

FCC TEST REPORT

Reference No. : GPWL2001000200EG

Applicant : COMPACT.D

Equipment Under Test (EUT) :

Product Name : ATEEZ OFFICIAL LIGHT STICK

Model Name : ATEEZ-light01

Applied Standards : FCC Part 15 Subpart B

ANSI C 63.4:2014

FCC ID : 2AQJRATEEZ-LIGHT01

Date of Receipt : January 16, 2020

Date of Test : February 4, 2020

Date of Issue : February 11, 2020

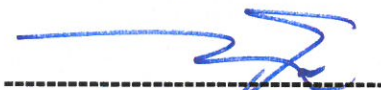
Test Results : Complied

Tested by :



Yongtae Yu

Reviewed by :



Paul Kang

Remarks :

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Revision History

Revision	Report Number	Description
0	F690501-RF-EMG000079	Initial
1		
2		

1. General Information

1.1 Client Information

Applicant : COMPACT.D
- Address of Applicant : 703, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea.

Manufacturer : COMPACT.D
- Address of Manufacturer : 703, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea.

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
- Giheung 1 Laboratory : 35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
- Giheung 2 Laboratory : 23, Giheungdanji-ro 24beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
- Gunpo Laboratory : 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 15807, Republic of Korea.

Phone : + 82 31 428 5700
Fax : + 82 31 427 2370
e-mail : paul.kang@sgs.com

1.3 General Information of E.U.T.

Classification	Description
Product Name	ATEEZ OFFICIAL LIGHT STICK
Model Name	ATEEZ-light01
Serial No.	None
Highest Internal Frequency	2 405 GHz ~ 2 480 GHz (Zigbee)
EMI Classification	Class B
Test Voltage	4.5 Vd.c.
Operating Voltage	4.5 Vd.c.
Function	The device is a battery-powered light stick.

1.4 Operating Modes and Conditions

Operating Mode	Percussor
1) Operation	Press the button to activate the EUT.

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer
-	-	-	-

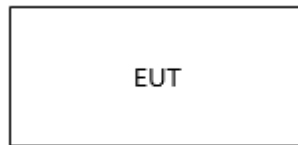
1.6 Cable List

Start		END		Cable Spec.		Used core
Name	I/O Port	Name	I/O Port	Length	Shield	
EUT	-	-	-	-	-	-

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
Main Board	ATEEZ 2019.11.19	-	-
LED	-	-	-

1.8 Test System Layout



1.9 Modifications

There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 Subpart B	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Basic Standards	Results
Radiated Emission	ANSI C 63.4:2014 FCC Part 15 Subpart B	Complied

Note: Test methods of all test items are performed according to the basic standards in this table.

EMISSION

2.1 Test Results

Test Items	Basic Standards	Test Results
Radiated Emission	ANSI C 63.4:2014, FCC Part 15 Subpart B	Complied

2.2 Test Method and Limits

2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Radiated Emission	30 MHz ~ 1 GHz	120 kHz	10 m&3 m
	Above 1 GHz	1 MHz	3 m

2.2.2 Test Limits

-Radiated Emission Limits below 1 GHz

Frequency Range	Limits(dB(μ V/m))	Class
	Quasi-peak	
30 MHz ~ 88 MHz	39.1	Class A
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46.4	
960 MHz ~ 1 GHz	49.5	
30 MHz ~ 88 MHz	40	Class B
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46	
960 MHz ~ 1 GHz	54	

-Radiated Emission Limits above 1 GHz (3m method)

Frequency Range	Limits(dB(μ V/m))		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	Class A
Above 1 GHz	54	74	Class B

2.3 Radiated Emission

The initial preliminary exploratory scans were performed at 3 m distance over the measuring frequency range(30 MHz to 13 GHz) using a max hold mode incorporating a Peak detector and using the software of EMC32(Version 8.50.0 from R&S) and EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector below 1 GHz at 3 m distance and a Peak and Average detector above 1 GHz at 3 m distance. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

2.3.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Cal Due. Date
Horn Antenna (RRA)	HF906	R & S	100326	2021.06.13
Signal Conditioning Unit	SCU 18	R & S	10117	2020.06.12
Test Receiver	ESW44	R & S	101767	2020.11.01
Bilog Antenna (RRA)	VULB9163	SCHWARZBECK	396	2021.05.23
Amplifier	8447F	HP	2944A03909	2020.08.07

Note : Only the calibration period of Antennas is 2 years but the period of every equipment is 1 year.

2.3.2 Test Site

3m SEMI-ANECHOIC CHAMBER Gunpo Laboratory (Below 1 GHz, Above 1 GHz)

2.3.3 Environment Conditions and data

- Below 1 GHz

Temperature (Minimum 19.8, Maximum 20.4) °C,
Humidity (Minimum 17.0, Maximum 18.0) % R.H.,
Atmospheric Pressure (Minimum 101.1, Maximum 101.1) kPa

Test Date : February 4, 2020

- Above 1 GHz

Temperature (Minimum 19.8, Maximum 20.4) °C,
Humidity (Minimum 17.0, Maximum 18.0) % R.H.,
Atmospheric Pressure (Minimum 101.1, Maximum 101.1) kPa

Test Date : February 4, 2020

- Below 1 GHz (3 m method)

Freq. (MHz)	Level (dB(μV))	Pol. (H/V)	A (°)	H (cm)	AF (dB/m)	CL (dB)	Amp. (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
611.39	22.80	V	226	204	25.20	5.03	28.98	24.05	46.00	21.95
626.31	26.00	H	161	100	25.28	5.10	28.95	27.43	46.00	18.57
627.52	28.70	H	178	100	25.29	5.11	28.94	30.16	46.00	15.84
658.56	28.00	H	180	100	25.47	5.21	28.88	29.80	46.00	16.20
689.60	30.70	H	180	100	25.65	5.35	28.82	32.88	46.00	13.12
720.03	22.80	V	268	204	25.99	5.47	28.74	25.52	46.00	20.48

Measurement Uncertainty (Horizontal) : 5.72 dB (The confidential level is about 95%, k=2)

Measurement Uncertainty (Vertical) : 5.88 dB (The confidential level is about 95%, k=2)

Note 1: • AF = Antenna Factor • CL = Cable Loss • Amp = Amplifier Gain
• POL H = Horizontal • POL V = Vertical • A : Angle
• H : Height • Margin = Limit – Result • Result = Level + AF + CL – Amp

- Above 1 GHz (3 m method)

Freq. (MHz)	Level (dB μV)		Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	CF (dB)	F/S (dB μV/m)	Limit (dB μV/m)	Margin (dB)
	Peak	C-AV										
13503.50	41.20	-	V	275	100	40.47	21.18	44.65	0.00	58.20	74.00	15.80
13503.50	-	29.00	V	275	100	40.47	21.18	44.65	0.00	46.00	54.00	8.00
13531.83	42.10	-	H	227	100	40.50	21.21	44.66	0.00	59.15	74.00	14.85
13531.83	-	29.10	H	227	100	40.50	21.21	44.66	0.00	46.15	54.00	7.85
14721.12	37.90	-	V	245	100	40.61	22.34	44.51	0.00	56.34	74.00	17.66
14721.12	-	28.10	V	245	100	40.61	22.34	44.51	0.00	46.54	54.00	7.46
14906.71	38.50	-	H	5	100	40.62	22.39	44.44	0.00	57.07	74.00	16.93
14906.71	-	28.60	H	5	100	40.62	22.39	44.44	0.00	47.17	54.00	6.83
16603.87	42.30	-	V	48	100	41.90	23.40	45.92	0.00	61.68	74.00	12.32
16603.87	-	30.40	V	48	100	41.90	23.40	45.92	0.00	49.78	54.00	4.22
16669.75	42.10	-	H	357	100	41.74	23.41	45.97	0.00	61.28	74.00	12.72
16669.75	-	30.10	H	357	100	41.74	23.41	45.97	0.00	49.28	54.00	4.72

Measurement Uncertainty (Horizontal) : 5.62 dB (The confidential level is about 95%, k=2)

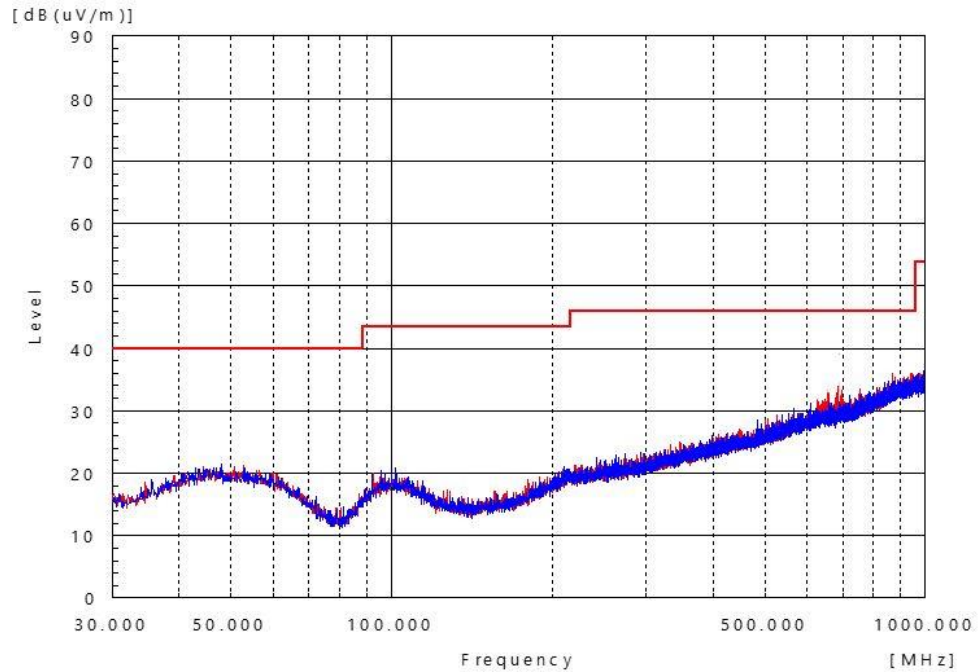
Measurement Uncertainty (Vertical) : 5.94 dB (The confidential level is about 95%, k=2)

Note 1: • AF = Antenna Factor • CL = Cable Loss • Amp = Amplifier Gain
• POL H = Horizontal • POL V = Vertical • A : Angle
• H : Height • Margin = Limit – Result • Result = Level + AF + CL – Amp

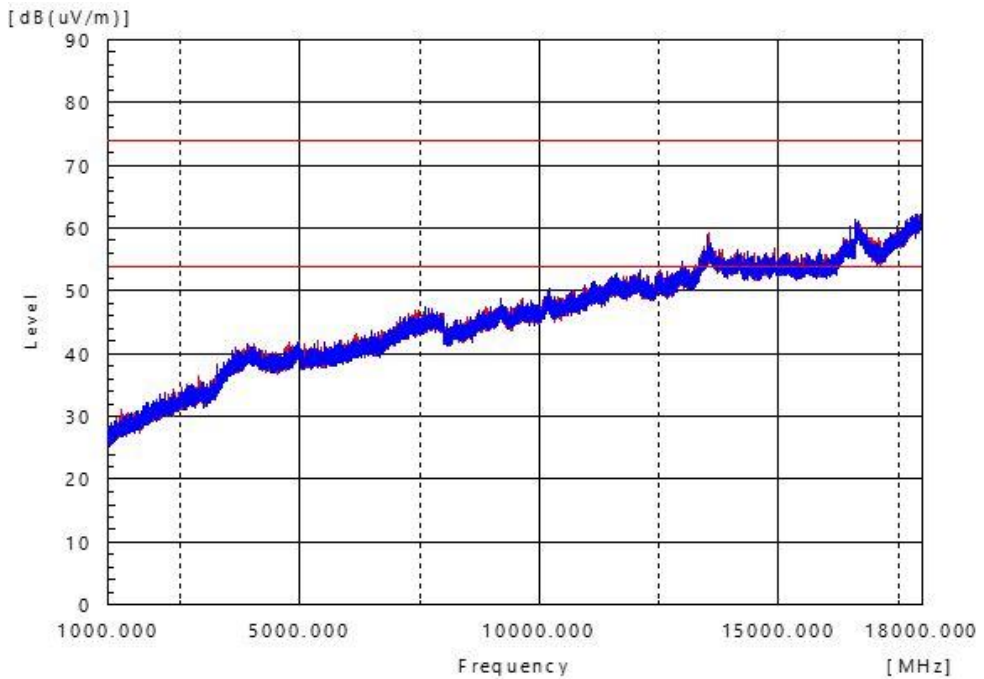
See Appendix A (Radiated Emission)

Appendix A : Radiated Emission

Below 1 GHz



Above 1 GHz



- End of the Report -