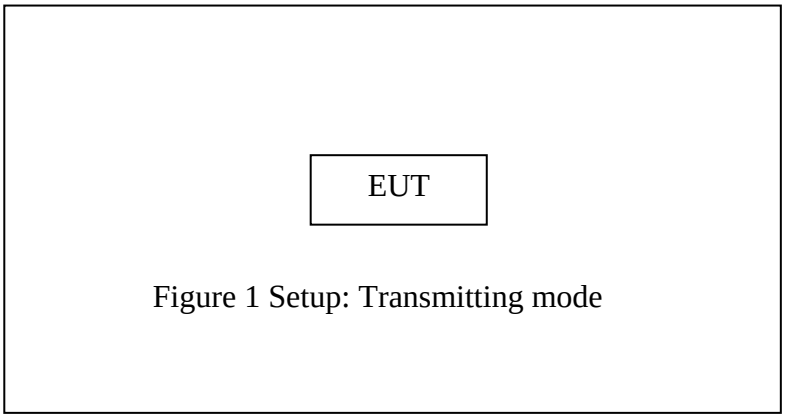


Figure 1 Setup: Transmitting mode

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.249(a)	E.I.R.P Test	Compliant
Section 15.215(c)	20dB Bandwidth Test	Compliant
RSS-Gen Section 6.7	99% Bandwidth Test	Compliant
Section 15.249(d) RSS-210 Annex B B.10 RSS-Gen 8.9 RSS-Gen 8.10	Band Edge Compliance Test	Compliant
Section 15.205(a), Section 15.209(a), Section 15.249(a), Section 15.35 RSS-210 Annex B B.10 RSS-Gen 6.13 RSS-Gen 8.9	Radiated Spurious Emission Test	Compliant
Section 15.207 RSS-Gen Section 8.8	AC Power Line Conducted Emission Test	Compliant
Section 15.203 RSS-Gen 6.8	Antenna Requirement	Compliant

5. E.I.R.P TEST

5.1. The Requirement For Section 15.249(a)

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

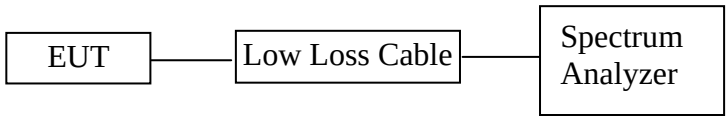
Fundamental frequency	Field strength of fundamental (millivolts/ meter)	Field strength of harmonics (microvolts/ meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

5.2. Test Result

Frequency (MHz)	PEAK E.I.R.P (dBuV/m)	AVG E.I.R.P (dBuV/m)	PEAK Limits (dBuV/m)	AVG Limits (dBuV/m)	Result
2412.999634	90.82	89.52	114	94	Pass
2437.999878	89.02	87.62	114	94	Pass
2464.499756	90.27	89.07	114	94	Pass

6. 20DB BANDWIDTH TEST

6.1.Block Diagram of Test Setup



6.2.The Requirement For Section 15.215(c)

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.

6.3.Operating Condition of EUT

6.3.1.Setup the EUT and simulator as shown as Section 6.1.

6.3.2.Turn on the power of all equipment.

6.3.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412.999634, 2437.999878, 2464.499756MHz.

6.4.Test Procedure

6.4.1.Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

6.4.2.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.

6.4.3.RBW shall be in the range of 1% to 5% of the OBW and VBW shall be approximately three times RBW.

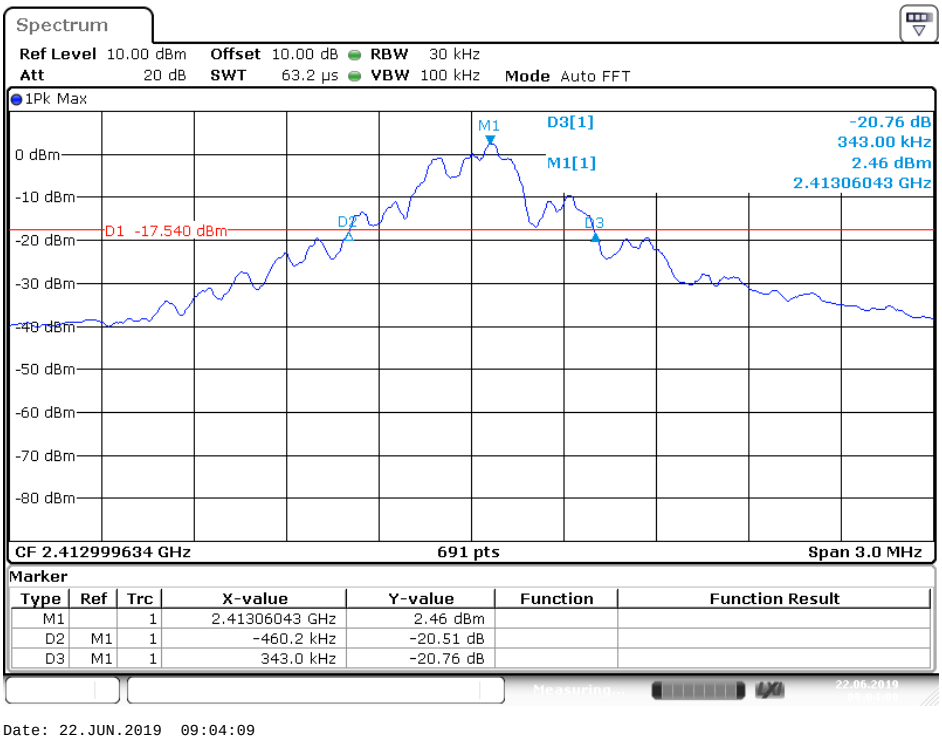
6.4.4.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

6.5.Test Result

Channel	Frequency(MHz)	20 dB Bandwidth(MHz)
Low	2412.999634	0.803
Middle	2437.999878	0.795
High	2464.499756	0.795

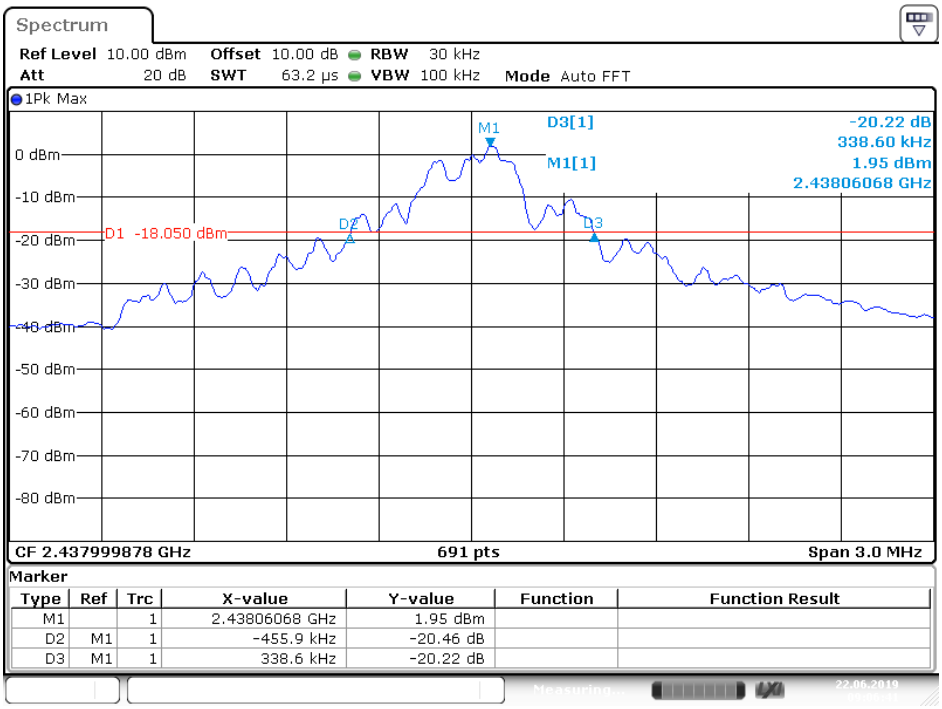
The spectrum analyzer plots are attached as below.

Low channel



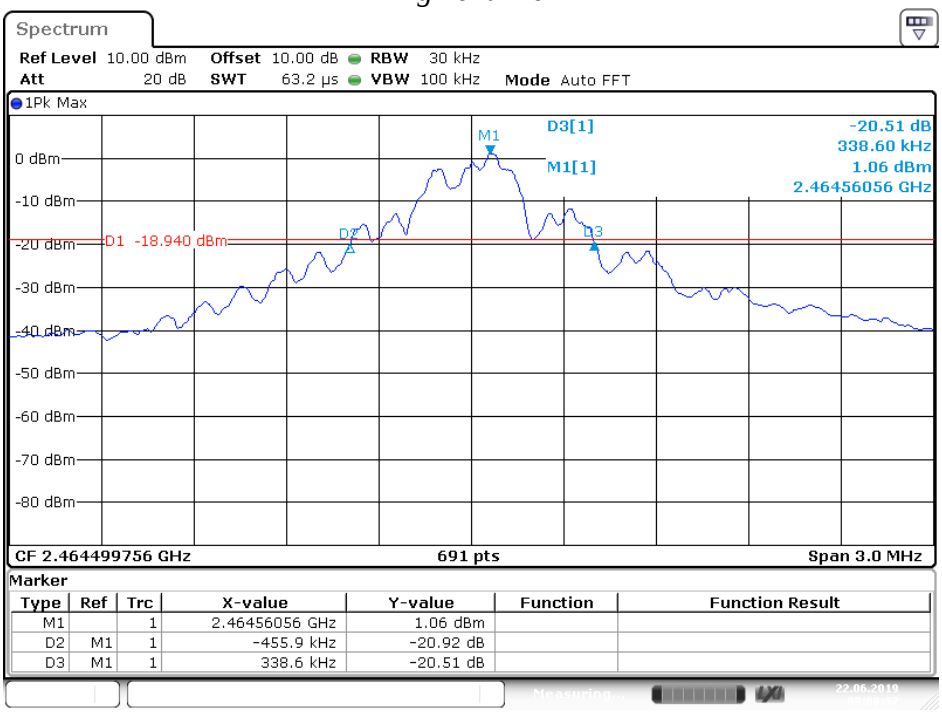
Date: 22.JUN.2019 09:04:09

Middle channel



Date: 22.JUN.2019 09:06:41

High channel



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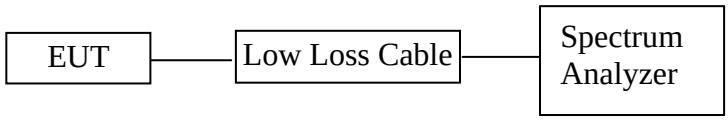
7. 99% OCCUPIED BANDWIDTH TEST

7.1. Block Diagram of Test Setup



7.2. The Requirement For RSS- Gen Clause 6.7

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the "x dB bandwidth" is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

7.3. Operating Condition of EUT

7.3.1. Setup the EUT and simulator as shown as Section 7.1.

7.3.2. Turn on the power of all equipment.

7.3.3. Let the EUT work in TX modes measure it. The transmit frequency is 2412.999634, 2437.999878, 2464.499756MHz.

7.4.Test Procedure

7.4.1.The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.4.2.The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

7.4.3.The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.

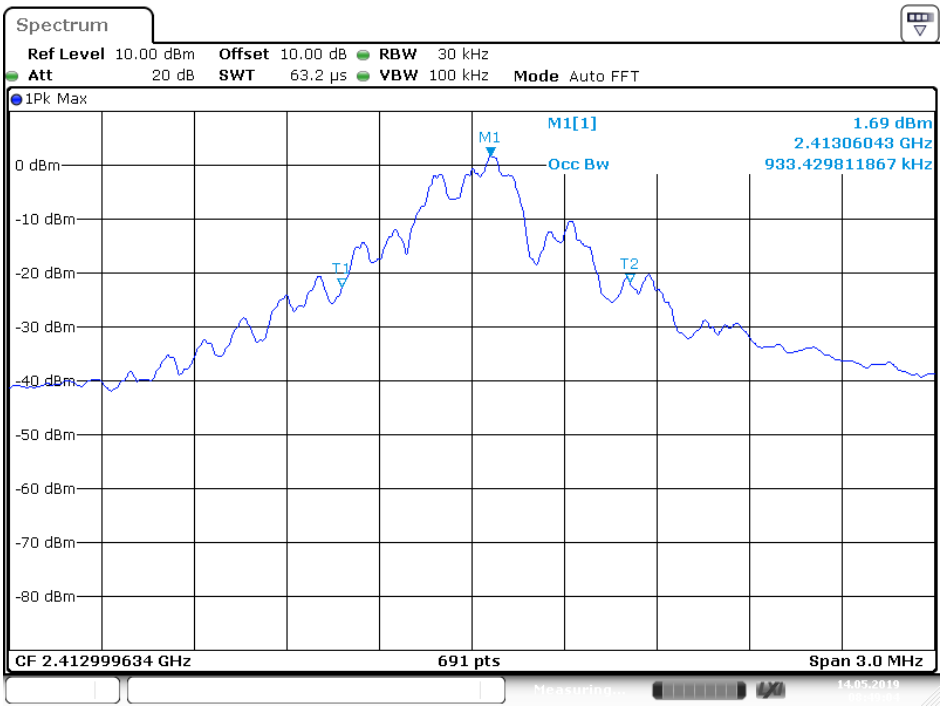
7.4.4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

7.5.Test Result

Channel	Frequency(MHz)	99% Bandwidth (MHz)
Low	2412.999634	0.933
Middle	2437.999878	0.946
High	2464.499756	0.920

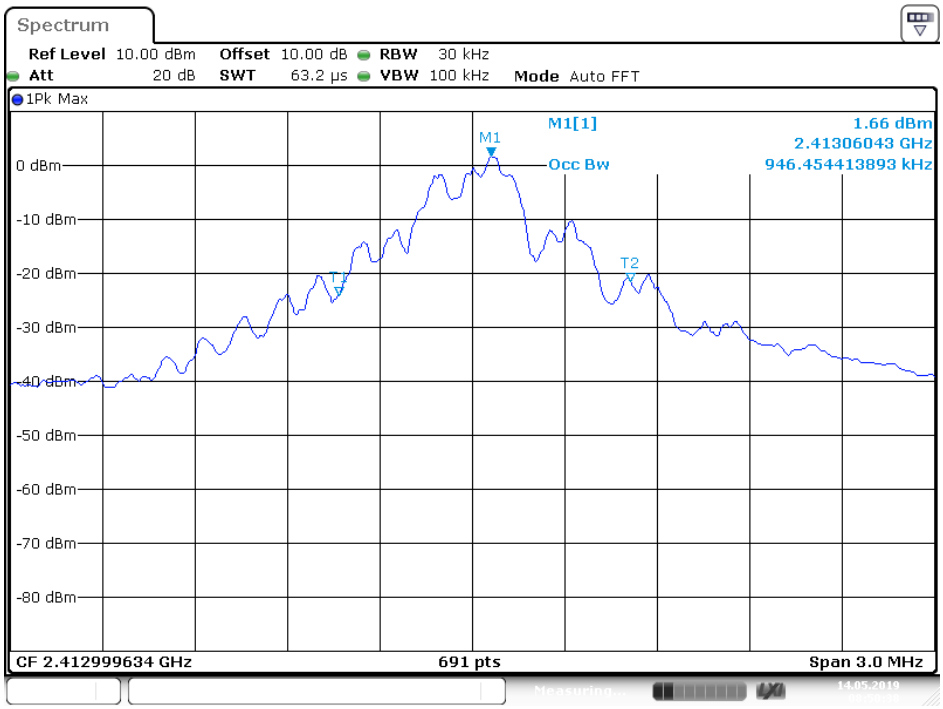
The spectrum analyzer plots are attached as below.

Low channel



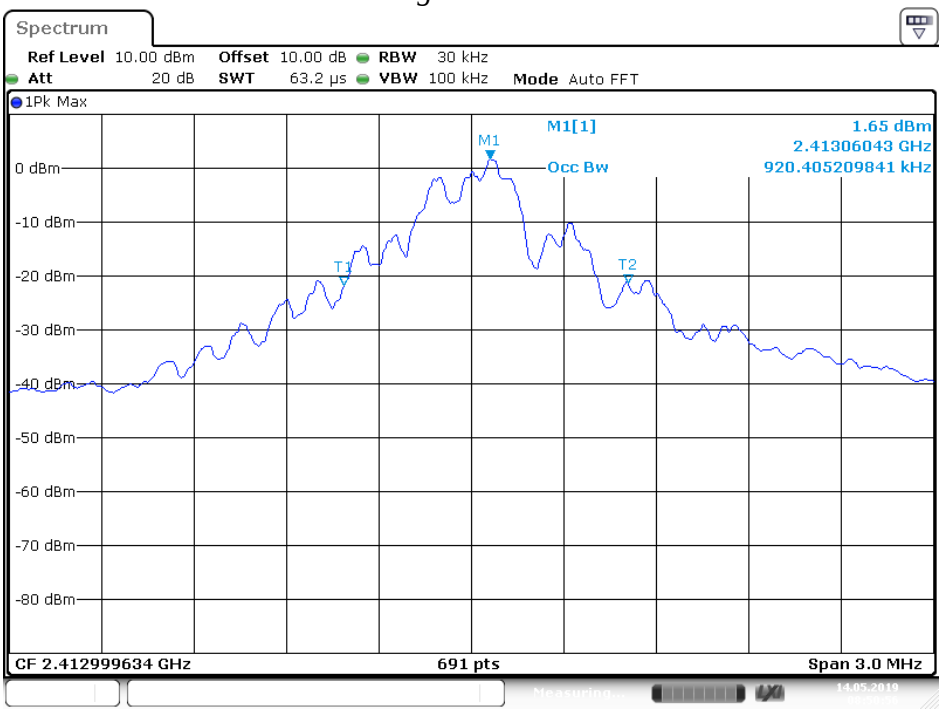
Date: 14.MAY.2019 08:49:05

Middle channel



Date: 14.MAY.2019 08:50:39

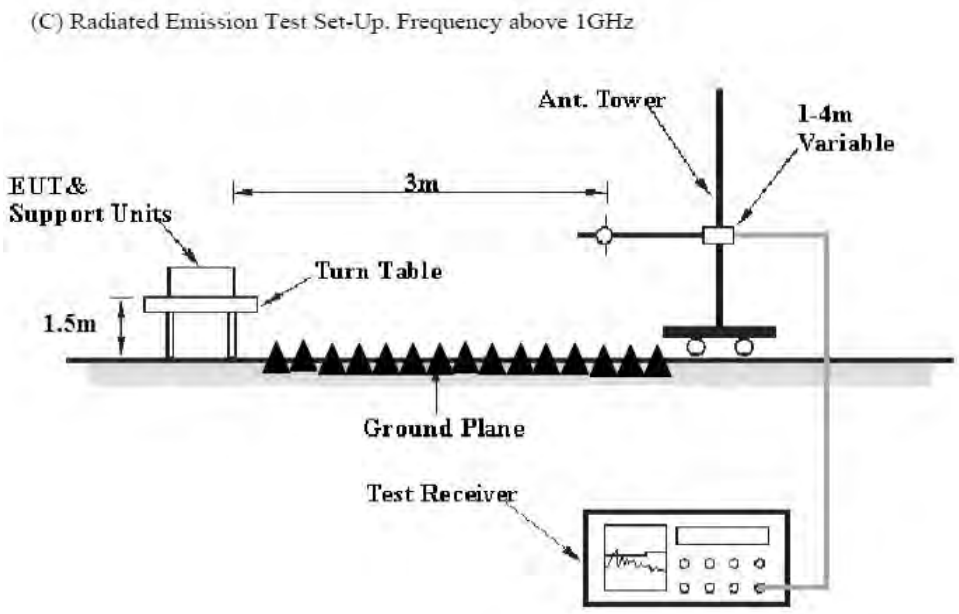
High channel



Date: 14.MAY.2019 08:50:57

8. BAND EDGE COMPLIANCE TEST

8.1.Block Diagram of Test Setup



8.2.The Requirement For Section 15.249(d)

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 § 15.209, whichever is the lesser attenuation.

8.3.The Requirement For RSS-210 Annex B B.10

Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emissions or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

8.4.Restricted bands of operation

8.4.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

8.4.2.RSS-Gen 8.10 Restricted bands of operation

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

(a)The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, *Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).*

(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.

(c) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.

Table 7 – Restricted frequency bands*

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

8.5.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.6.Operating Condition of EUT

8.6.1.Setup the EUT and simulator as shown as Section 8.1.

8.6.2.Turn on the power of all equipment.

8.6.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412.999634, 2464.499756MHz.

8.7.Test Procedure

Radiate Band Edge:

8.7.1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

8.7.2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

8.7.3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

8.7.4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

RBW=1MHz, VBW=1MHz

8.7.5.The band edges was measured and recorded.

8.8.Test Result

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows: Result = Reading + Corrected Factor
3. Display the measurement of peak values.
4. The average measurement was not performed when peak measured data under the limit of average detection.

The spectrum analyzer plots are attached as below.

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Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
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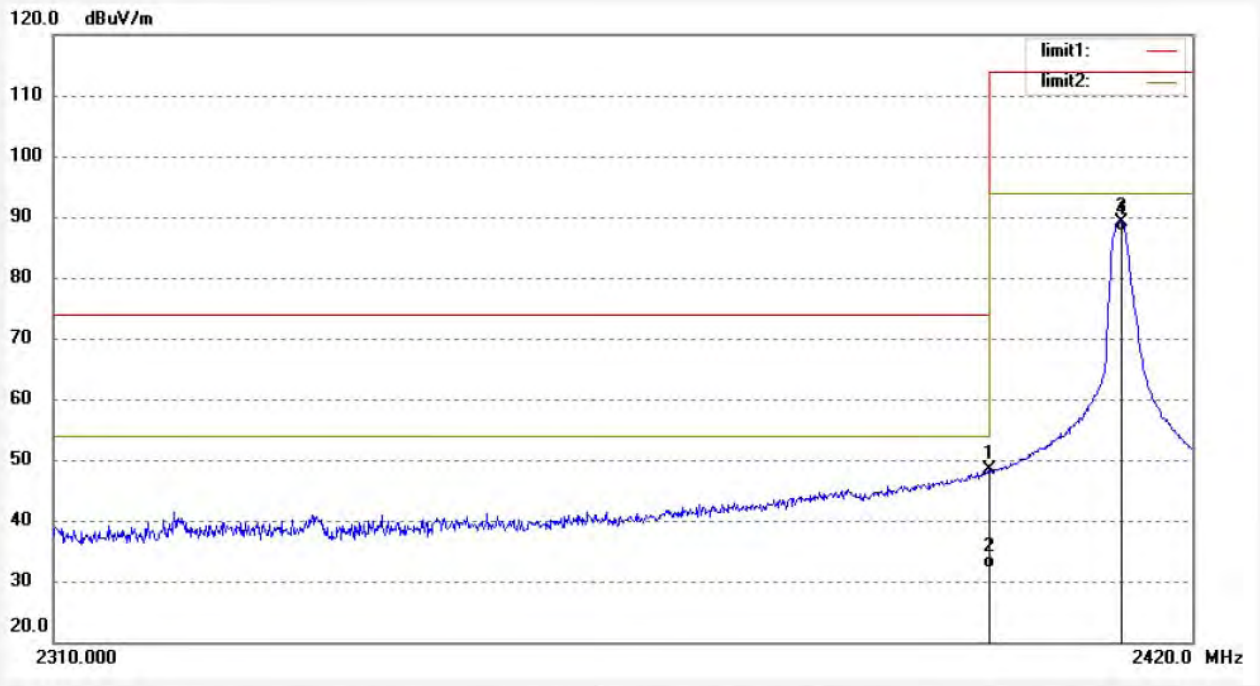
Job No.: LGW2019 #1635
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2412.999634MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	47.40	0.88	48.28	74.00	-25.72	peak			
2	2400.000	31.36	0.88	32.24	54.00	-21.76	AVG			
3	2412.999	88.11	0.93	89.04	114.00	-24.96	peak			
4	2412.999	86.81	0.93	87.74	94.00	-6.26	AVG			

ACCURATE TECHNOLOGY CO., LTD.
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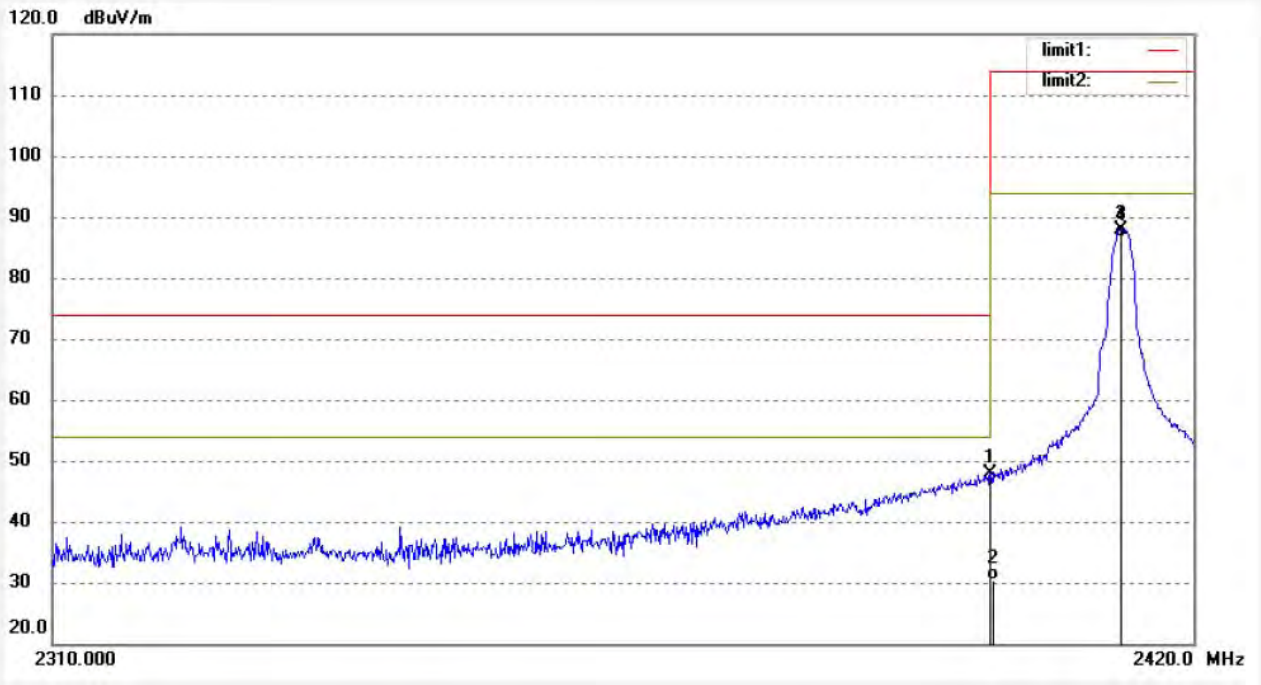
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1634
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2412.999634MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



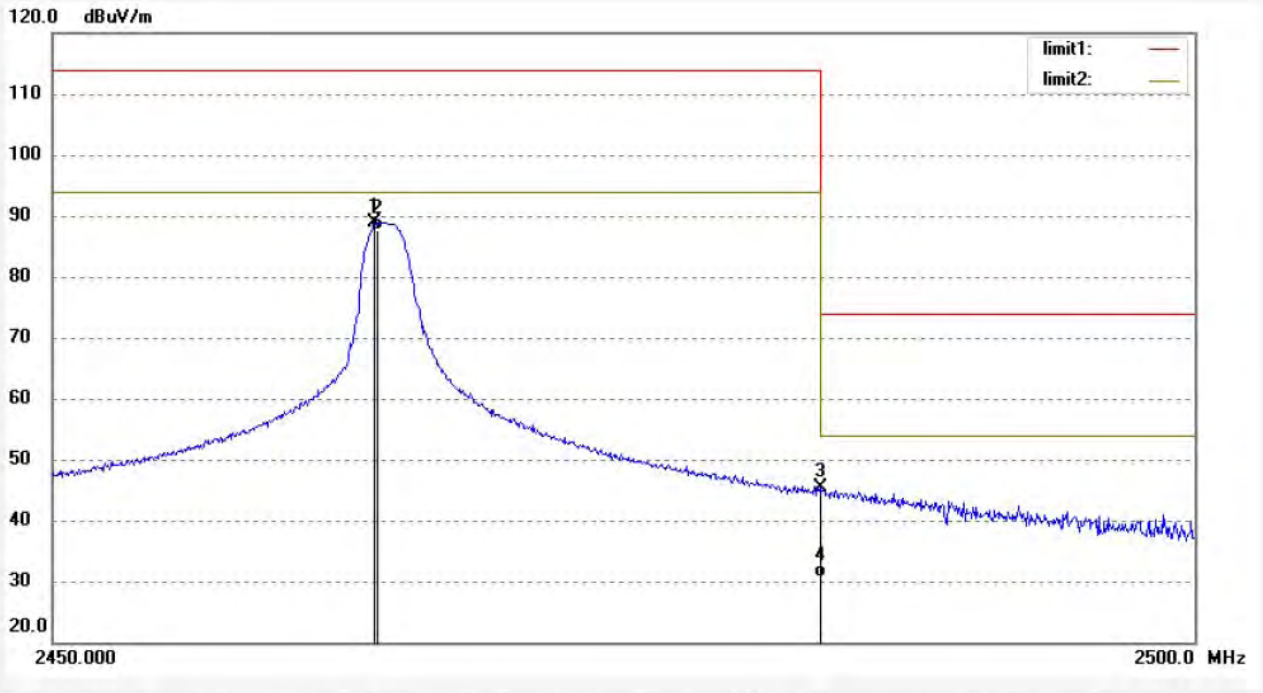
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	46.95	0.88	47.83	74.00	-26.17	peak			
2	2400.000	29.46	0.88	30.34	54.00	-23.66	AVG			
3	2412.999	86.93	0.93	87.86	114.00	-26.14	peak			
4	2412.999	85.63	0.93	86.56	94.00	-7.44	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1640
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2464.499	87.70	1.09	88.79	114.00	-25.21	peak			
2	2464.499	86.50	1.09	87.59	94.00	-6.41	AVG			
3	2483.500	44.22	1.10	45.32	74.00	-28.68	peak			
4	2483.500	29.42	1.10	30.52	54.00	-23.48	AVG			

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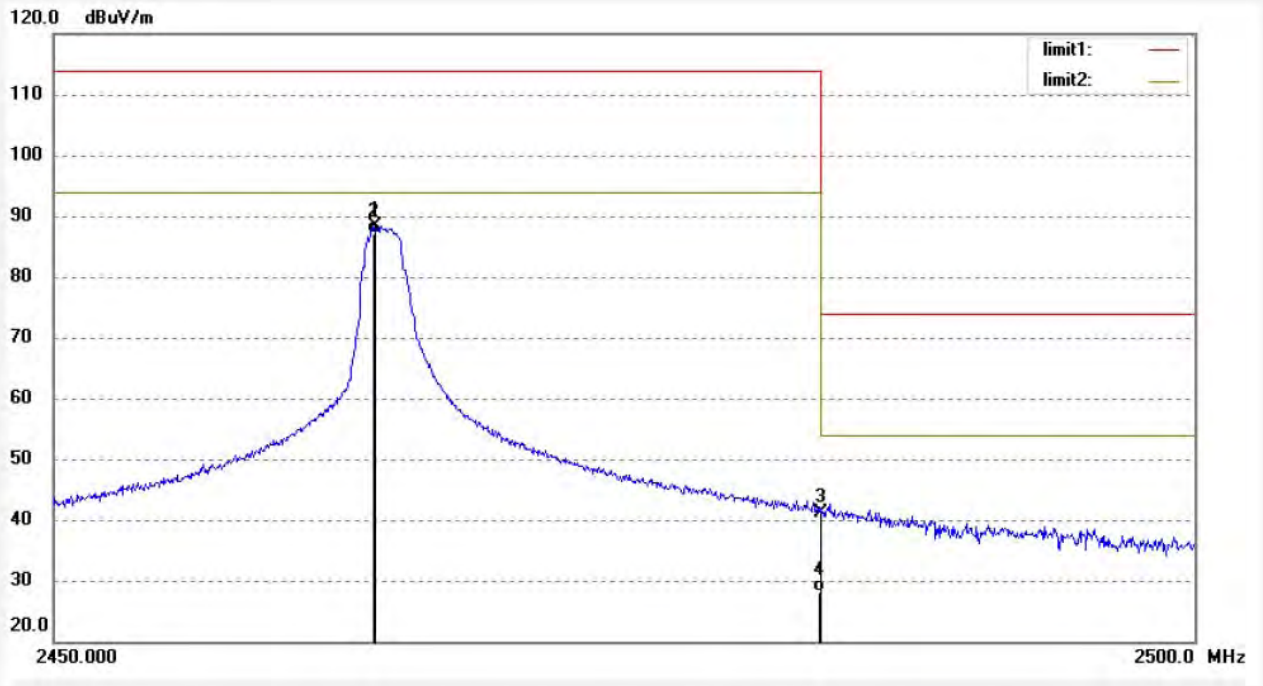
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1641
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2464.499	87.27	1.09	88.36	114.00	-25.64	peak			
2	2464.499	86.07	1.09	87.16	94.00	-6.84	AVG			
3	2483.500	39.93	1.10	41.03	74.00	-32.97	peak			
4	2483.500	27.14	1.10	28.24	54.00	-25.76	AVG			

9. RADIATED SPURIOUS EMISSION TEST

9.1.Block Diagram of Test Setup

9.1.1.Block diagram of connection between the EUT and peripherals

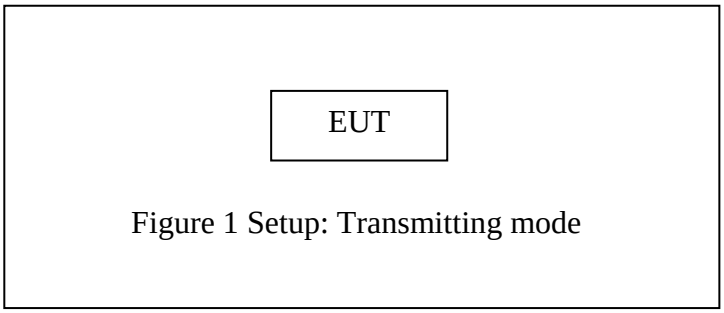
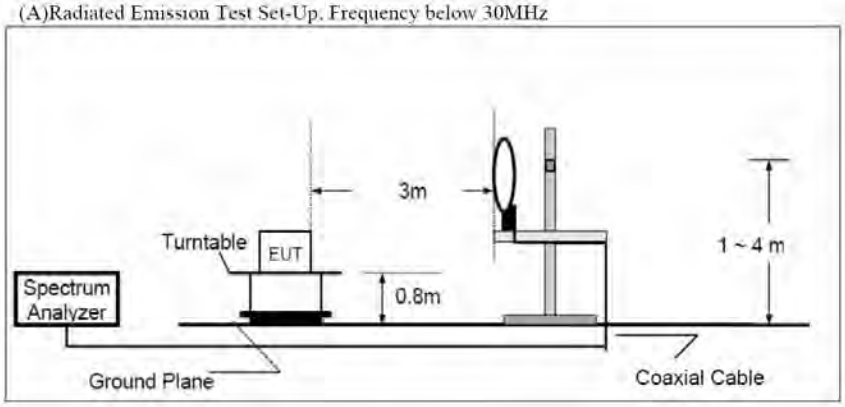


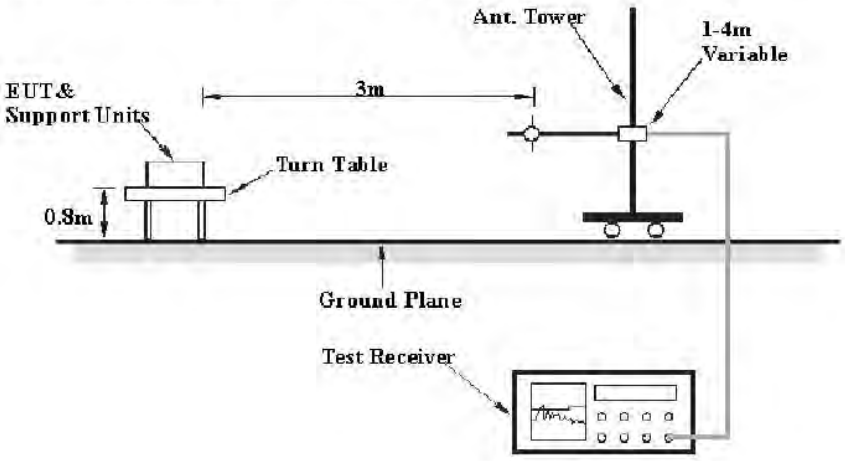
Figure 1 Setup: Transmitting mode

9.1.2.Semi-Anechoic Chamber Test Setup Diagram

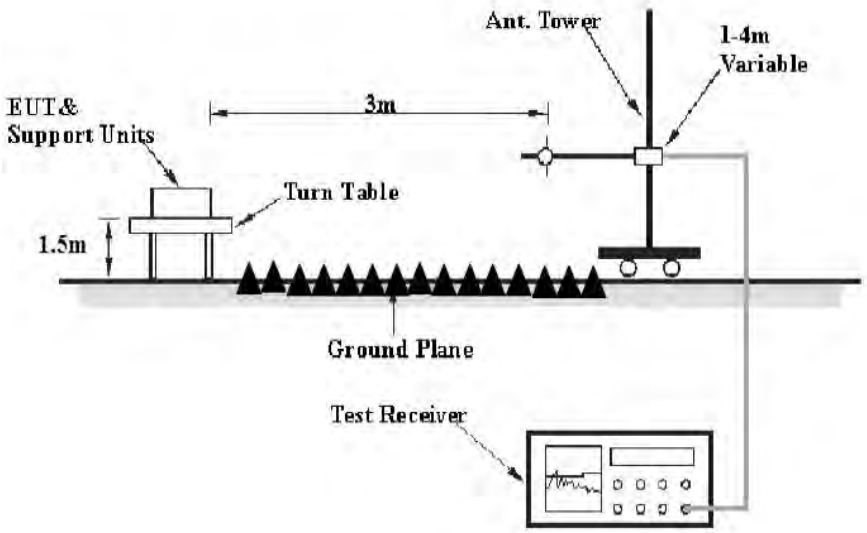
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



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



(C) Radiated Emission Test Set-Up. Frequency above 1GHz



9.2. The Requirement For Section 15.249(d)

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 § 15.209, whichever is the lesser attenuation.

9.3. The Requirement For RSS-210 Annex B B.10

Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emissions or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

9.4. The Limit For Section 15.249(a) and RSS-210 Annex B B.10(a)

The field strength of fundamental and harmonic emissions, measured at 3 m, shall not exceed 50 mV/m and 0.5 mV/m respectively

9.5. Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.6.Operating Condition of EUT

9.6.1.Setup the EUT and simulator as shown as Section 9.1.

9.6.2.Turn on the power of all equipment.

9.6.3.Let the EUT work in TX modes and measure it. The transmit frequency are 2412.999634, 2437.999878, 2464.499756MHz.

9.7.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter(Below 1GHz) and 1.5m(above 1GHz) high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated emission measurement. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 26.5GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz
Peak detector above 1GHz
RBW (1 MHz), VBW (3MHz) for Peak measurement
RBW (1 MHz), VBW (10Hz) for AV measurement

9.8. Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
X.XX	48.69	-13.35	35.34	46	-7	QP

Frequency(MHz) = Emission frequency in MHz
Reading(dBμv) = Uncorrected Analyzer/Receiver reading
Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain
Result(dBμv/m) = Reading(dBμv) + Factor(dB/m)
Limit (dBμv/m) = Limit stated in standard
Margin (dB) = Result(dBμv/m) - Limit (dBμv/m)
QP = Quasi-peak Reading

Calculation Formula:
Margin(dB) = Result (dBμV/m)–Limit(dBμV/m)
Result(dBμV/m)= Reading(dBμV)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

9.9. Test Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. The EUT is tested radiation emission in three axes. The worst emissions are reported in all channels.

3. The average measurement was not performed when peak measured data under the limit of average detection.

The spectrum analyzer plots are attached as below.

9kHz-30MHz test data

ACCURATE TECHNOLOGY CO., LTD.

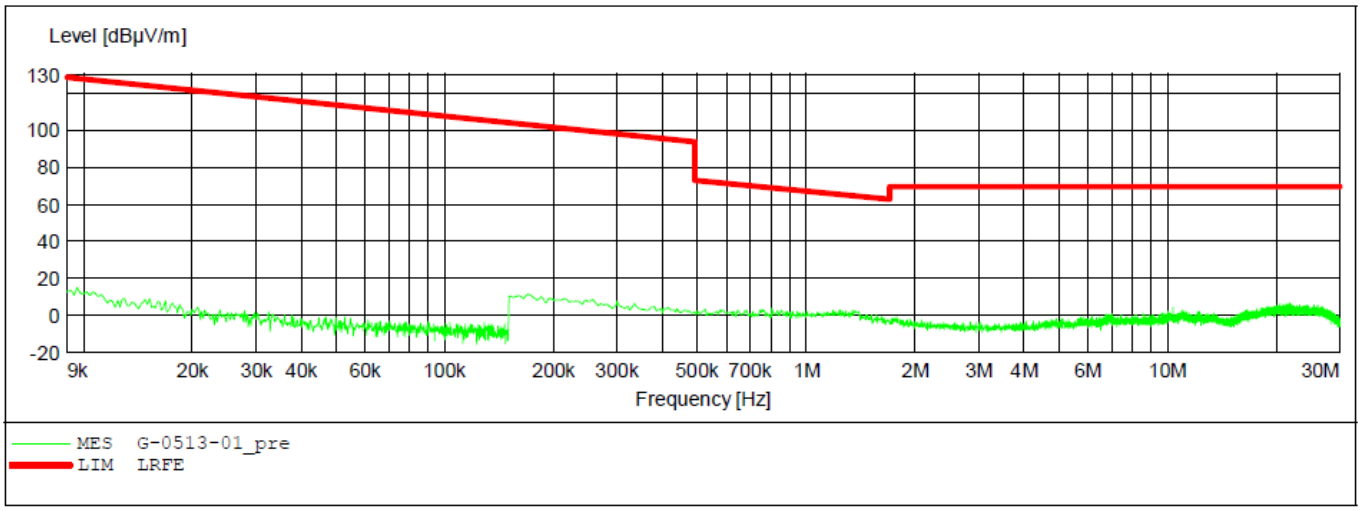
FCC Part 15C 3M Radiated

EUT: TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.
Operating Condition: TX 2412.999634MHz
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 7.2V
Comment: X
Start of Test: 2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

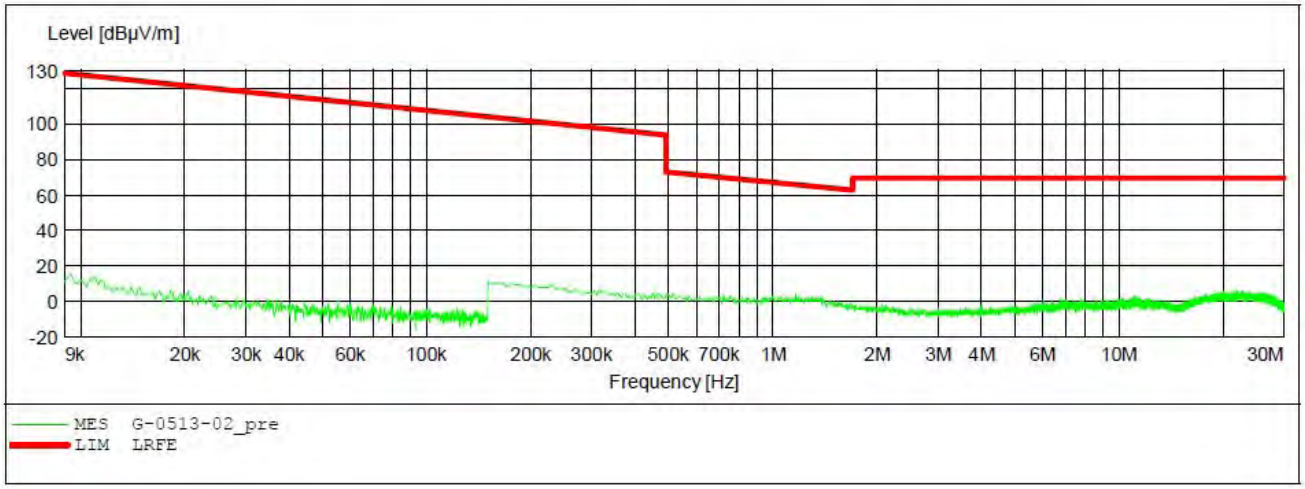
FCC Part 15C 3M Radiated

EUT:	TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer:	Godox Photo Equipment Co.,Ltd.
Operating Condition:	TX 2412.999634MHz
Test Site:	2# Chamber
Operator:	WADE
Test Specification:	DC 7.2V
Comment:	Y
Start of Test:	2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

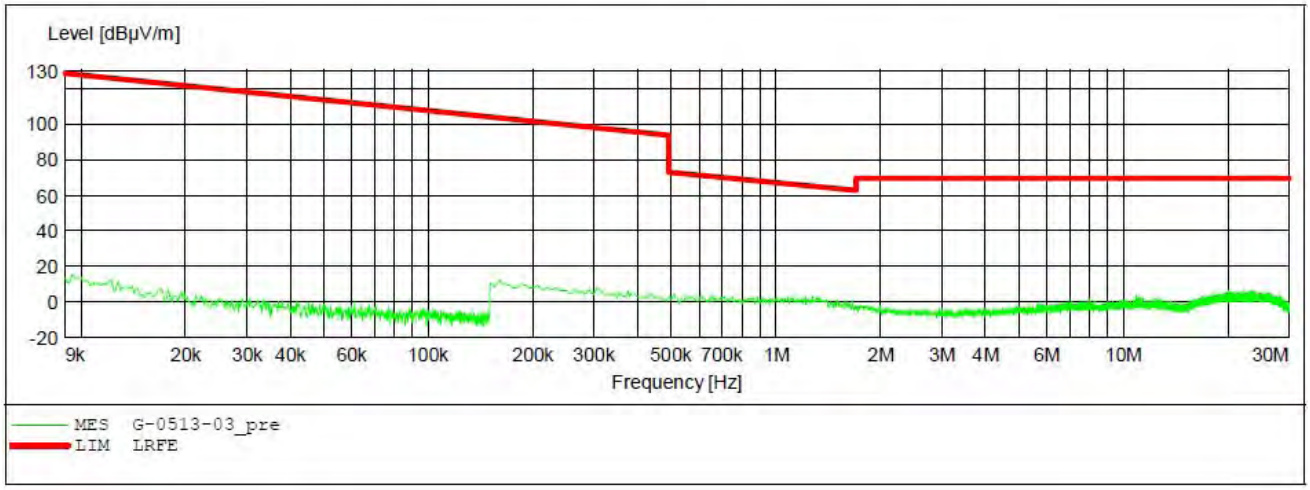
FCC Part 15C 3M Radiated

EUT: TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.
Operating Condition: TX 2412.999634MHz
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 7.2V
Comment: Z
Start of Test: 2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

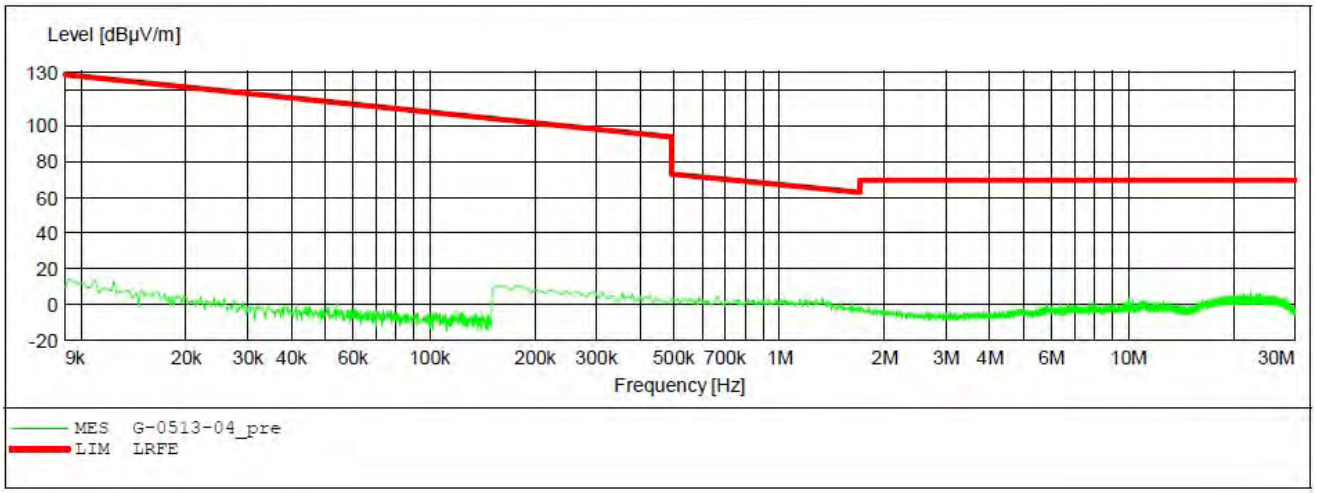
FCC Part 15C 3M Radiated

EUT: TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.
Operating Condition: TX 2437.999878MHz
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 7.2V
Comment: X
Start of Test: 2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

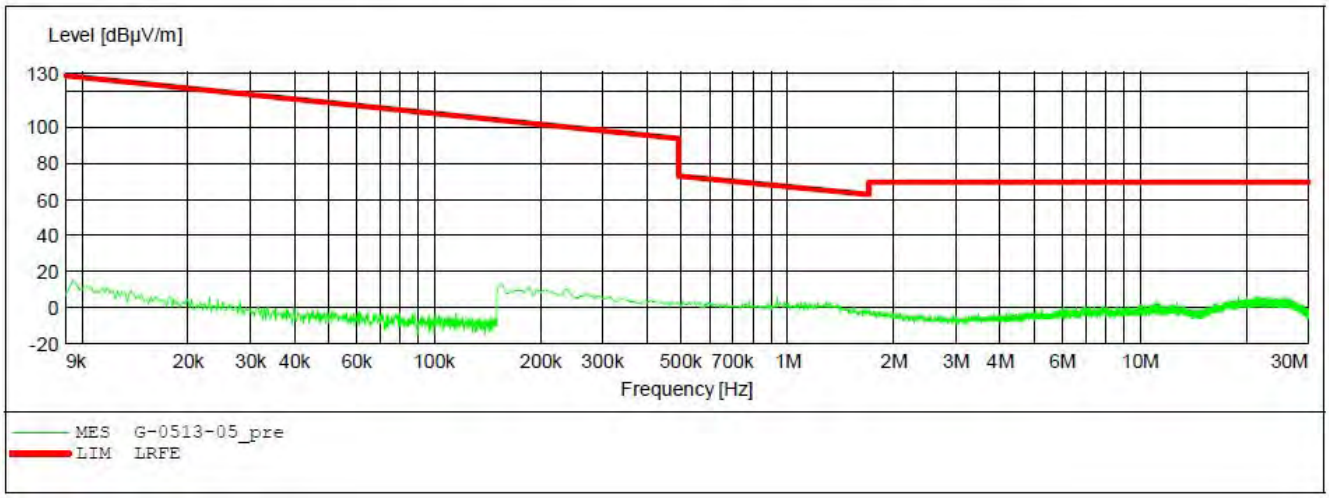
FCC Part 15C 3M Radiated

EUT:	TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer:	Godox Photo Equipment Co.,Ltd.
Operating Condition:	TX 2437.999878MHz
Test Site:	2# Chamber
Operator:	WADE
Test Specification:	DC 7.2V
Comment:	Y
Start of Test:	2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

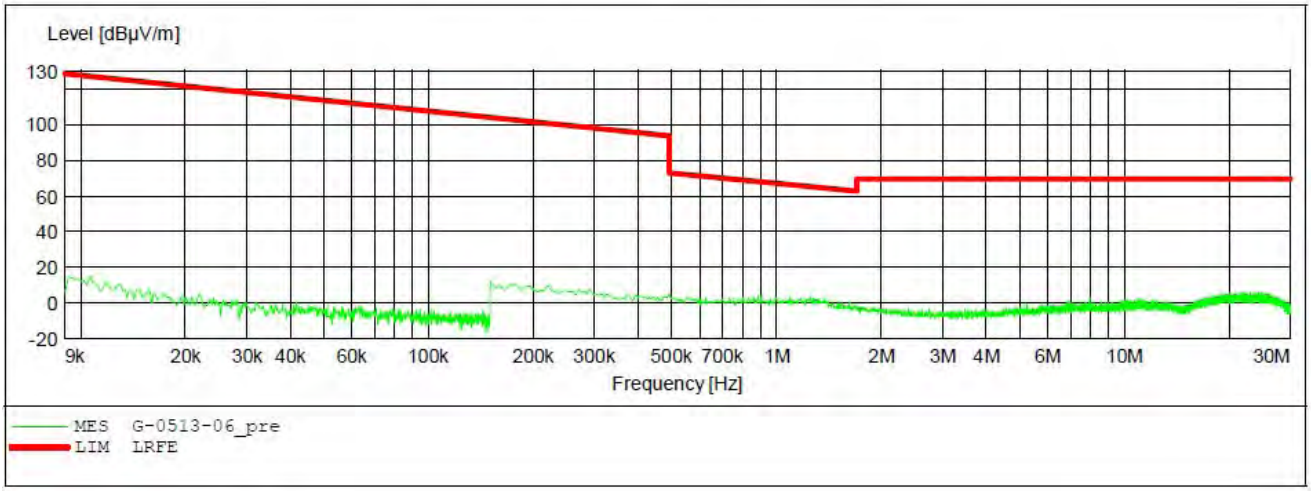
FCC Part 15C 3M Radiated

EUT: TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.
Operating Condition: TX 2437.999878MHz
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 7.2V
Comment: Z
Start of Test: 2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

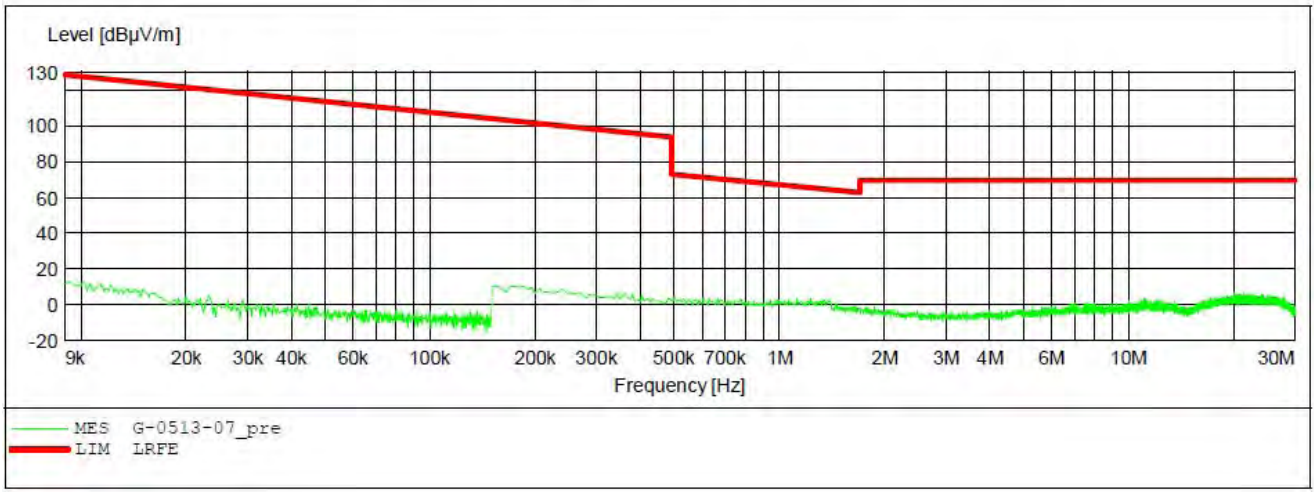
FCC Part 15C 3M Radiated

```
EUT:                    TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer:           Godox Photo Equipment Co.,Ltd.
Operating Condition:    TX 2464.499756MHz
Test Site:              2# Chamber
Operator:               WADE
Test Specification:     DC 7.2V
Comment:                X
Start of Test:          2019-05-13 /
```

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

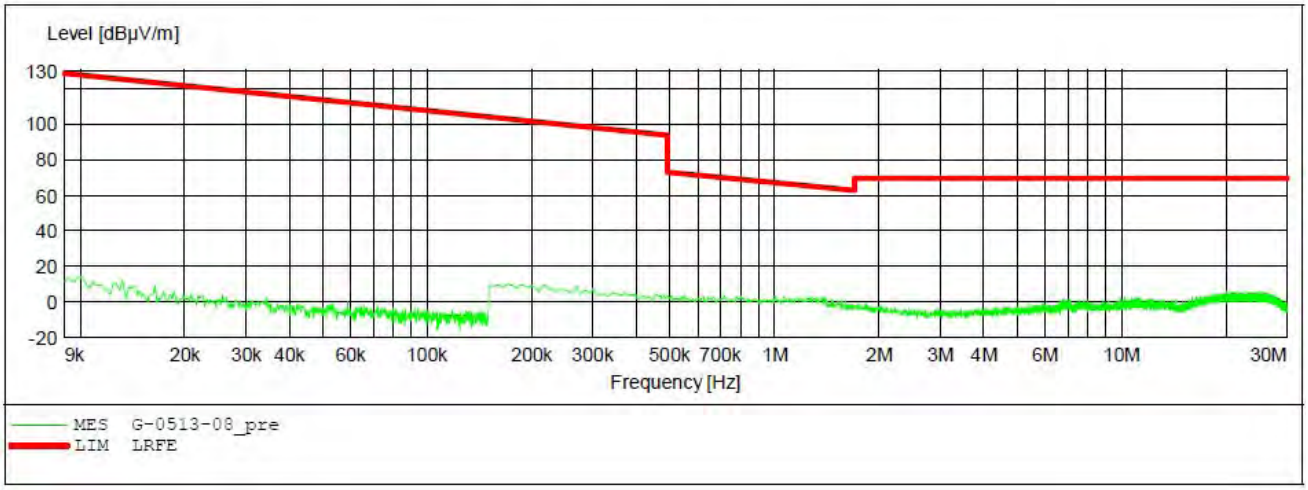
FCC Part 15C 3M Radiated

EUT:	TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer:	Godox Photo Equipment Co.,Ltd.
Operating Condition:	TX 2464.499756MHz
Test Site:	2# Chamber
Operator:	WADE
Test Specification:	DC 7.2V
Comment:	Y
Start of Test:	2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO., LTD.

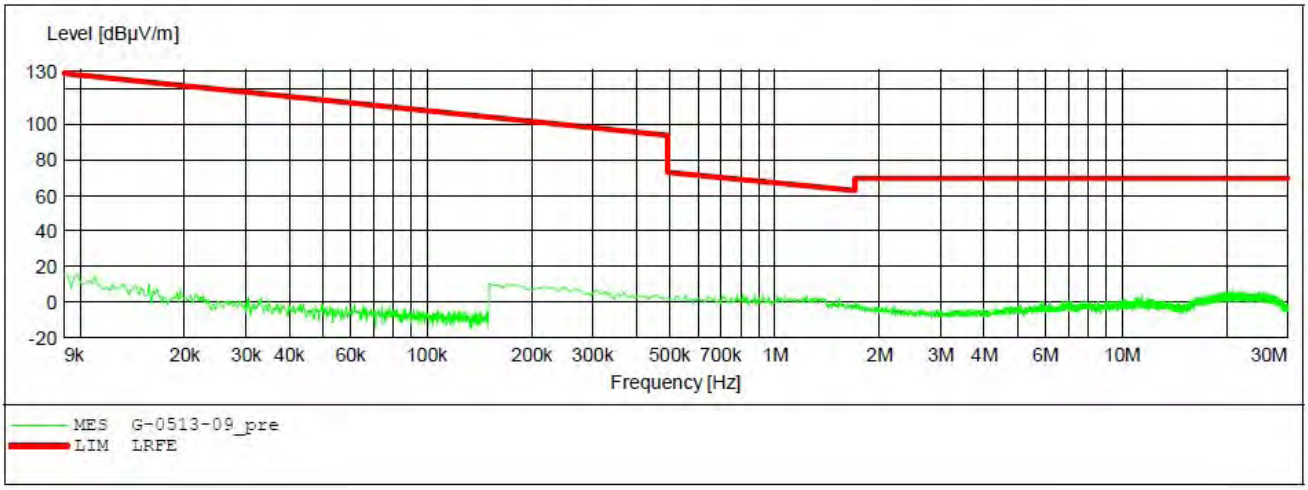
FCC Part 15C 3M Radiated

EUT: TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.
Operating Condition: TX 2464.499756MHz
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 7.2V
Comment: Z
Start of Test: 2019-05-13 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



30MHz-1000MHz test data

ACCURATE TECHNOLOGY CO., LTD.
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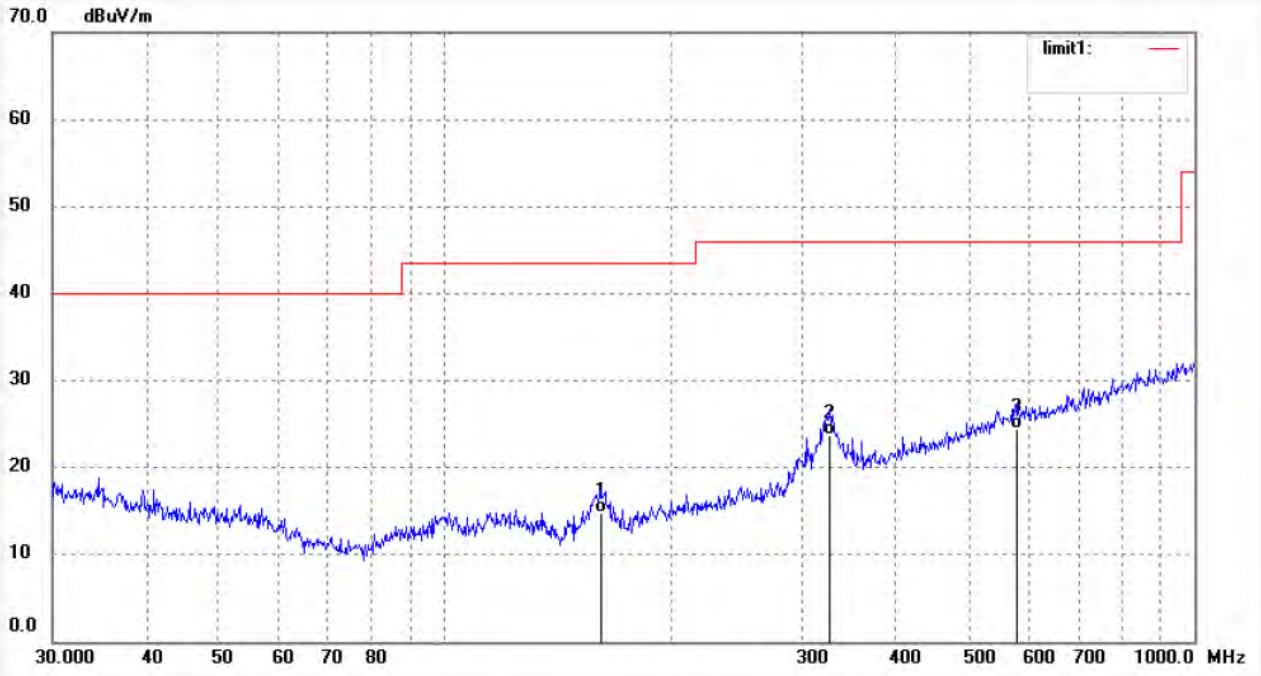
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1660	Polarization: Horizontal
Standard: FCC Part 15C 3M Radiated	Power Source: DC 7.2V
Test item: Radiation Test	Date: 19/05/13/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: TTL Li-ion Round Head Camera Flash	Engineer Signature: WADE
Mode: TX 2412.999634MHz	Distance: 3m
Model: V1C	
Manufacturer: Godox Photo Equipment Co.,Ltd.	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	161.4740	29.13	-14.38	14.75	43.50	-28.75	QP			
2	326.7395	31.86	-8.15	23.71	46.00	-22.29	QP			
3	578.6698	26.90	-2.56	24.34	46.00	-21.66	QP			

ACCURATE TECHNOLOGY CO., LTD.
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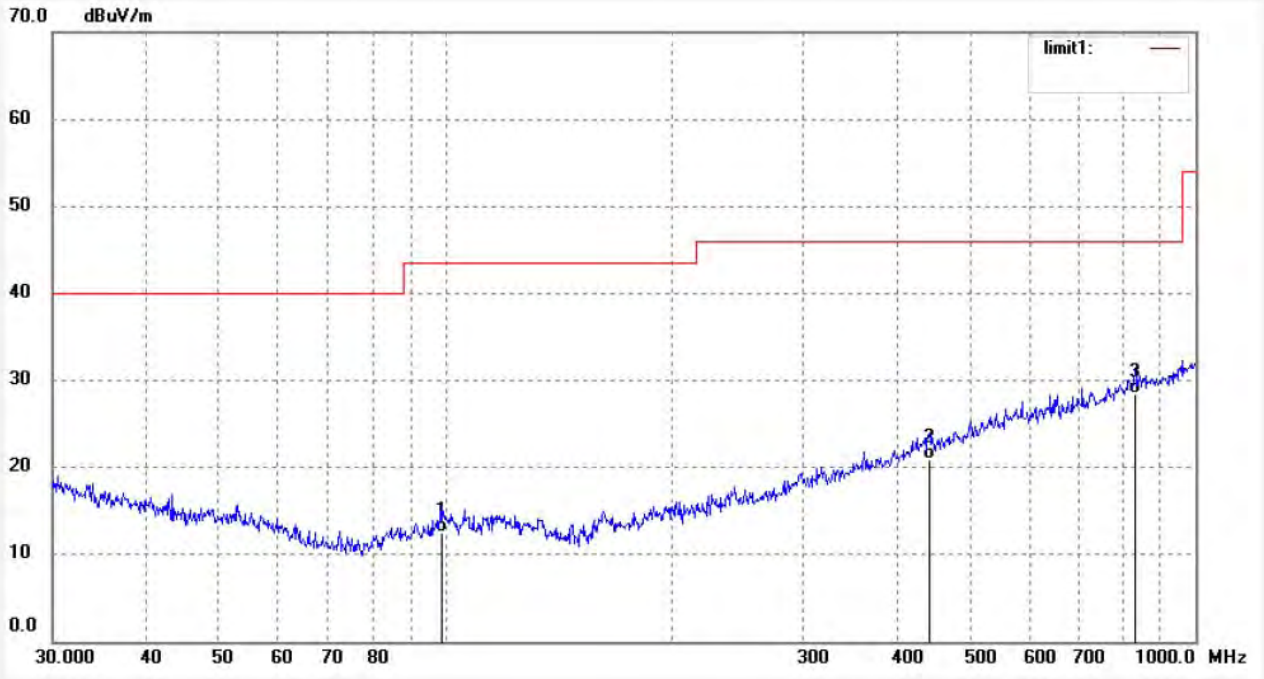
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1661
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2412.999634MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



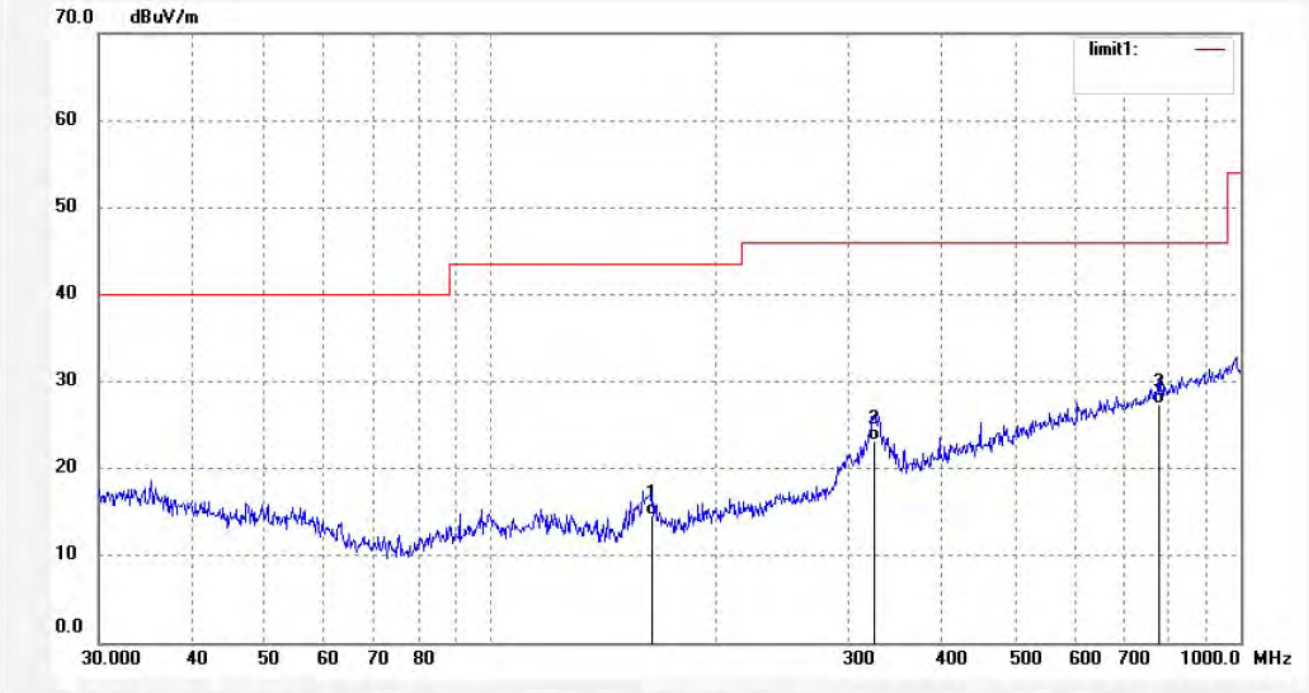
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	98.8324	25.88	-13.44	12.44	43.50	-31.06	QP			
2	441.7425	26.30	-5.46	20.84	46.00	-25.16	QP			
3	830.4002	27.00	1.37	28.37	46.00	-17.63	QP			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1663
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2437.999878MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



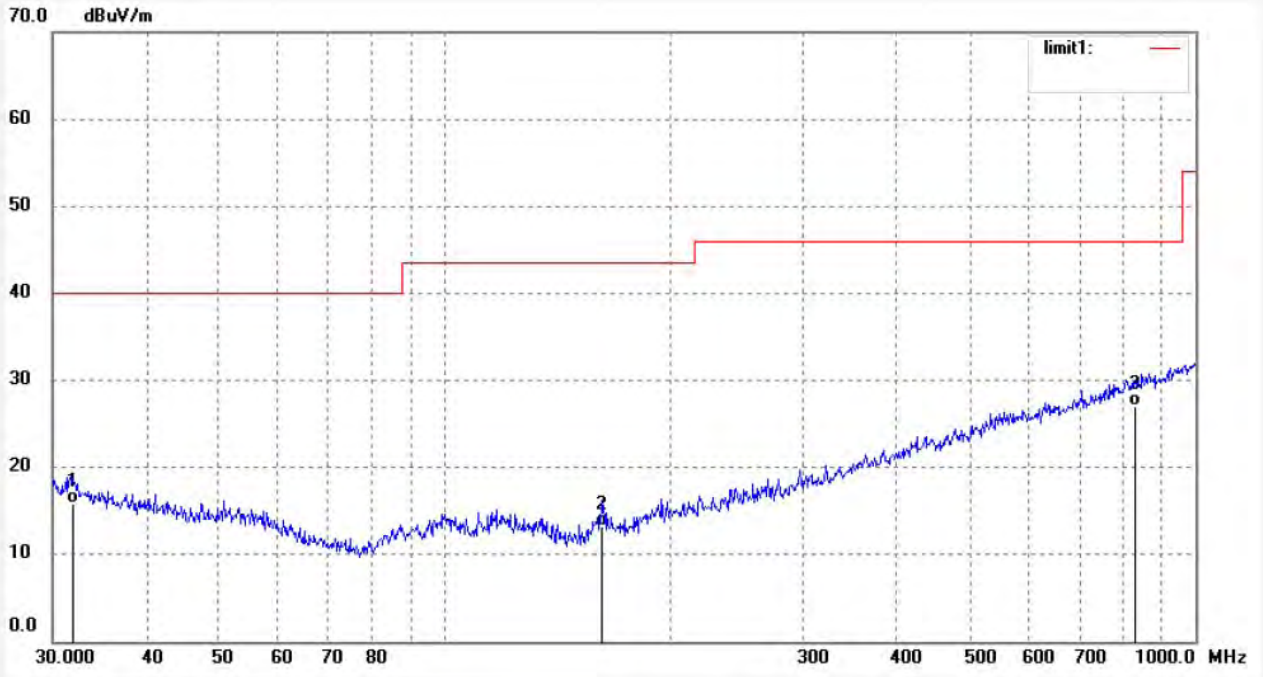
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	164.3301	28.98	-14.34	14.64	43.50	-28.86	QP			
2	324.4560	31.46	-8.26	23.20	46.00	-22.80	QP			
3	776.8777	27.15	0.26	27.41	46.00	-18.59	QP			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #1662
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2437.999878MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9545	25.38	-9.51	15.87	40.00	-24.13	QP			
2	162.0414	27.61	-14.38	13.23	43.50	-30.27	QP			
3	830.4002	25.63	1.37	27.00	46.00	-19.00	QP			

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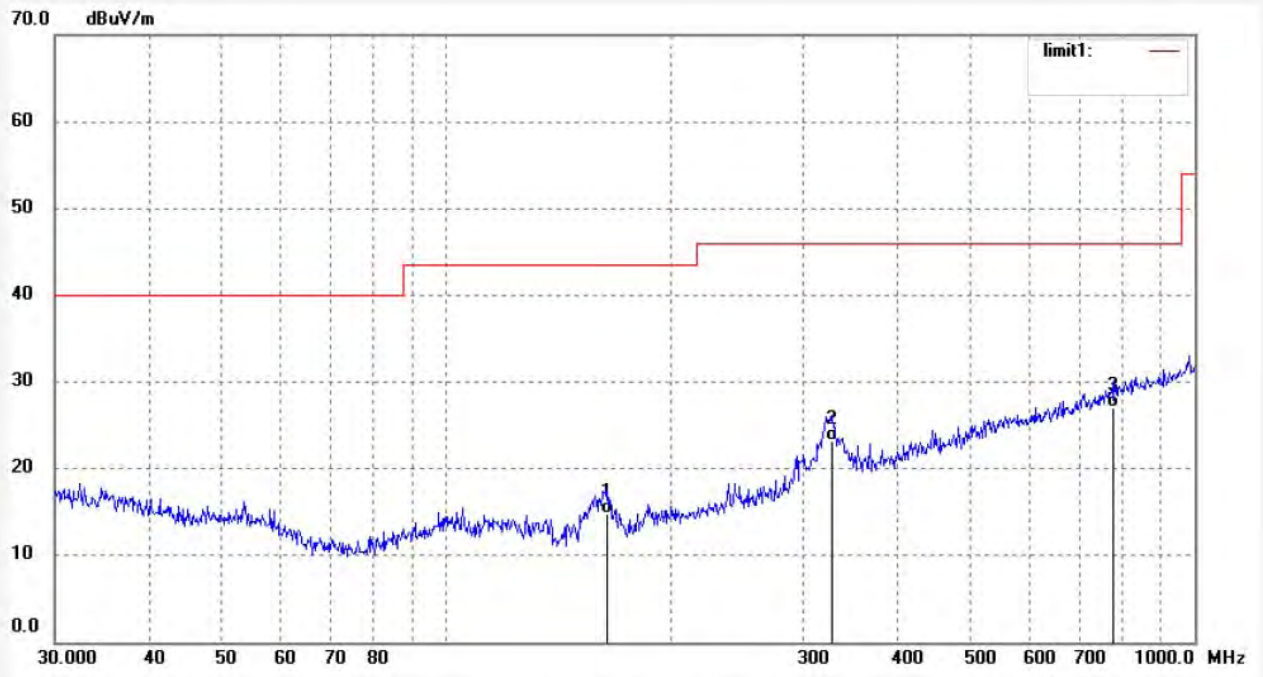
Fax:+86-0755-26503396

Job No.: LGW2019 #1664
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	164.3301	29.11	-14.34	14.77	43.50	-28.73	QP			
2	327.8872	31.26	-8.12	23.14	46.00	-22.86	QP			
3	776.8777	26.78	0.26	27.04	46.00	-18.96	QP			

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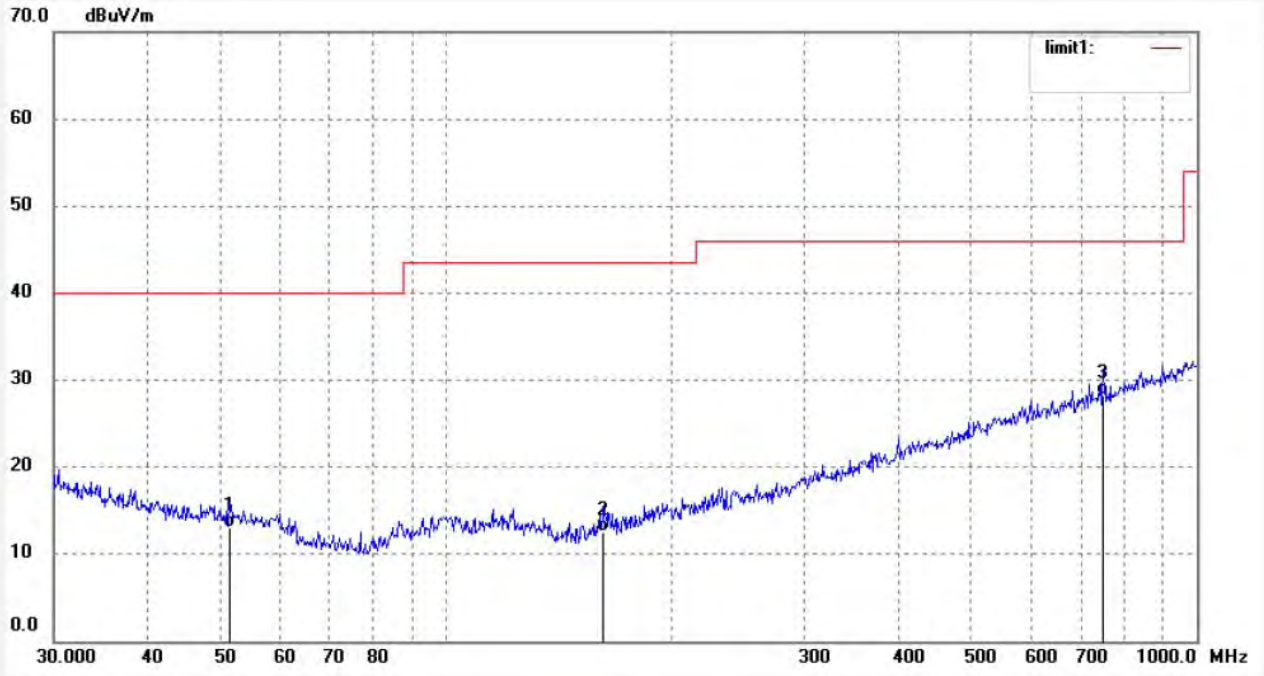
Job No.: LGW2019 #1665
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	51.4806	25.74	-12.69	13.05	40.00	-26.95	QP			
2	162.0414	26.83	-14.38	12.45	43.50	-31.05	QP			
3	750.1082	28.57	-0.29	28.28	46.00	-17.72	QP			

1GHz-18GHz test data

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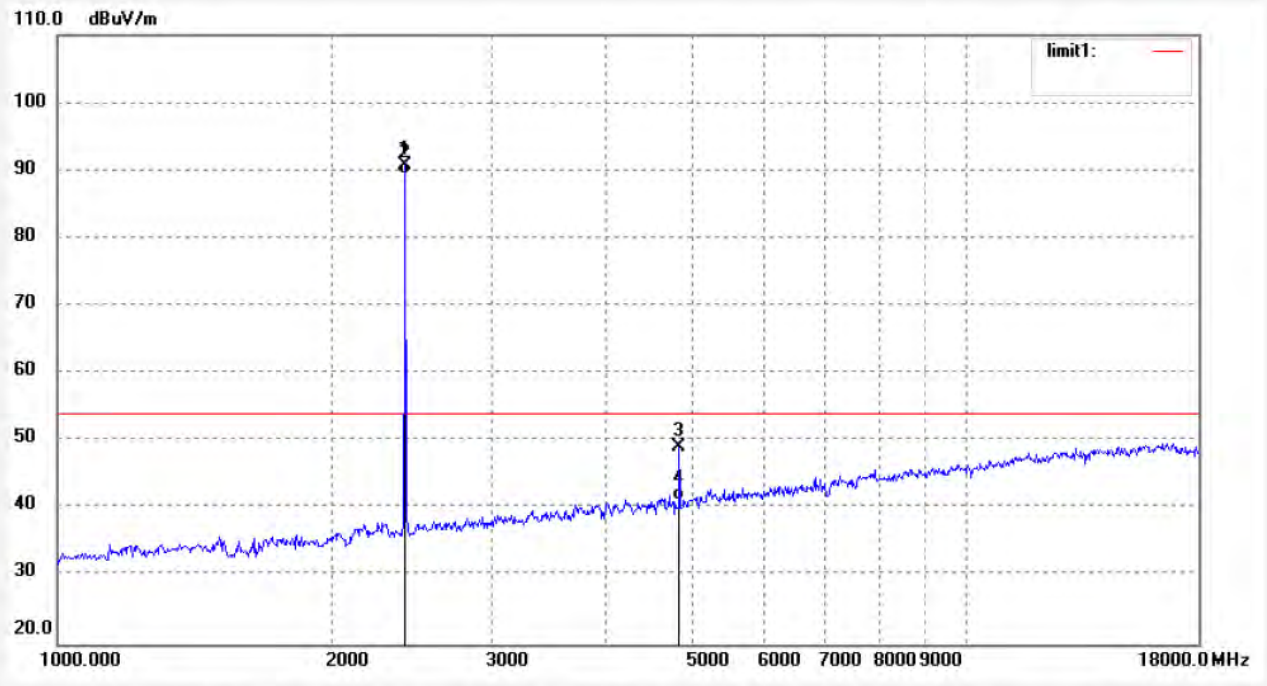
Job No.: LGW2019 #1632
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2412.999634MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2412.999	89.89	0.93	90.82	114.00	-23.18	peak			
2	2412.999	88.59	0.93	89.52	94.00	-4.48	AVG			
3	4825.997	41.55	7.60	49.15	74.00	-24.85	peak			
4	4825.997	33.75	7.60	41.35	54.00	-12.65	AVG			

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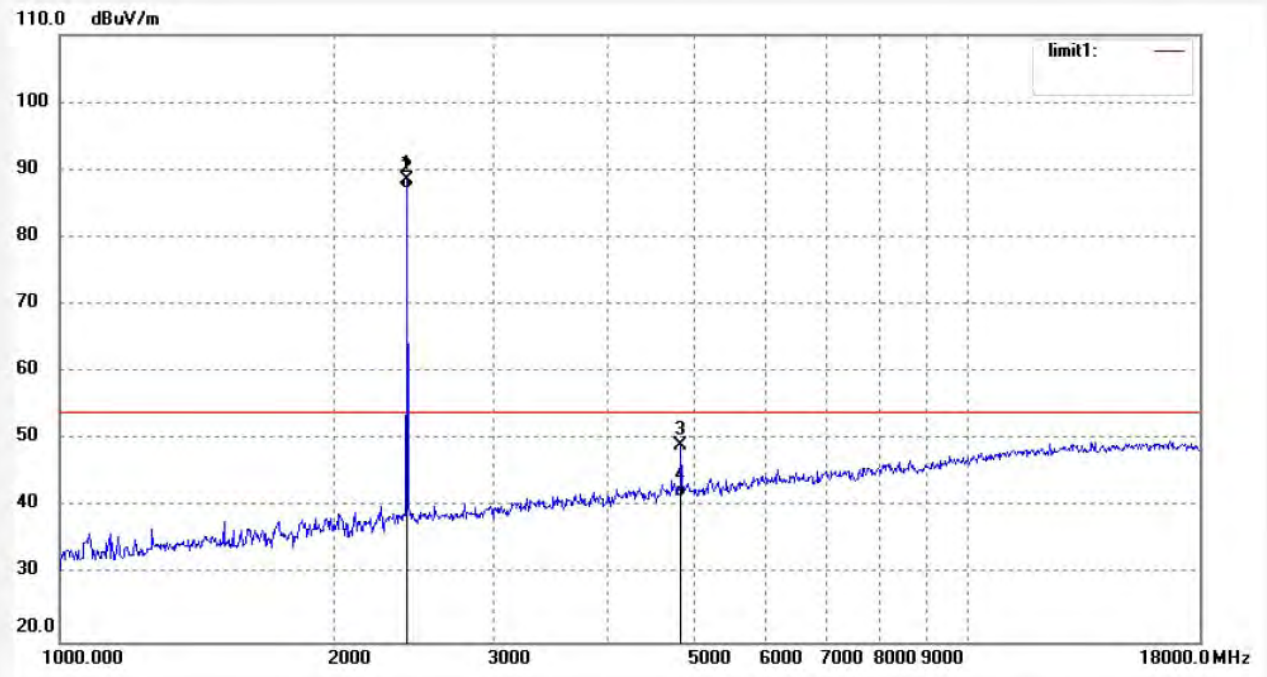
Job No.: LGW2019 #1633
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2412.999634MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2412.999	87.50	0.93	88.43	114.00	-25.57	peak			
2	2412.999	86.20	0.93	87.13	94.00	-6.87	AVG			
3	4826.002	41.44	7.60	49.04	74.00	-24.96	peak			
4	4826.002	33.94	7.60	41.54	54.00	-12.46	AVG			

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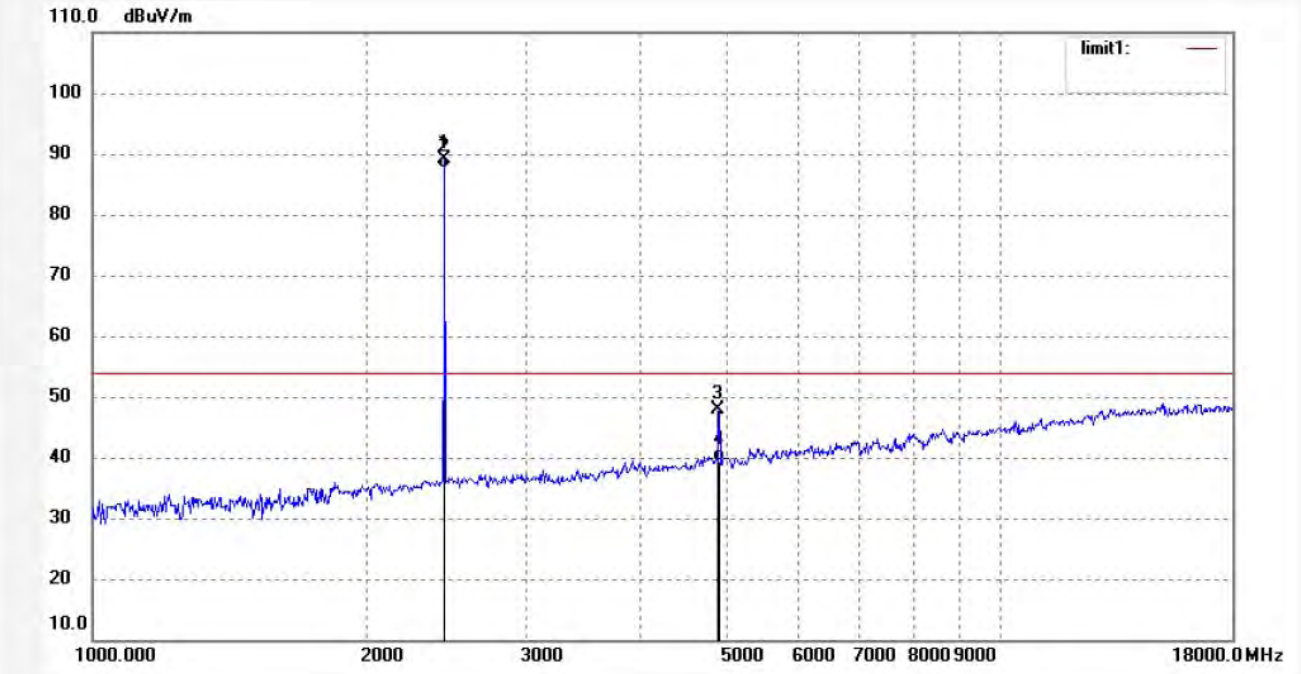
Job No.: LGW2019 #1636
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2437.999878MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2437.999	87.98	1.04	89.02	114.00	-24.98	peak			
2	2437.999	86.58	1.04	87.62	94.00	-6.38	AVG			
3	4876.012	39.78	8.06	47.84	74.00	-26.16	peak			
4	4876.012	31.39	8.06	39.45	54.00	-14.55	AVG			

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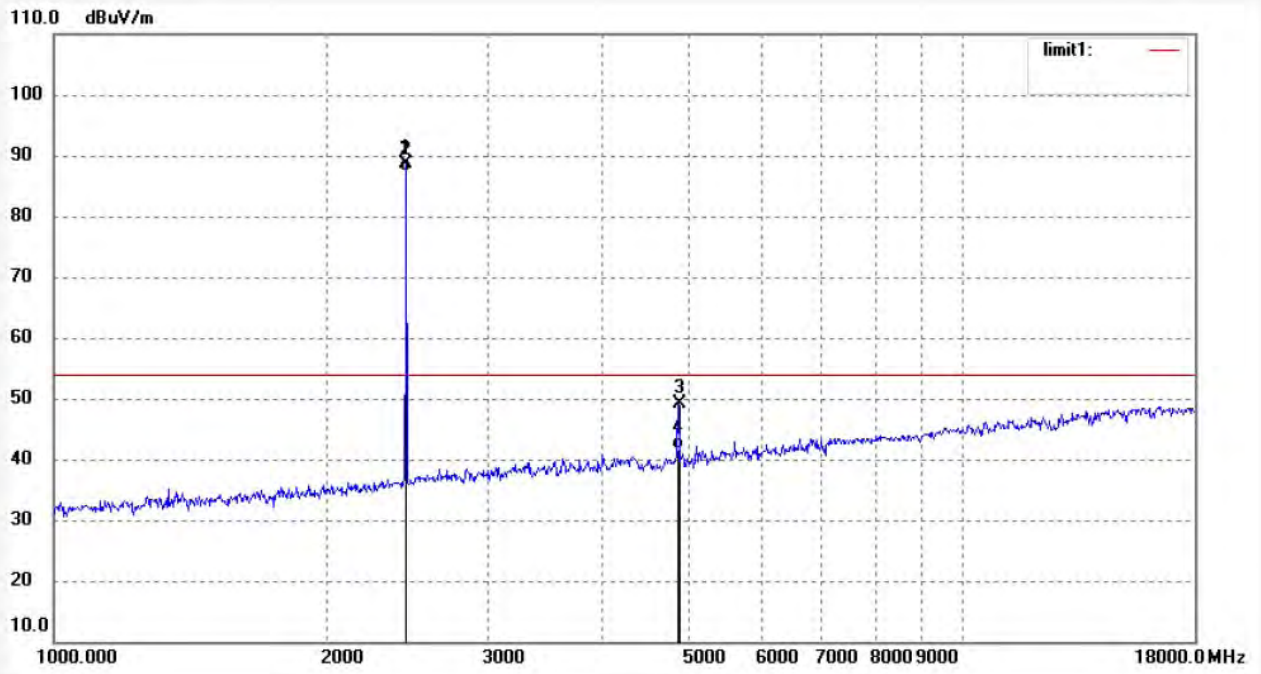
Job No.: LGW2019 #1637
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2437.999878MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2437.999	87.62	1.04	88.66	114.00	-25.34	peak			
2	2437.999	86.22	1.04	87.26	94.00	-6.74	AVG			
3	4875.992	41.02	8.06	49.08	74.00	-24.92	peak			
4	4875.992	33.48	8.06	41.54	54.00	-12.46	AVG			

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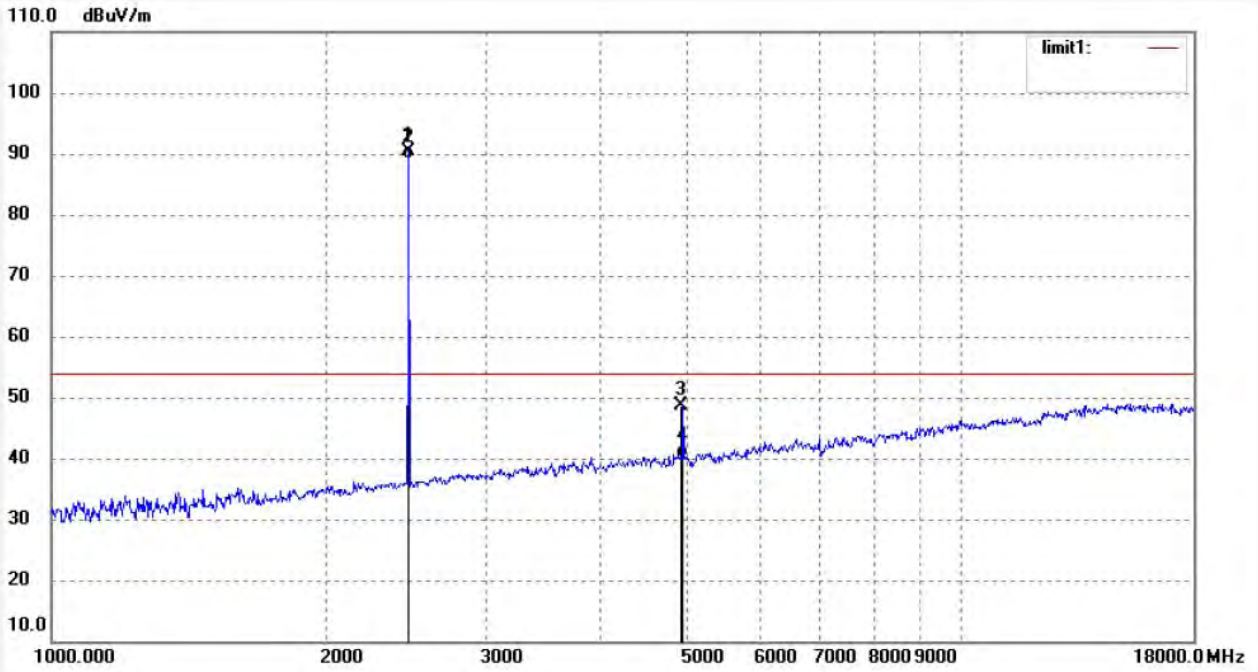
Job No.: LGW2019 #1639
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2464.499	89.18	1.09	90.27	114.00	-23.73	peak			
2	2464.499	87.98	1.09	89.07	94.00	-4.93	AVG			
3	4928.996	40.23	8.42	48.65	74.00	-25.35	peak			
4	4928.996	31.82	8.42	40.24	54.00	-13.76	AVG			

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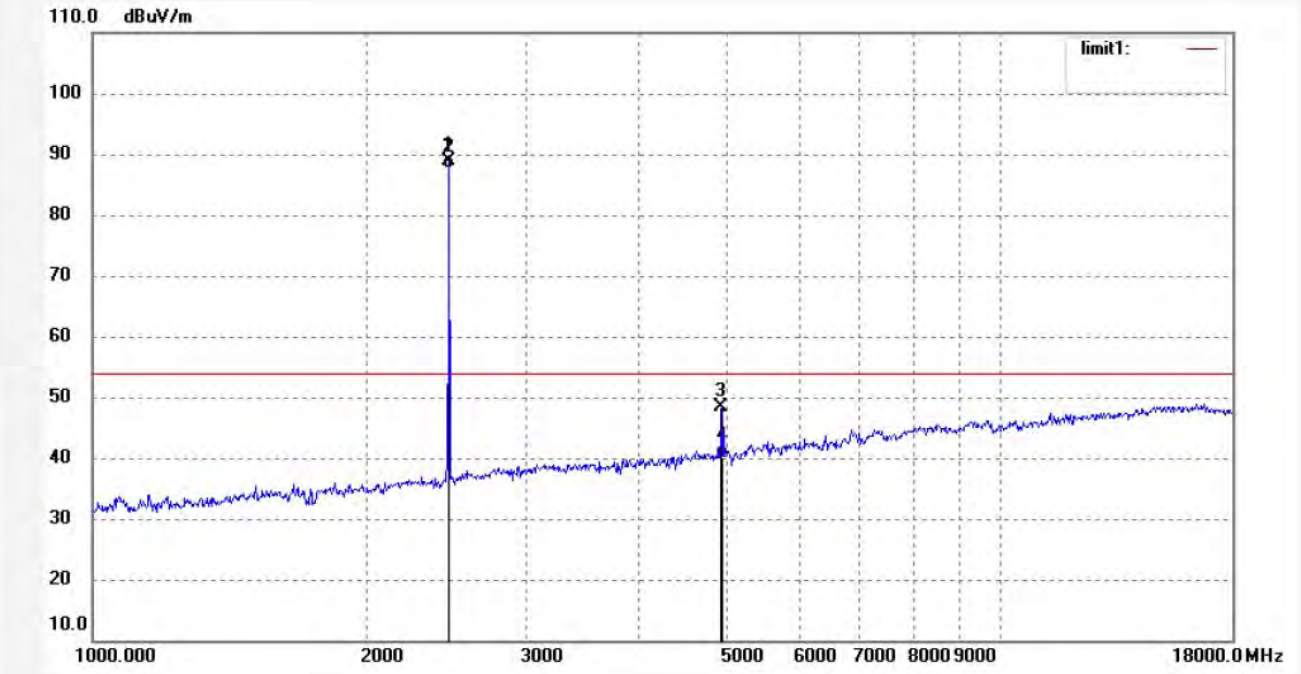
Fax:+86-0755-26503396

Job No.: LGW2019 #1638
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2464.499	87.74	1.09	88.83	114.00	-25.17	peak			
2	2464.499	86.54	1.09	87.63	94.00	-6.37	AVG			
3	4928.995	40.01	8.42	48.43	74.00	-25.57	peak			
4	4928.995	31.73	8.42	40.15	54.00	-13.85	AVG			

18GHz-26.5GHz test data

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Site: 2# Chamber
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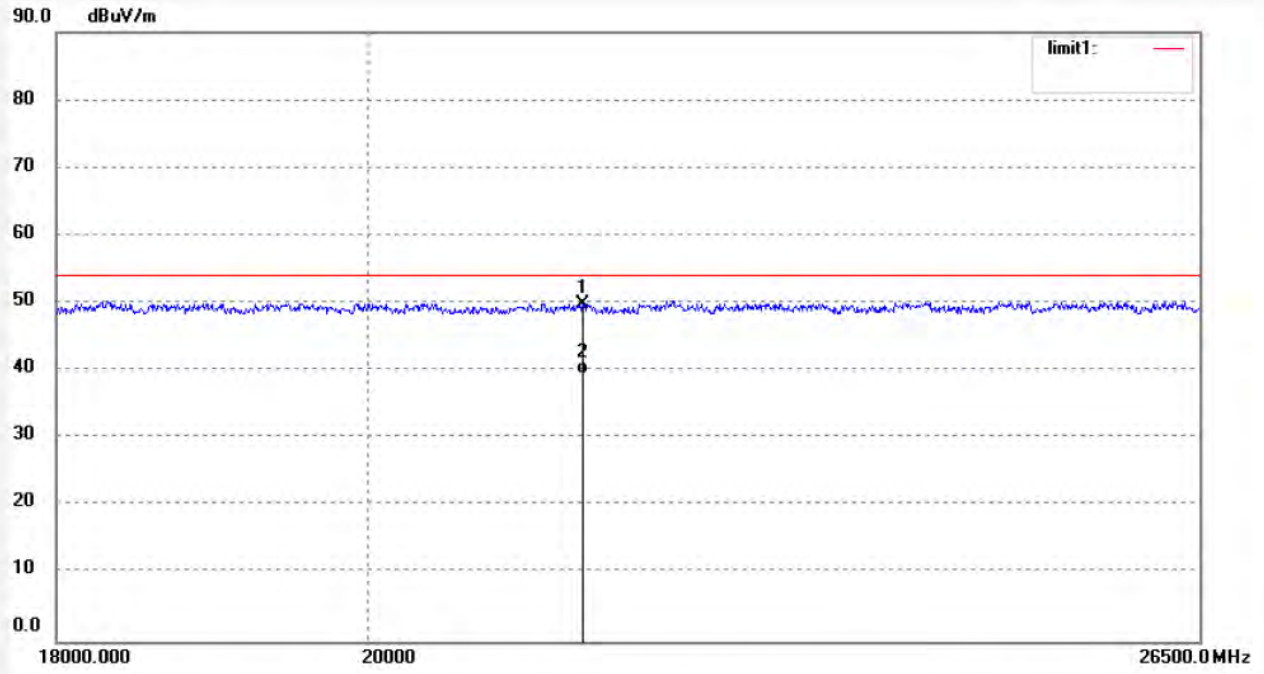
Fax:+86-0755-26503396

Job No.: LGW2019 #1643	Polarization: Horizontal
Standard: FCC Part 15C 3M Radiated	Power Source: DC 7.2V
Test item: Radiation Test	Date: 19/05/13/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: TTL Li-ion Round Head Camera Flash	Engineer Signature: WADE
Mode: TX 2412.999634MHz	Distance: 3m
Model: V1C	
Manufacturer: Godox Photo Equipment Co.,Ltd.	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21505.040	18.46	31.40	49.86	74.00	-24.14	peak			
2	21505.040	8.05	31.40	39.45	54.00	-14.55	AVG			

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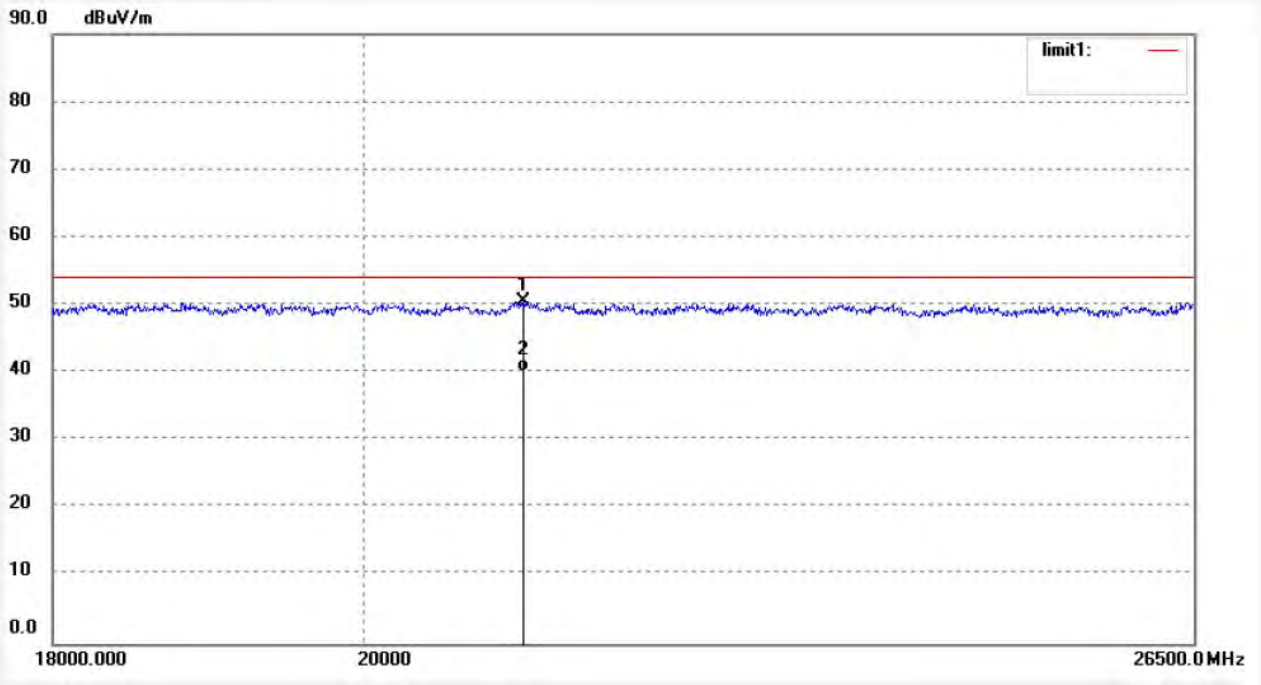
Job No.: LGW2019 #1642
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2412.999634MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21117.646	18.16	32.32	50.48	74.00	-23.52	peak			
2	21117.646	7.92	32.32	40.24	54.00	-13.76	AVG			

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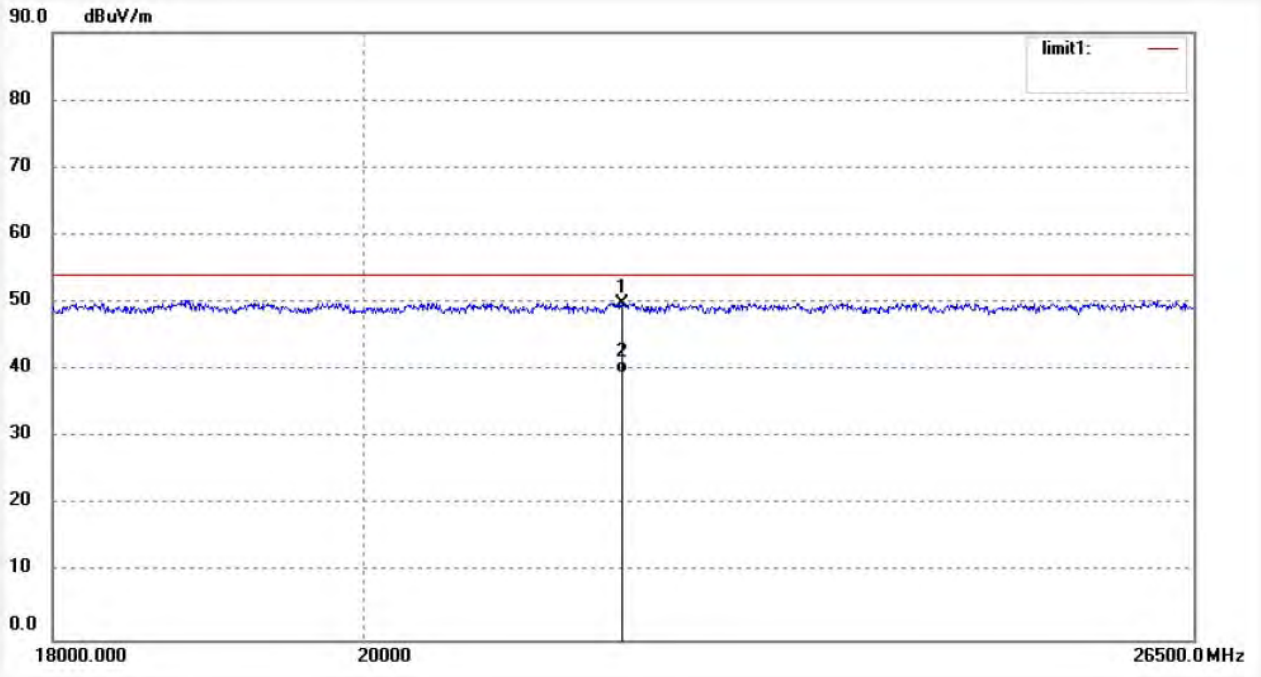
Fax:+86-0755-26503396

Job No.: LGW2019 #1644
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2437.999878MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21831.884	17.99	31.91	49.90	74.00	-24.10	peak			
2	21831.884	7.63	31.91	39.54	54.00	-14.46	AVG			

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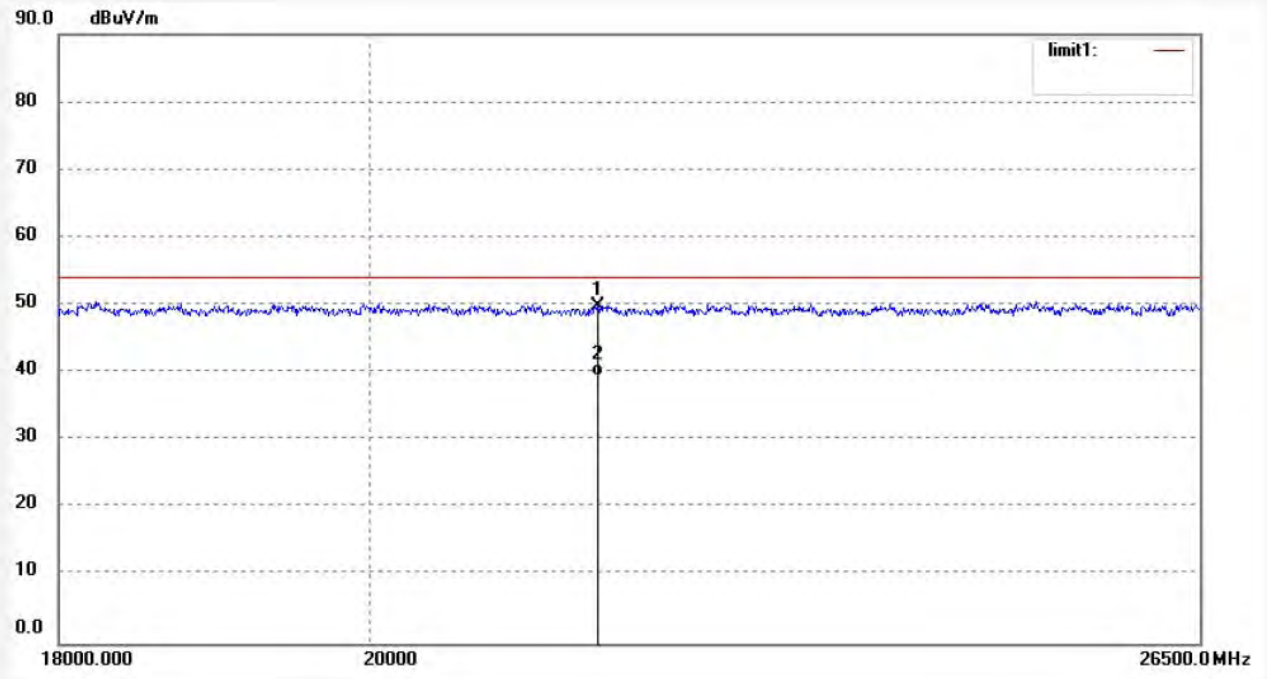
Fax:+86-0755-26503396

Job No.: LGW2019 #1645
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2437.999878MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21605.083	17.79	32.11	49.90	74.00	-24.10	peak			
2	21605.083	7.34	32.11	39.45	54.00	-14.55	AVG			

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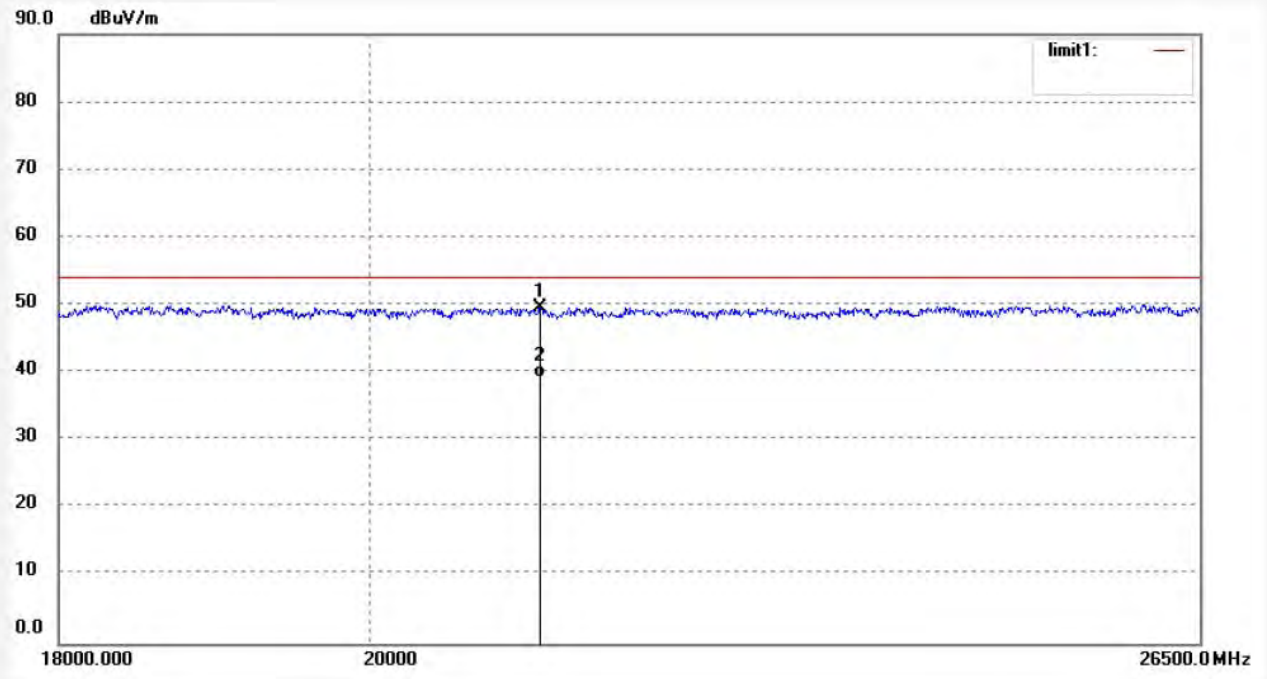
Job No.: LGW2019 #1647
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Horizontal
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21191.284	18.17	31.37	49.54	74.00	-24.46	peak			
2	21191.284	7.84	31.37	39.21	54.00	-14.79	AVG			

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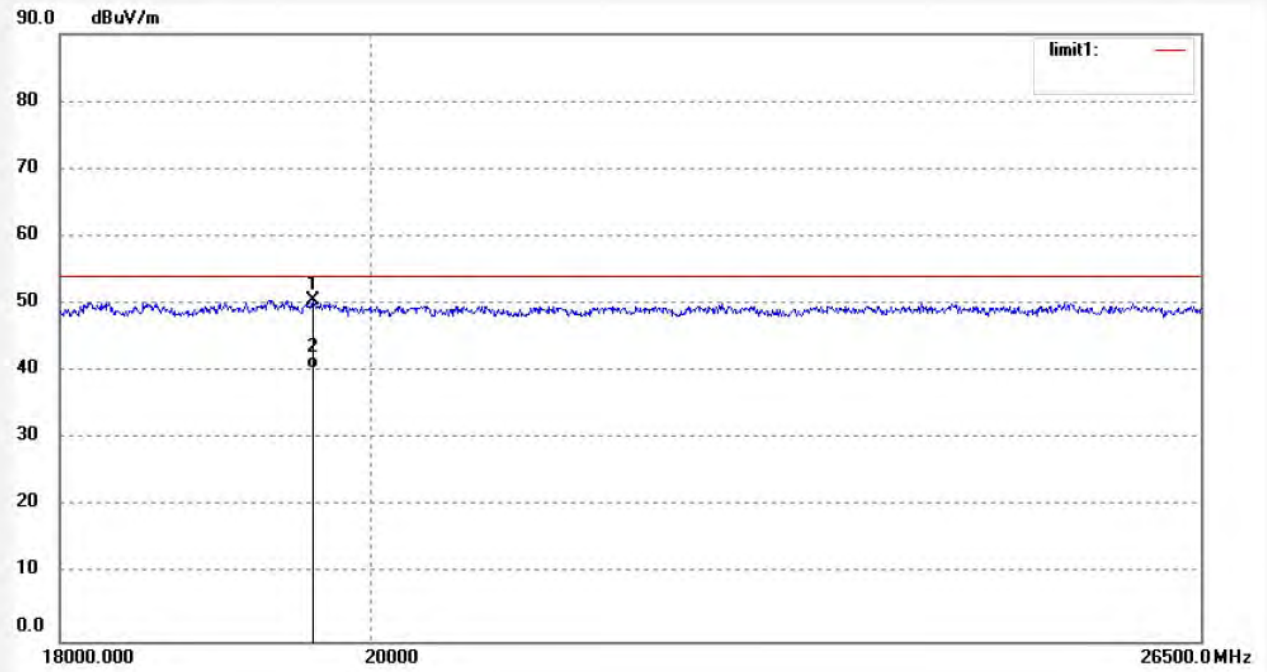
Fax:+86-0755-26503396

Job No.: LGW2019 #1646
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: TTL Li-ion Round Head Camera Flash
Mode: TX 2464.499756MHz
Model: V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.

Polarization: Vertical
Power Source: DC 7.2V
Date: 19/05/13/
Time:
Engineer Signature: WADE
Distance: 3m

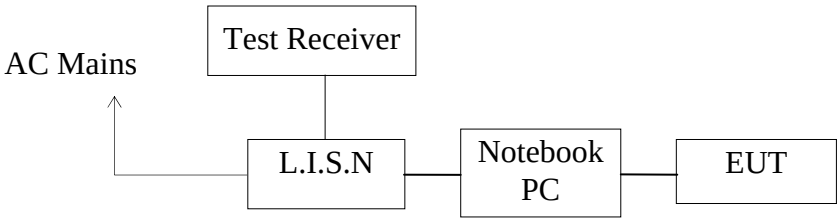
Note:



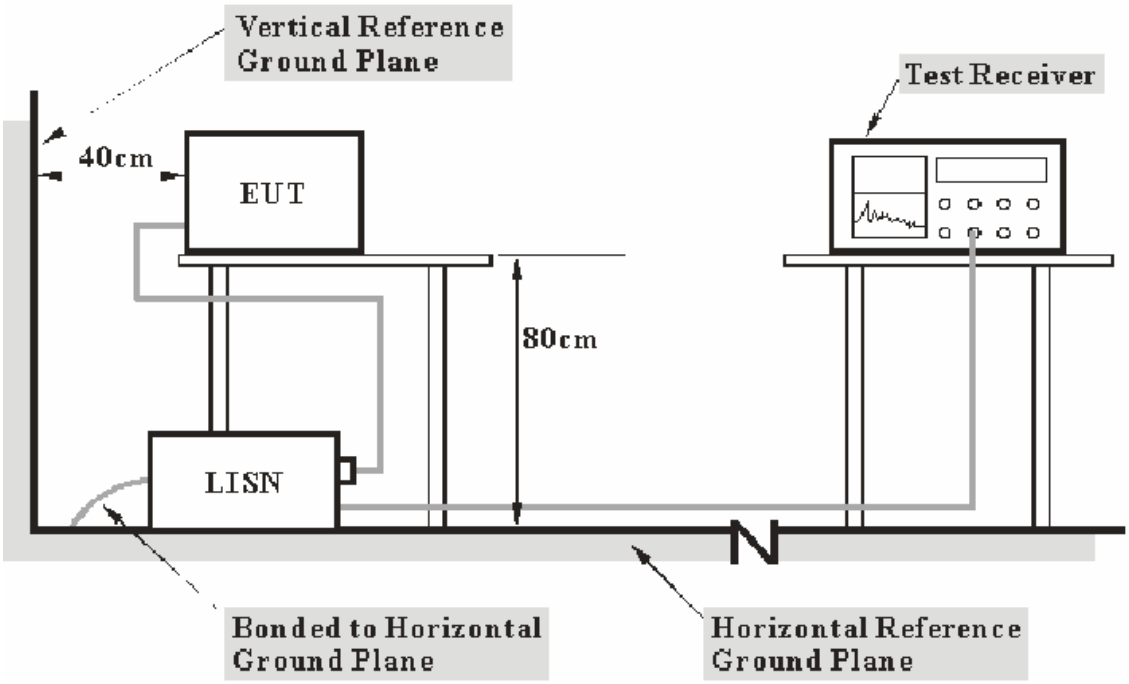
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	19613.838	19.12	31.46	50.58	74.00	-23.42	peak			
2	19613.838	9.01	31.46	40.47	54.00	-13.53	AVG			

10. AC POWER LINE CONDUCTED EMISSION TEST

10.1. Block Diagram of Test Setup



10.2. Test System Setup



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

10.3.The Limits for FCC Section 15.207 & RSS-Gen Section 8.8

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

10.4.Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

10.5.Operating Condition of EUT

10.5.1.Setup the EUT and simulator as shown as Section 10.1.

10.5.2.Turn on the power of all equipment.

10.5.3.Let the EUT work in test mode and measure it.

10.6.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

10.7.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.5	51.1	34.2	56.0	46.0	4.9	11.8	Pass

Frequency(MHz) = Emission frequency in MHz
Transducer value(dB) = Insertion loss of LISN + Cable Loss
Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value
Limit (dBμV) = Limit stated in standard
Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:
Margin = Limit (dBμV) - Level (dBμV)

10.8.Test Results

Pass.

The frequency range from 150kHz to 30MHz is checked.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

The spectral diagrams are attached as below.

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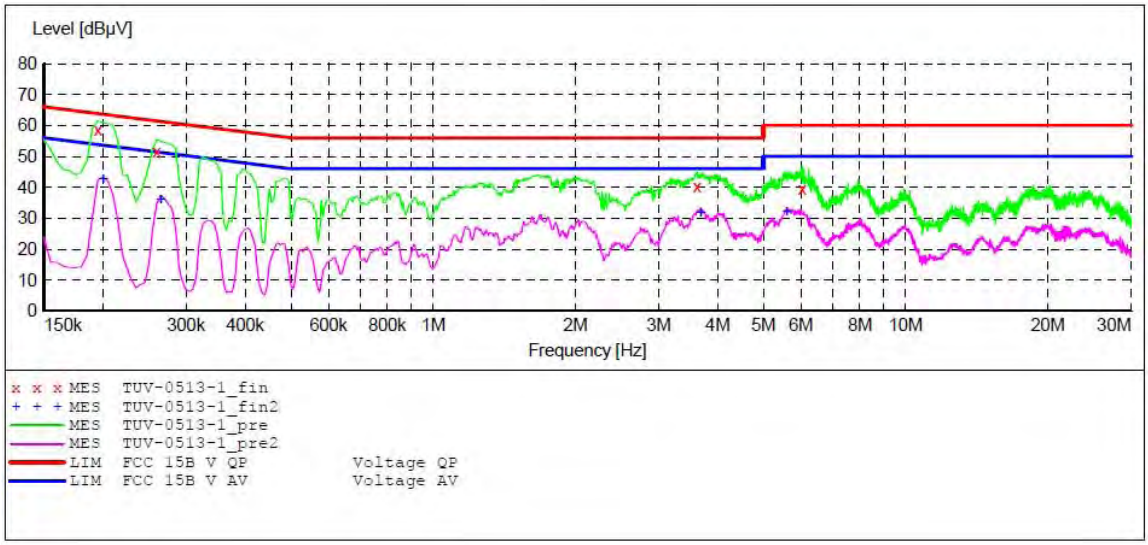
CONDUCTED EMISSION STANDARD FCC PART 15 C

EUT: TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer: Godox Photo Equipment Co.,Ltd.
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: WADE
Test Specification: N 120V/60Hz
Comment: Mains port
Start of Test: 5/13/2019 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "TUV-0513-1_fin"

5/13/2019

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	58.60	10.5	64	5.2	QP	N	GND
0.260000	51.50	10.6	61	9.9	QP	N	GND
3.620000	40.30	11.1	56	15.7	QP	N	GND
6.040000	39.40	11.2	60	20.6	QP	N	GND

MEASUREMENT RESULT: "TUV-0513-1_fin2"

5/13/2019

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.200000	42.60	10.5	54	11.0	AV	N	GND
0.265000	35.90	10.6	51	15.4	AV	N	GND
3.680000	31.80	11.1	46	14.2	AV	N	GND
5.610000	31.90	11.2	50	18.1	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

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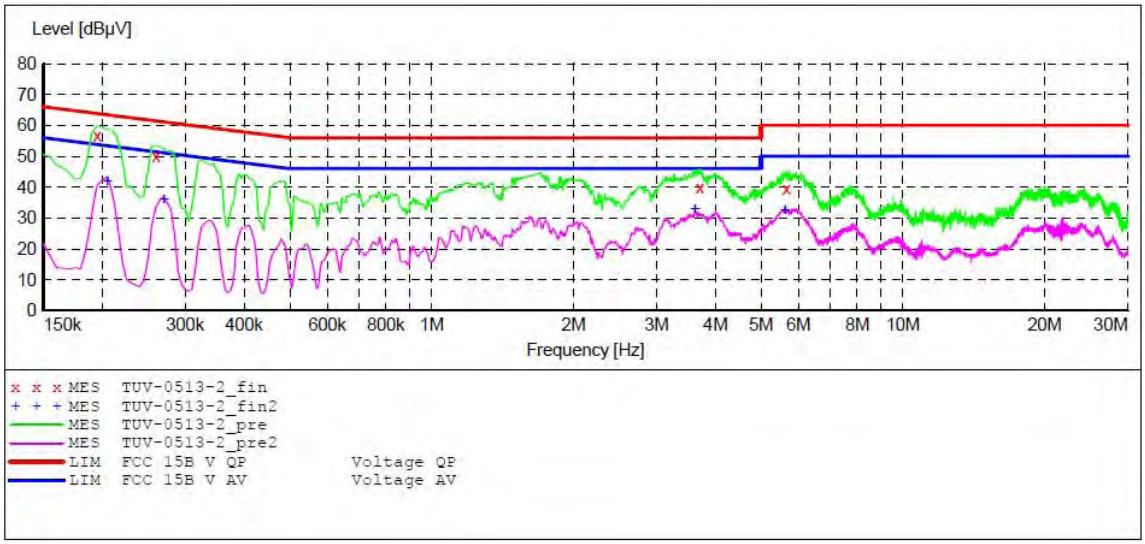
EUT:                TTL Li-ion Round Head Camera Flash M/N:V1C
Manufacturer:       Godox Photo Equipment Co.,Ltd.
Operating Condition: Charging
Test Site:          1#Shielding Room
Operator:           WADE
Test Specification: L 120V/60Hz
Comment:            Mains port
Start of Test:      5/13/2019 /
```

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "TUV-0513-2_fin"

5/13/2019

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	56.70	10.5	64	7.1	QP	L1	GND
0.260000	49.90	10.6	61	11.5	QP	L1	GND
3.700000	39.90	11.1	56	16.1	QP	L1	GND
5.660000	39.30	11.2	60	20.7	QP	L1	GND

MEASUREMENT RESULT: "TUV-0513-2_fin2"

5/13/2019

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.205000	41.70	10.5	53	11.7	AV	L1	GND
0.270000	35.80	10.6	51	15.3	AV	L1	GND
3.620000	32.70	11.1	46	13.3	AV	L1	GND
5.620000	32.30	11.2	50	17.7	AV	L1	GND

11. ANTENNA REQUIREMENT

11.1. The Requirement

According to Section 15.203 and RSS GEN 8.3, 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.

11.2. Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203 and RSS GEN 8.3

******* End of Test Report *******