Report No.: DDT-R20072707-3E1

Issued Date: Jul. 14, 2021

FCC CERTIFICATION TEST REPORT

FOR

Applicant	:	Uni-Powa Corporation Ltd.
Address	:	3 Filers Way Weston Gateway Business Park Weston-super-Mare BS24 7JP
Equipment under Test	:	Smart Fountain Remote Control
Model No.	:	SF 1.0
Trade Mark	:	/
FCC ID	:	2AW6O-UNIPOWA-SFV01
Manufacturer	:	Fusun Hongkong Co. Ltd.
Address	:	3C, BLDG G, RUNDAYUANTING, ZHONGMEI ROAD,MIN ZHI, LONGHUA DISTRICTSHENZHEN, GUANGDONG, CHINA

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, SongshanLakeSci&Tech, IndustryPark, Dongguan City, Guangdong Province, China, 523808

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REPORT

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Test Report Declare

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Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C.

Test procedure used:

ANSI C63.10:2013

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd.and in the configuration testedthe equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with therequirement of the above FCC standards.

Report No.:	DDT-R20072707-3E1		
Date of Receipt:	Sep. 08, 2020	**Date of Test:**	Sep. 08, 2020 ~ Sep. 17, 2020

Prepared By:

Sam Li

Sam Li/Engineer

Approved By:

DONGGUAN DONGDIAN TESTING SERVICE CO., LTD. APPROVED

Damon Hu

Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jul. 14, 2021	

1 Summary of Test Results

Description of Test Item	Standard	Results
20 dB Bandwidth	FCC Part 15: 15.231(c) ANSI C63.10:2013	Pass
Stop Transmitting Time Test	FCC Part 15C: 15.231(a) ANSI C63.10:2013	Pass
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.231(b) ANSI C63.10:2013	Pass
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.10:2013	N/A
Antenna Requirement	FCC Part 15: 15.203	Pass
Note: N/A is an abbreviation for Not Applicable.		

2 General Test Information

2.1. Description of EUT

EUT* Name	:	Smart Fountain Remote Control
Model Number	:	SF 1.0
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 3V
Operation frequency	:	433.92 MHz
Modulation	:	ASK
Antenna Type	:	Internal antenna, maximum PK gain: 0 dBi
Sample Type	:	Series production

Note: EUT is the abbreviation of equipment under test.

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Serial No.	Other
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Serial No.	Other
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test

EUT

Tested mode, channel, information		
Mode	Channel	Frequency (MHz)
TX mode	/	433.92

Note: New battery is used during all test

2.5. Deviations of test standard

No deviation.

2.6. Test environmentconditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25 ℃
Humidity range:	40-75%
Pressure range:	86-106 kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power(Conducted)(Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power(Conducted)(Power Sensor)	0.74dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7 x 10^{-8} (Antenna couple method)
	5.5 x 10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 22 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz - 18 GHz)
	3.54 dB (18 GHz - 26 GHz)
	4.30 dB (26 GHz - 40 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz - 30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

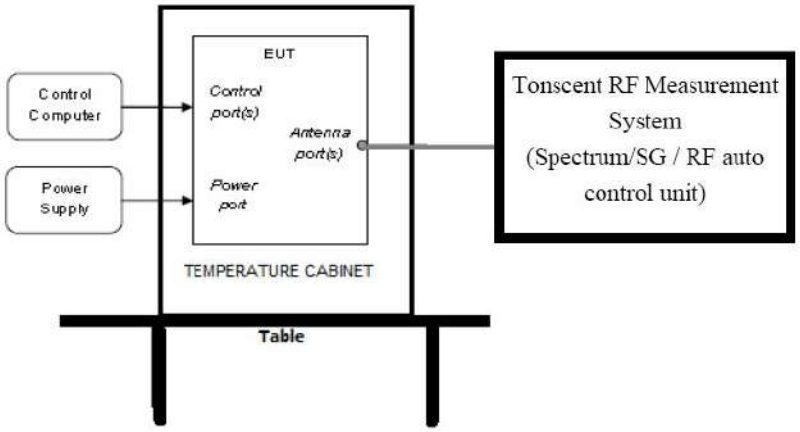
3 Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscend RF Measurement System)					
Spectrum analyzer	R&S	FSU26	200071	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 29, 2019	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 29, 2019	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Jul. 01, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 29, 2019	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Oct. 21, 2019	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
Radiation 1#chamber					
EMI Test Receiver	R&S	ESU8	100316	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2019	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 15, 2019	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Sep. 29, 2019	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 29, 2019	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Sep. 29, 2019	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 29, 2019	1 Year
RF Cable	N/A	5m+6m+1m	06270619	Sep. 29, 2019	1 Year
MI Cable	HUBSER	C10-01-01-1 M	1091629	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Radiation 2#chamber					
EMI Test Receiver	R&S	ESCI	101364	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2019	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 21, 2019	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Sep. 29, 2019	1 Year

Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Sep. 29, 2019	1 Year
RF Cable	N/A	14+1.5m	06270619	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4 Duty Cycle

4.1. Block diagram of test setup



4.2. Limits

None: for reporting purposes only.

4.3. Test procedure

Set the Centre frequency of the spectrum analyzer to the transmitting frequency;

Set the span = 0 MHz, RBW = 1 MHz, VBW = 1 MHz, Sweep time = 100 ms;

Trace mode = Single hold.

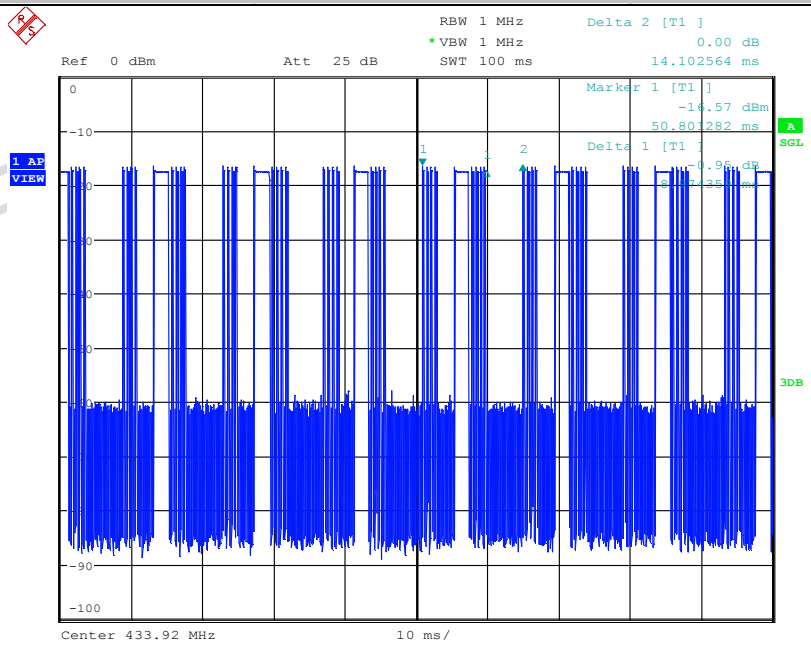
4.4. Test result

Test Channel [MHz]	Duty Cycle [%]	20log(Δ) Factor [dB]
433.92	32.27	-9.82
Note 1: The transmitter duty cycle was measured using a spectrum analyser in the time domain and calculated by below Equation: δ(dB) = 20log(Δ)= 20 log(4.55/14.10)=-9.82 dB δ is the duty cycle correction factor (dB) Δ is the duty cycle (dimensionless) Note 2: In cases where the pulse train exceeds 0.1 s, the measured field strength shall be determined during a 0.1 s interval		

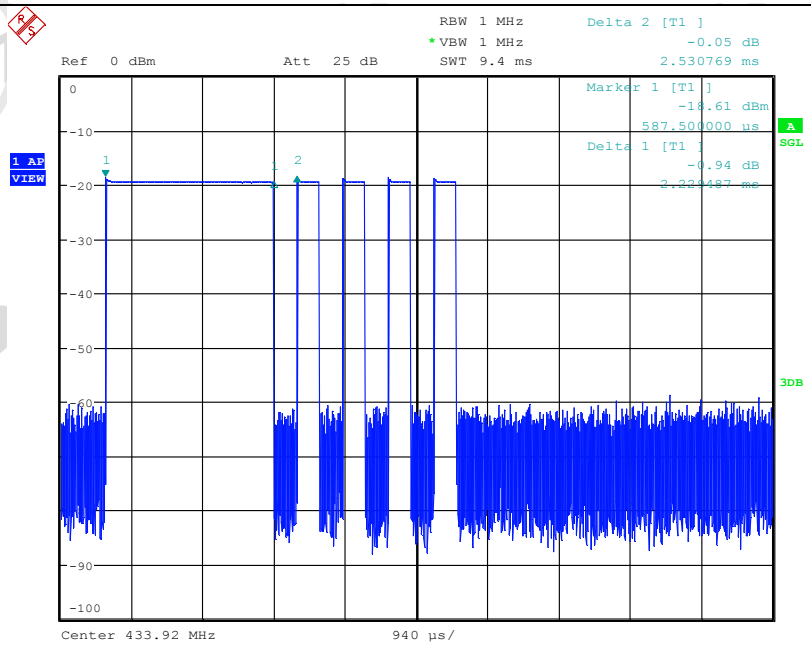
Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log (Duty cycle)
	Duty cycle= T on time / T period
Test data:	Ton time = (0.29×8+2.23×1) ms=4.55ms
	T period =14.10ms
	PDCF= 20 log (Duty cycle)=20 log(4.55/14.10)= -9.82 dB

4.5. Original test data

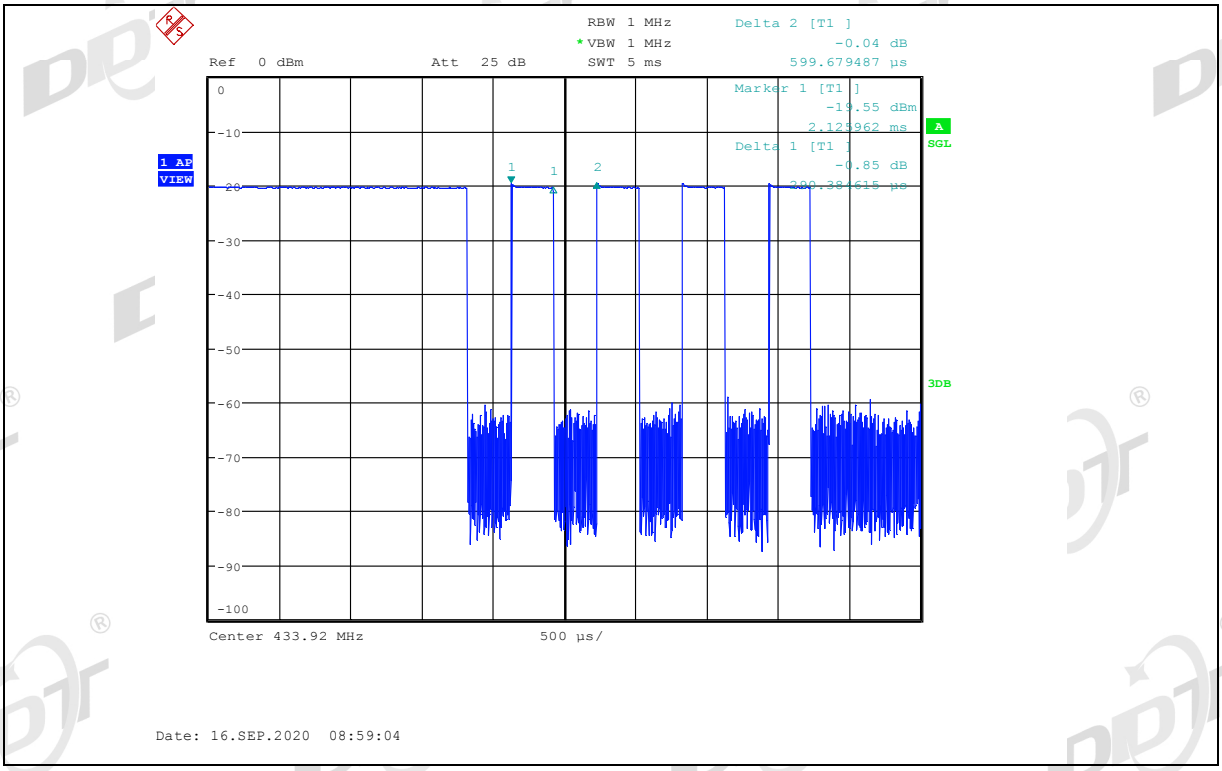
Duty Cycle



Date: 16.SEP.2020 08:52:37

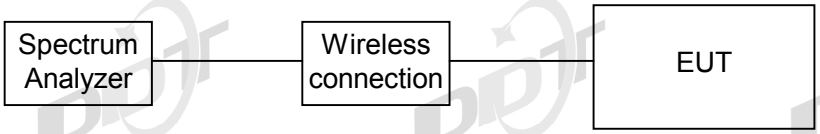


Date: 16.SEP.2020 08:56:56


RBW 1 MHz
*VBW 1 MHz
SWT 5 ms
Delta 2 [T1]
-0.04 dB
599.679487 µs
Ref 0 dBm
Att 25 dB
Marker 1 [T1]
-19.55 dBm
2.125962 ms
Delta 1 [T1]
-0.85 dB
380.382615 µs
1 AP
VIEW
A
SGL
3DB
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Center 433.92 MHz
500 µs/
Date: 16.SEP.2020 08:59:04

5 20 dB Bandwidth

5.1. Block diagram of test setup



5.2. Limits

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz

5.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

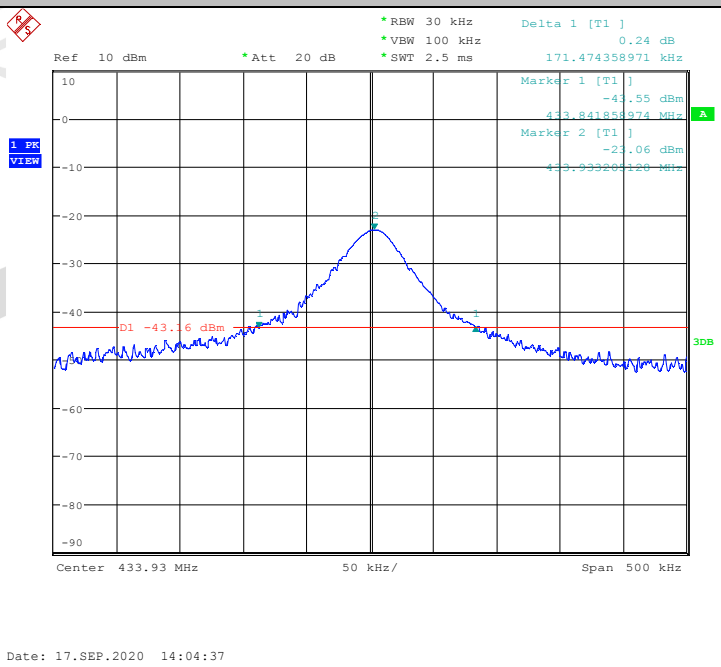
(2) The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 kHz RBW and 100 kHz VBW. The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

5.4. Test result

Frequency (MHz)	20 dB Bandwidth (kHz)	Limit (MHz): No wider than 0.25% of the center frequency	Conclusion
433.92	171.474	433.92*0.25%=1.0848 MHz	Pass

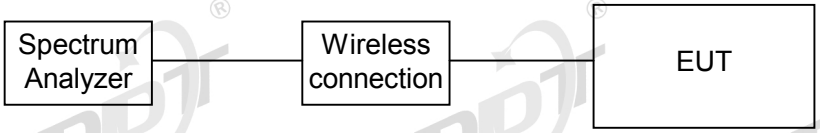
5.5. Original test data

20 dB Bandwidth



6 Stop Transmitting Time Test

6.1. Block diagram of test setup



6.2. Limits

15.231(a)(1), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

6.3. Test procedure

(1) The EUT's RF signal was coupled to spectrum analyzer by antenna connected to spectrum analyzer.

(2) Set the spectrum to zero span mode, and centered of EUT frequency.

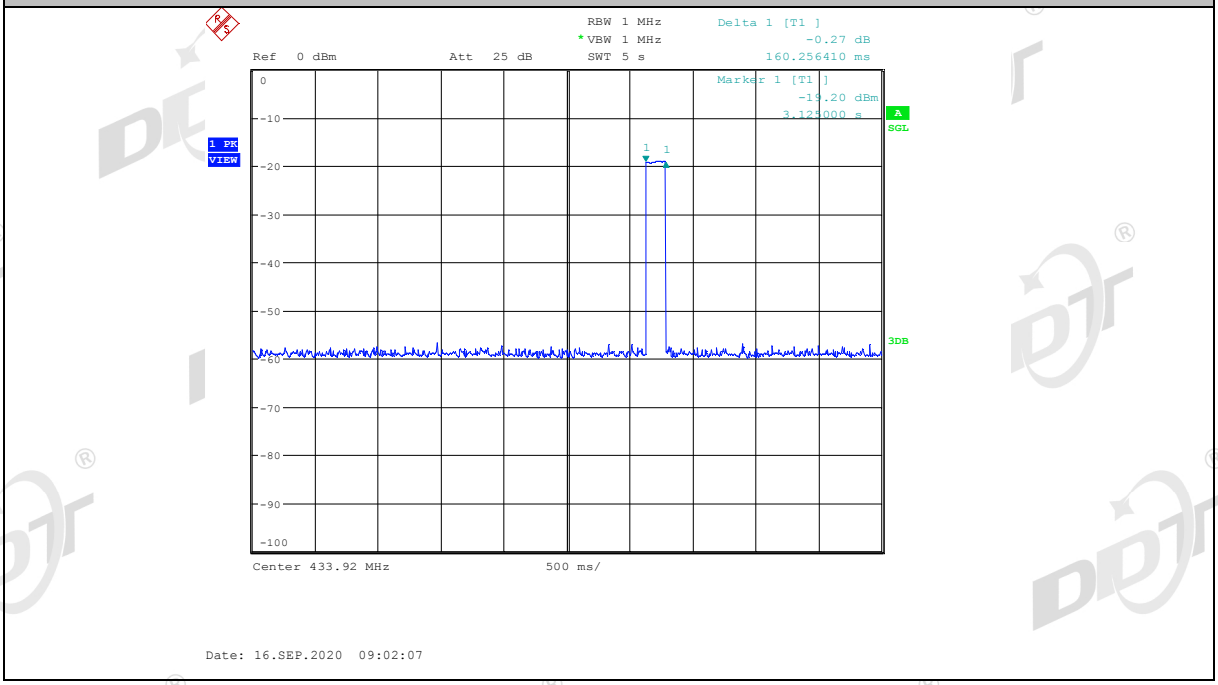
(3) Measure the stop transmitting time after release EUT button.

6.4. Test result

Frequency (MHz)	Test value	Limit	Results
433.92	160.256 ms	≤ 5 s	Pass

6.5. Original test data

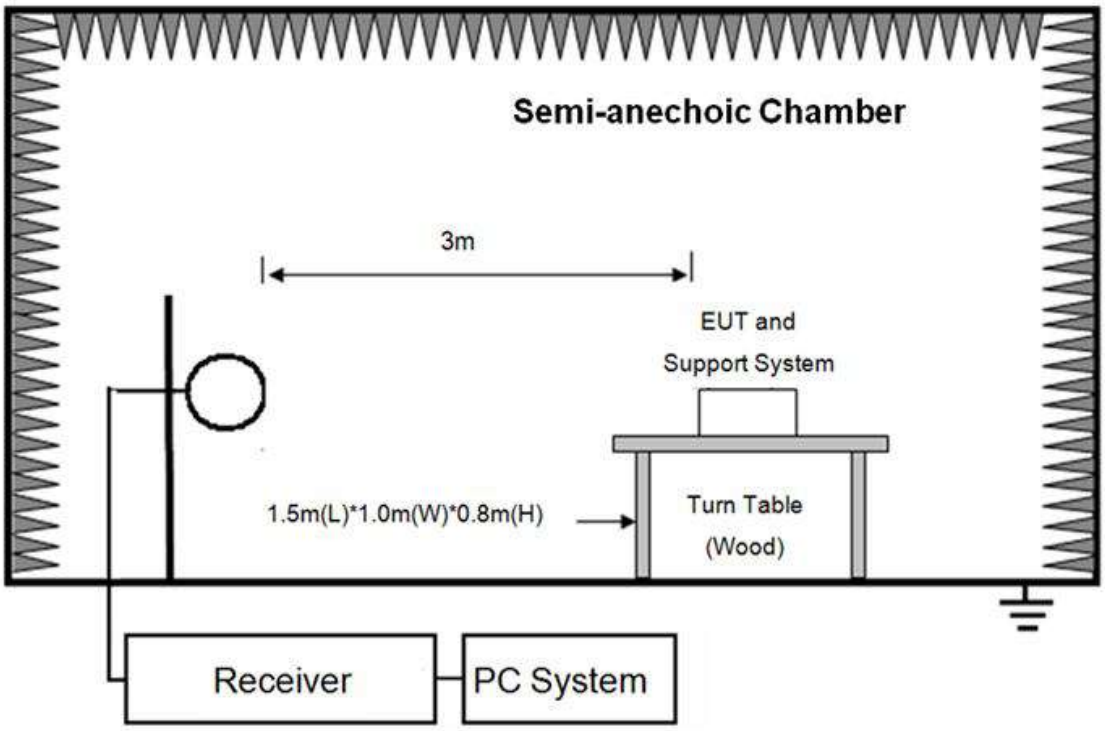
Graphs



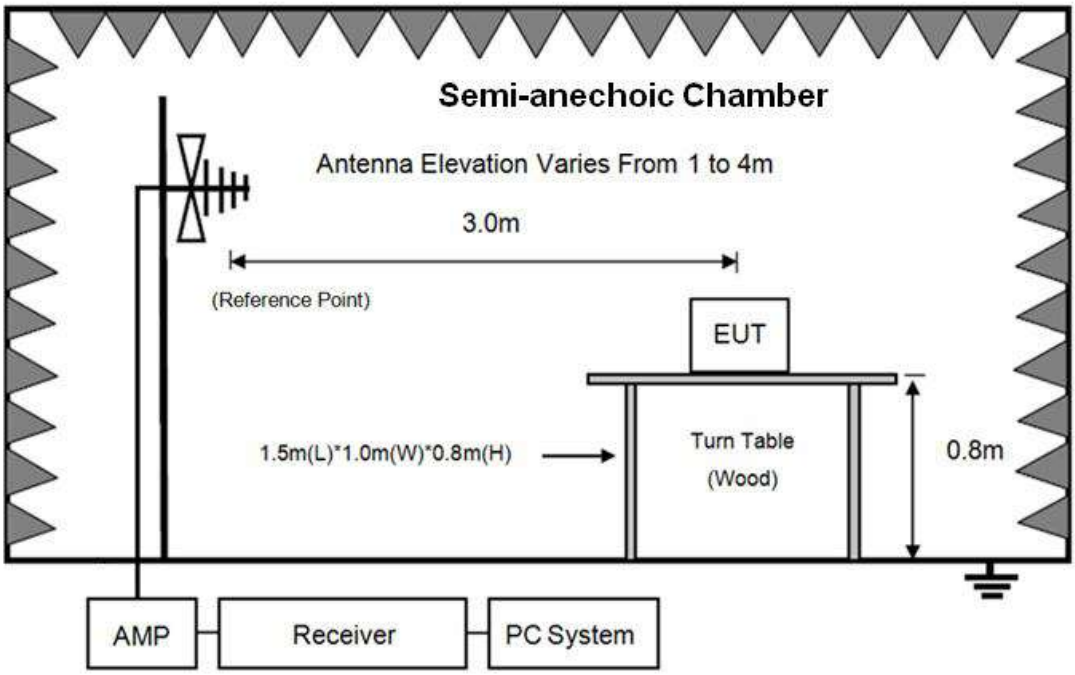
7 Radiated Emission

7.1. Block diagram of test setup

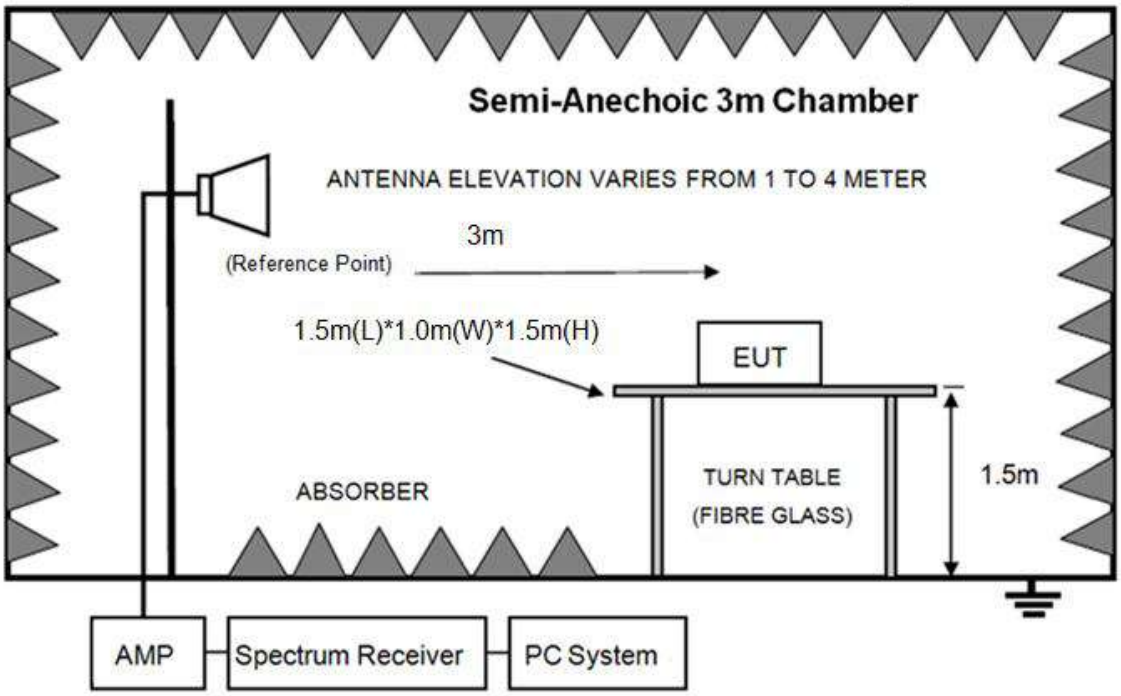
In 3 m Anechoic Chamber Test Setup Diagram for 9 kHz - 30 MHz



In 3 m Anechoic Chamber Test Setup Diagram for below 1 GHz



In 3 m Anechoic Chamber Test Setup Diagram for frequency above 1 GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

7.2. Limit

(1) FCC 15.205 Restricted frequency band

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
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&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.G
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			

(2) FCC 15.231(b) Limit.

Fundamental frequency (MHz)	**Field strength of fundamental (microvolts/meter)**	**Field strength of spurious emissions (microvolts/meter)**
40.66-40.70	2,250	225
70-130	1,250	125
130-174	[1]1,250 to 3,750	[1]125 to 375
174-260	3,750	375
260-470	[1]3,750 to 12,500	[1]375 to 1,250
Above 470	12,500	1,250
[1]Linear interpolations.		

(3) FCC 15.231 section (b) limit

Fundamental Frequency (MHz)	Field Strength of Fundamental
433.92	AV:80.83dBuV/m @3m PK:100.83dBuV/m @3m

(3) Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions include fundamental emission shall not exceed FCC 15.231 section (b) limit of comply with FCC 15.209 limit which permit higher emission level.

7.3. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for blow 1G and 150 cm above the ground plane inside a semi-anechoic chamber for above 1G.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9kHz-30MHz	Active Loop antenna	3m
30MHz-1GHz	Trilog Broadband Antenna	3m
1GHz-18GHz	Double Ridged Horn Antenna(1GHz-18GHz)	3m
18GHz-40GHz	Horn Antenna(18GHz-40GHz)	1m

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground for measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes ofPolarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal

strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 5 GHz (tenth harmonic of fundamental frequency):

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
9 kHz - 150 kHz	200 Hz
150 kHz - 30 MHz	9 kHz
30 MHz - 1 GHz	120 kHz

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; RMS detector RBW 1 MHz VBW 3 MHz for Average measure (according ANSI C63.10:2013 clause 4.2.3.2.3 procedure for average measure).

(8) X axis, Y axis, Z axis are tested, and worse setup X axis is reported.

7.4. Test result

Pass. (See below detailed test result)

Note1: According exploratory test no any obvious emission was detected from 9 kHz to 30 MHz.

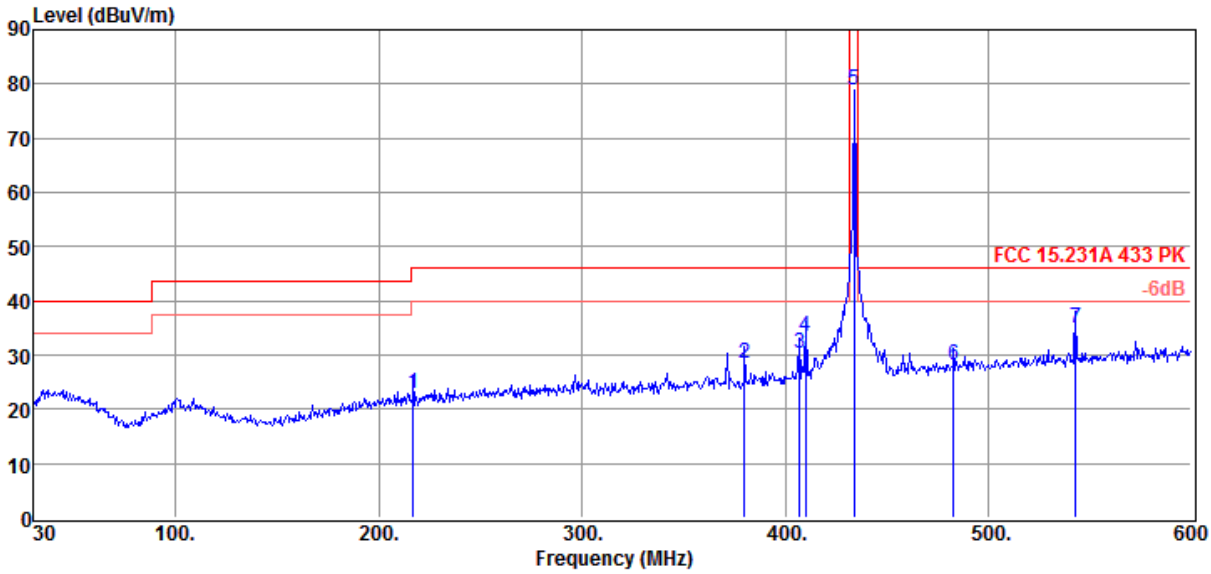
Note2: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

Radiated Emission test (below 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 2#	D:\2020 RE2# Report Data\Q20072707-1E SF1.0\FCC BELOW1G.EM6	
Test Date	: 2020-09-14	**Tested By**	: Jacky
EUT	: Smart Fountain Remote Control	**Model Number**	: SF 1.0
Power Supply	: Battery	**Test Mode**	: Tx mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2019 VULB 9163 2#/3m/VERTICAL
Memo	:		

Data:
14



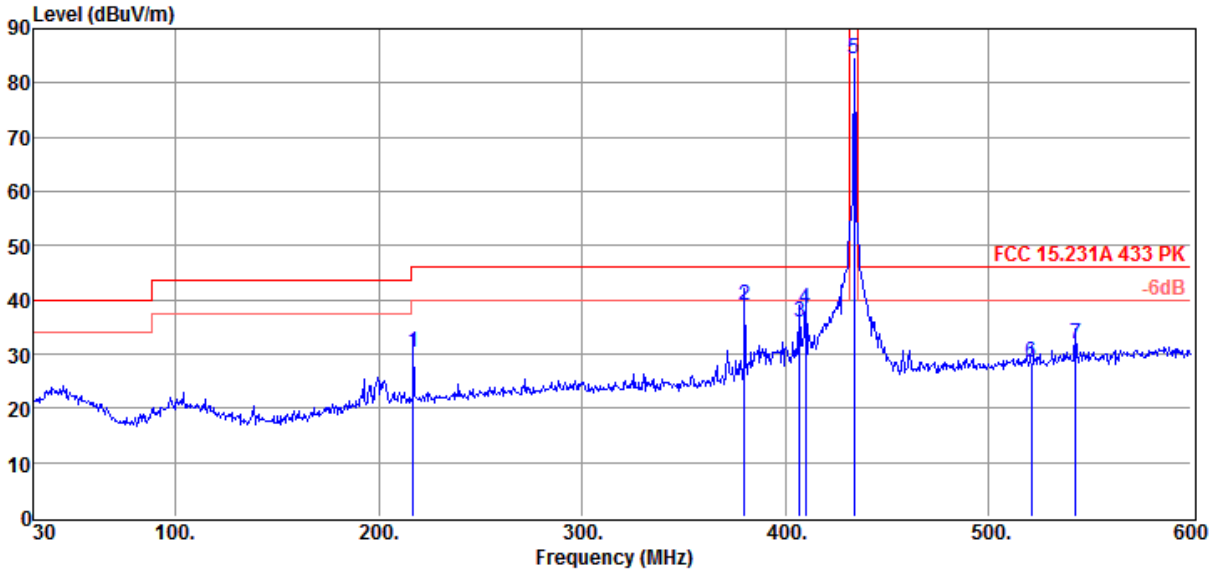
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	216.96	6.02	11.92	4.94	22.88	46.00	-23.12	QP	VERTICAL
2	379.98	7.62	15.23	5.75	28.60	46.00	-17.40	QP	VERTICAL
3	407.34	8.69	15.68	5.87	30.24	46.00	-15.76	QP	VERTICAL
4	410.19	11.71	15.75	5.88	33.34	46.00	-12.66	QP	VERTICAL
5	433.92	56.63	16.30	5.99	78.92	/	/	Peak	VERTICAL
6	483.15	4.53	17.36	6.20	28.09	46.00	-17.91	QP	VERTICAL
7	543.00	10.14	18.42	6.49	35.05	46.00	-10.95	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 2#	D:\2020 RE2# Report Data\Q20072707-1E SF1.0\FCC BELOW1G.EM6	
Test Date	: 2020-09-14	**Tested By**	: Jacky
EUT	: Smart Fountain Remote Control	**Model Number**	: SF 1.0
Power Supply	: Battery	**Test Mode**	: Tx mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2019 VULB 9163 2#/3m/HORIZONTAL
Memo	:		

Data:
15



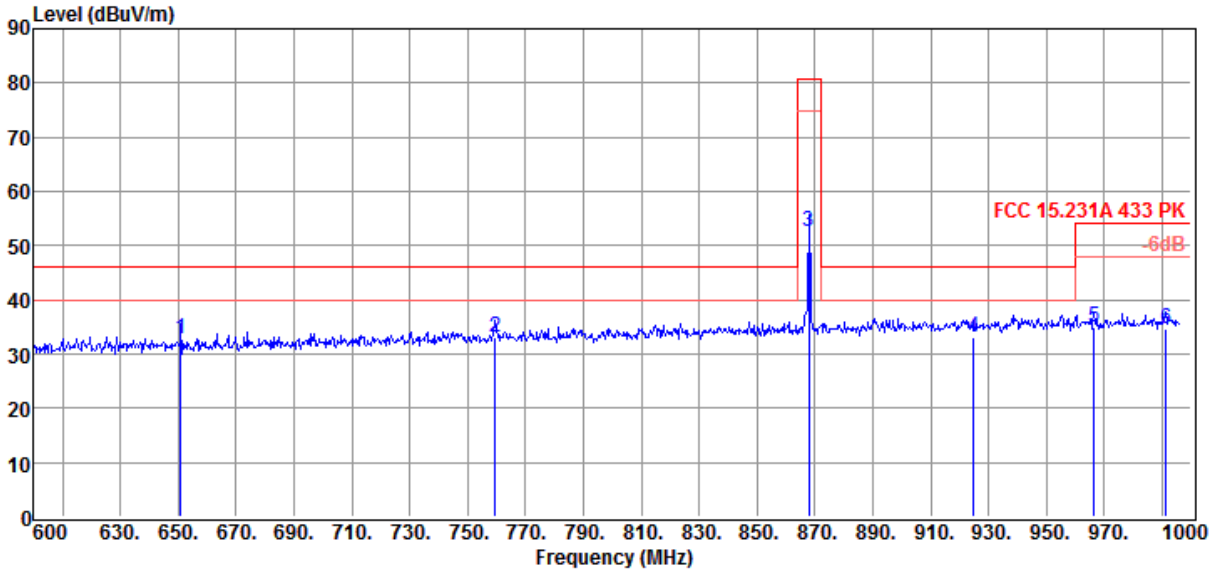
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	216.96	13.58	11.92	4.94	30.44	46.00	-15.56	QP	HORIZONTAL
2	379.98	18.04	15.23	5.75	39.02	46.00	-6.98	QP	HORIZONTAL
3	407.34	14.30	15.68	5.87	35.85	46.00	-10.15	QP	HORIZONTAL
4	410.19	16.73	15.75	5.88	38.36	46.00	-7.64	QP	HORIZONTAL
5	433.92	62.11	16.30	5.99	84.40	/	/	Peak	HORIZONTAL
6	521.34	3.95	18.07	6.38	28.40	46.00	-17.60	QP	HORIZONTAL
7	543.00	6.80	18.42	6.49	31.71	46.00	-14.29	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 2#	D:\2020 RE2# Report Data\Q20072707-1E SF1.0\FCC BELOW1G.EM6	
Test Date	: 2020-09-14	**Tested By**	: Jacky
EUT	: Smart Fountain Remote Control	**Model Number**	: SF 1.0
Power Supply	: Battery	**Test Mode**	: Tx mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2019 VULB 9163 2#/3m/HORIZONTAL
Memo	:		

Data:
16



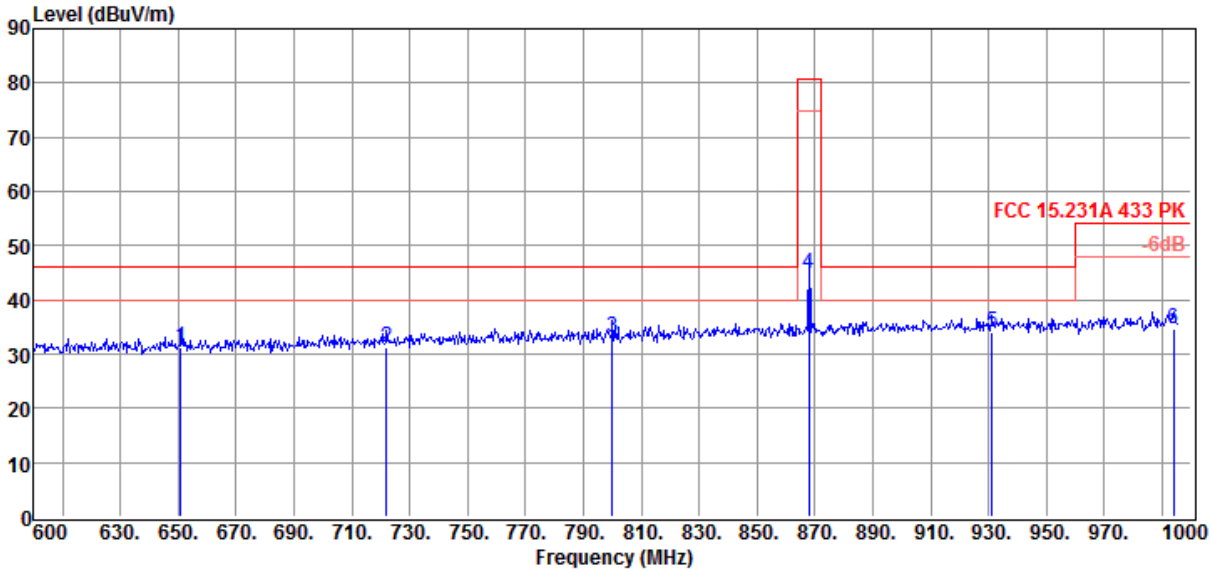
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	650.80	6.09	19.62	6.98	32.69	46.00	-13.31	QP	HORIZONTAL
2	759.60	5.03	20.70	7.40	33.13	46.00	-12.87	QP	HORIZONTAL
3	868.00	22.94	21.82	7.80	52.56	60.83	-8.27	QP	HORIZONTAL
4	924.80	2.91	22.28	8.01	33.20	46.00	-12.80	QP	HORIZONTAL
5	966.40	4.16	22.57	8.15	34.88	54.00	-19.12	QP	HORIZONTAL
6	991.20	3.82	22.74	8.23	34.79	54.00	-19.21	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 2#	D:\2020 RE2# Report Data\Q20072707-1E SF1.0\FCC BELOW1G.EM6	
Test Date	: 2020-09-14	**Tested By**	: Jacky
EUT	: Smart Fountain Remote Control	**Model Number**	: SF 1.0
Power Supply	: Battery	**Test Mode**	: Tx mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2019 VULB 9163 2#/3m/VERTICAL
Memo	:		

Data:
17



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	650.80	4.66	19.62	6.98	31.26	46.00	-14.74	QP	VERTICAL
2	722.00	3.91	20.20	7.26	31.37	46.00	-14.63	QP	VERTICAL
3	800.00	4.40	21.20	7.54	33.14	46.00	-12.86	QP	VERTICAL
4	868.00	15.09	21.82	7.80	44.71	60.83	-16.12	QP	VERTICAL
5	931.20	3.74	22.33	8.03	34.10	46.00	-11.90	QP	VERTICAL
6	994.00	3.64	22.76	8.24	34.64	54.00	-19.36	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Field Strength of the Fundamental Signal

Frequency (MHz)	PK Level (dBuV/m)	PK Limit Line (dBuV/m)	Over Limit (dB)	Polarization
433.92	84.40	100.83	-16.43	Horizontal
433.92	78.92	100.83	-21.91	Vertical

Frequency(MHz)	AV Level (dBuV/m)	AV Limit Line (dBuV/m)	Over Limit (dB)	Polarization
433.92	74.58	80.83	-6.25	Horizontal
433.92	69.10	80.83	-11.73	Vertical
Note: AV Level = PK Level+ Duty factor				

Radiated Emission test (above 1 GHz)

Freq. (MHz)	Read level (dBμV)	Antenna Factor (dB/m)	PRM Factor(dB)	CableLoss (dB)	Result Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector type	Polarization
Tx mode									
2165.00	55.01	27.03	43.09	3.82	42.77	74.00	-31.23	Peak	HORIZONTAL
2415.00	54.98	27.53	43.22	4.06	43.35	74.00	-30.65	Peak	HORIZONTAL
2600.00	57.39	27.98	43.30	4.24	46.31	74.00	-27.69	Peak	HORIZONTAL
3040.00	62.54	29.12	43.48	4.66	52.84	74.00	-21.16	Peak	HORIZONTAL
3475.00	63.08	29.29	43.64	5.13	53.86	74.00	-20.14	Peak	HORIZONTAL
3910.00	60.77	30.37	43.77	5.59	52.96	74.00	-21.04	Peak	HORIZONTAL
1735.00	52.30	26.06	42.57	3.32	39.11	74.00	-34.89	Peak	VERTICAL
2415.00	54.07	27.53	43.22	4.06	42.44	74.00	-31.56	Peak	VERTICAL
2600.00	53.98	27.98	43.30	4.24	42.90	74.00	-31.10	Peak	VERTICAL
3035.00	60.43	29.11	43.48	4.66	50.72	74.00	-23.28	Peak	VERTICAL
3475.00	56.40	29.29	43.64	5.13	47.18	74.00	-26.82	Peak	VERTICAL
3910.00	54.25	30.37	43.77	5.59	46.44	74.00	-27.56	Peak	VERTICAL
Result: Pass									

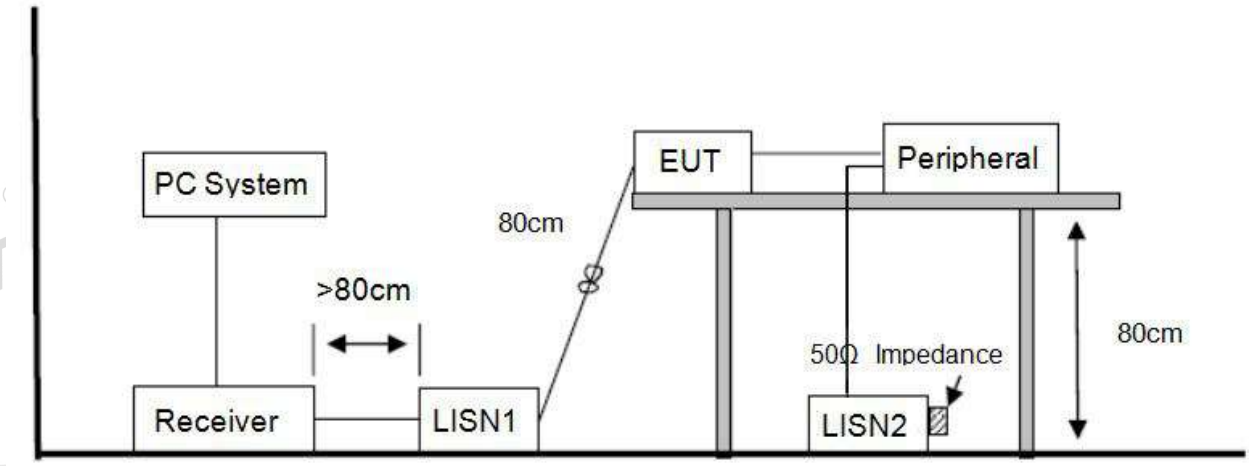
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit. All other emissions are attenuated 20 dB below the limits, so does not record.

3. All the emissions were comply with 15.209, so both for the restricted bands and non-restricted bands, all the emissions were comply with the limit.

8 Power Line Conducted Emission

8.1. Block diagram of test setup



8.2. Power line conducted emission limits

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

8.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were

recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

8.4. Test result

Not Applicable

Conducted limits are not required for devices which only employ battery power for operation according to 15.207(C)

9 Antenna Requirements

For intentional device, according to FCC 47 CFR Section 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

END OF REPORT