

FCC ID TEST REPORT

Prepared for.....:	Shenzhen City Youdaxing Electronic Co., Ltd.
Address.....:	Building 19, Dongbao Community, Dalangshan, Shajing Town, Shenzhen, China.
Equipment Under Test(E.U.T.):	Bark Collar
Model.....:	160
FCC ID.....:	2ADJV160
Applicable Standards.....:	FCC CFR Title 47 Part 15 Subpart C Section 15.231:2013
Test Date.....:	21 October 2014 to 05 November 2014
Issued Date.....:	06 November 2014
Report Number.....:	POCE14101638ARF
Test Engineer.....:	Bill Jing
Reviewed By.....:	Michael MS
Prepared By.....:	Shenzhen POCE Technology Co., Ltd. H Building, Hongfa Science and Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, China Tel: 86-755-2911 3252 Fax: 86-755-2911 3135

Table of Contents

1.0 General Information	3
1.1 Client Details	3
1.2 Test Lab Details	3
1.3 Description of E.U.T.	4
1.4 Block Diagram of EUT Configuration	4
1.5 AE used during the test	4
2.0 Test Summary	5
3.0 E.U.T. Modification	5
4.0 Measurement Uncertainty	5
5.0 Antenna Requirement	6
5.1 Applicable Standard	6
5.2 Antenna Specification	6
6.0 Power Line Conducted Emission Test	7
6.1 Test Equipment	7
6.2 Test Method and test Procedure	7
6.3 E.U.T. Operating Condition	7
6.4 Power line conducted Emission Limit according to Paragraph 15.207	7
6.5 Test specification:	7
6.6 Test Result:	7
7.0 Manually Activated Transmitter	10
7.1 Test Equipment	10
7.2 Block diagram of Test setup	10
7.3 Limit	10
7.4 Test specification	10
7.5 Test result	10
8.0 Radiated Emission Test	12
8.1 Test Equipment	12
8.2 Test Method and test Procedure:	12
8.3 Block diagram of test setup	13
8.4 E.U.T. Operating Condition	13
8.5 Radiated Emission Limit	14
8.6 Test specification:	15
8.7 Test result	15
9.0 Occupied Bandwidth	19
9.1 Block diagram of Test setup	19
9.2 Test Specification	19
9.3 Test Equipment	19
9.4 Limit	19
9.6 Test Result	20

1.0 General Information

1.1 Client Details

Applicant:	Shenzhen City Youdaxing Electronic Co., Ltd.
Address:	Building 19, Dongbao Community, Dalangshan, Shajing Town, Shenzhen, China.
Manufacturer:	Shenzhen City Youdaxing Electronic Co., Ltd.
Address:	Building 19, Dongbao Community, Dalangshan, Shajing Town, Shenzhen, China.

1.2 Test Lab Details

Name :	Shenzhen POCE Technology Co.,Ltd.
Address:	Room 502, Bldg. 1, Xinghua Garden, Baoan Road Xixiang, Baoan District, Shenzhen, China
Telephone:	86-755-29113252
Fax:	86-755-29113135

Site Listed with Federal Communication Commission

Registration Number: 222278

For 3m chamber

1.3 Description of E.U.T.

Product:	Bark Collar
Model No.:	160
Additional Model No.	161, 162, 163, 164, 165, 166, 998, 850, 613
Brand Name:	A+ TAINER
Rating:	DC 3.7V by rechargerable lithium battery.
Modulation Type:	ASK
Channel Spacing:	N.A.
Operation Frequency	433.92MHz
Antenna Designation	An integral antenna and the maximum gain is 0 dBi

1.4 Block Diagram of EUT Configuration



1.5 AE used during the test

Equipment type	Model	Manufacturer	FCC Approval
N.A.			
N.A.			
N.A.			

2.0 Test Summary

Section in CFR 47	Test Item	Result
15.203	Antenna Requirement	Complies
15.207	AC Power LineConducted Emission	N.A.
15.231(a)	Manually Activated Transmitter	Complies
15.231(b), 15.205, 15.209, 15.35	Radiated Emission Test	Complies
15.231(c)	Occupied Bandwidth	Complies

3.0 E.U.T. Modification

No modification by *Shenzhen POCE Technology Co., Ltd.*

4.0 Measurement Uncertainty

(95% confidence levels, k=2)

No.	Item	MU
1.	Radio Frequency	$\pm 1 \times 10^{-9}$
2.	Temperature	$\pm 0.1^{\circ}\text{C}$
3.	Humidity	$\pm 1.0\%$
4.	RF power, conducted	$\pm 0.34\text{dB}$
5.	Spurious emissions, conducted	$\pm 2.72\text{dB}$
6.	All emissions, radiated	$\pm 3.84\text{dB}$

5.0 Antenna Requirement

5.1 Applicable Standard

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.

5.2 Antenna Specification

The E.U.T. has An integral antenna and no consideration of replacement. Therefore the E.U.T. is considered sufficient to comply with the provision.



Antenna.

6.0 Power Line Conducted Emission Test

6.1 Test Equipment

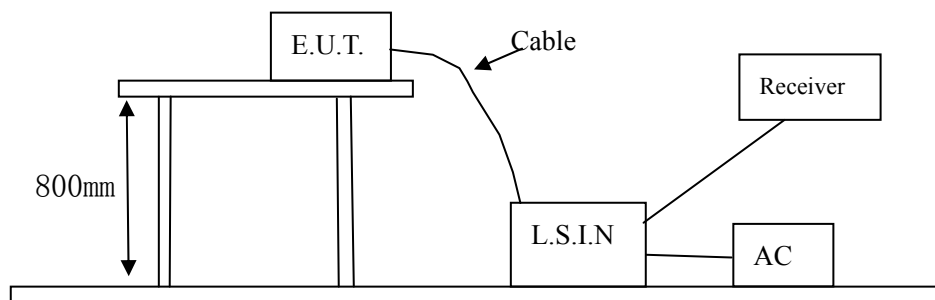
Instrument Type	Model	Serial No.	Manufacturer	Date of Cal.	Due Date
EMI Test Receiver	ESCS30	100139	R&S	Nov. 20, 2013	Nov. 19, 2014
LISN	LS16C	16010222119	AFJ	Nov. 20, 2013	Nov. 19, 2014

6.2 Test Method and test Procedure

The E.U.T. was tested according to ANSI C63.10-2009. The Frequency spectrum From 0.15MHz to 30MHz was investigated.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



6.3 E.U.T. Operating Condition

Operating condition is according to ANSI C63.10 -2009

- 1) Setup the E.U.T. and simulators as shown on the following
- 2) Enable AF signal and confirm E.U.T. active to normal condition

6.4 Power line conducted Emission Limit according to Paragraph 15.207

Frequency(MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

- Notes:
1. *Decreasing linearly with logarithm of frequency.
 2. The tighter limit shall apply at the transition frequencies

6.5 Test specification:

Environmental conditions: Temperature: 23° C Humidity: 51% Atmospheric pressure: 103kPa

6.6 Test Result:

Remark: The E.U.T. is powered by battery, so the test item is N.A.

Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

E.U.T. Description:	
Operation Mode:	
Tested By:	
Test Date:	

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s

Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Line		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--

Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

E.U.T. Description:	
Operation Mode:	
Tested By:	
Test Date:	

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s

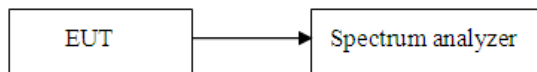
Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--

7.0 Manually Activated Transmitter

7.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	Nov. 20, 2013	Nov. 19, 2014

7.2 Block diagram of Test setup



7.3 Limit

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released; A transmitter activated automatically shall cease transmission within 5 seconds after activation.

7.4 Test specification

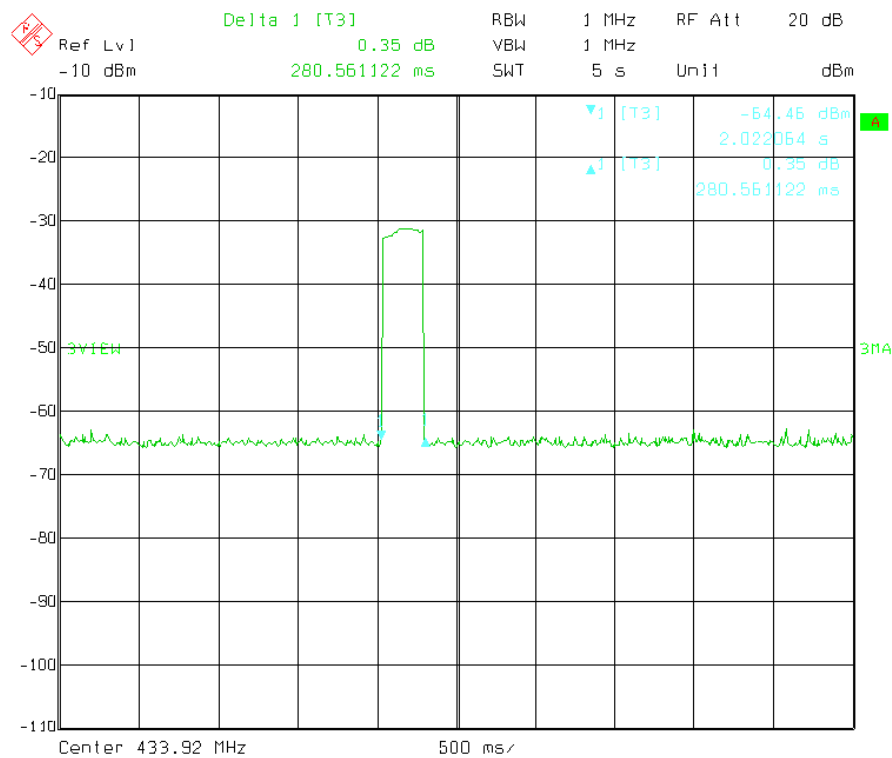
Environmental conditions: Temperature 23° C Humidity: 50% Atmospheric pressure: 103kPa

7.5 Test result

Pass

Test data

Working Mode	Working Frequency(MHz)	Activate Time(s)	Limit(s)
Transmitting	433.92	0.281	5



8.0 Radiated Emission Test

8.1 Test Equipment

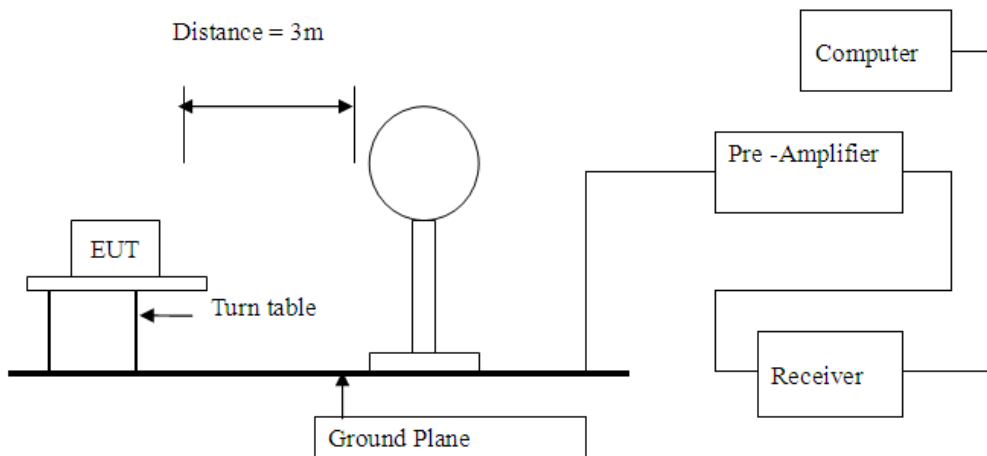
Instrument Type	Model	Serial No.	Manufacturer	Date of Cal.	Due Date
ESPI Test Receiver	ESPI 3	100379	ROHDE&SCHWARZ	Nov. 20, 2013	Nov. 19, 2014
Spectrum Analyzer	FSEM	848597/001	ROHDE&SCHWARZ	Nov. 20, 2013	Nov. 19, 2014
Pre-amplifier	LNA6900	--	Teseq	Nov. 21, 2013	Nov. 20, 2014
Pre-amplifier	8447D	83153007374	Agilent	Nov. 21, 2013	Nov. 20, 2014
Pre-amplifier	8449B	3008A01738	Agilent	Nov. 21, 2013	Nov. 20, 2014
Loop antenna	PLA-1030/B	1029	A.R.A.	Nov. 21, 2013	Nov. 20, 2014
Ultra Broadband ANT	HL562	100157	ROHDE&SCHWARZ	Nov. 21, 2013	Nov. 20, 2014
Horn Antenna	3117	--	ETS LINDGREN	Nov. 21, 2013	Nov. 20, 2014

8.2 Test Method and test Procedure:

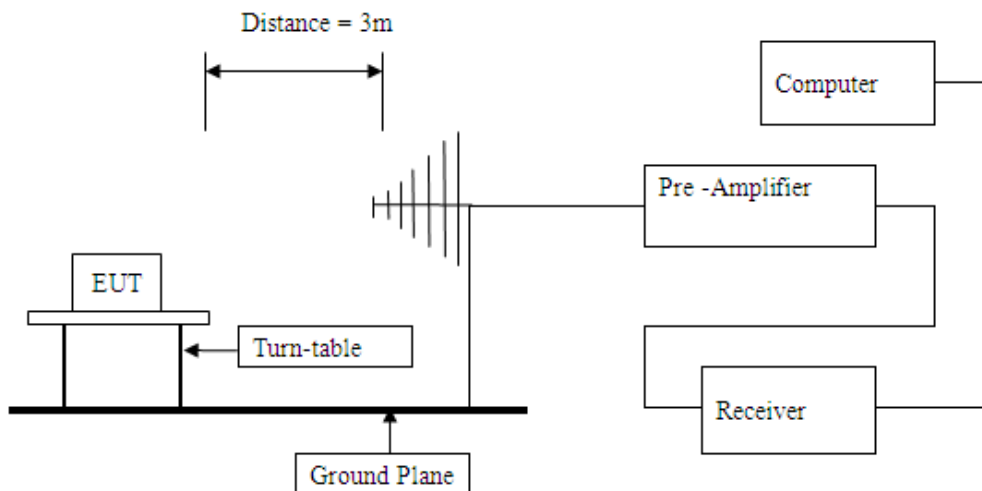
- 1) The E.U.T. was tested according to ANSI C63.10 –2009.
- 2) The E.U.T., peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2009.
- 3) The frequency spectrum from 9kHz to 5GHz was investigated. All readings from 9kHz to 30MHz are quasi-peak values with a resolution bandwidth of 10 kHz, measured with loop antenna. All readings from 30MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz, measured with Bi-log antenna. All readings are above 1 GHz are peak values with a resolution bandwidth of 1 MHz, measured with horn antenna.
- 4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for above 30MHz each frequency. The antenna high is 1 m to find the maximum emission for each frequency below 30MHz
- 5) The antenna polarization: Vertical polarization and Horizontal polarization.

8.3 Block diagram of test setup

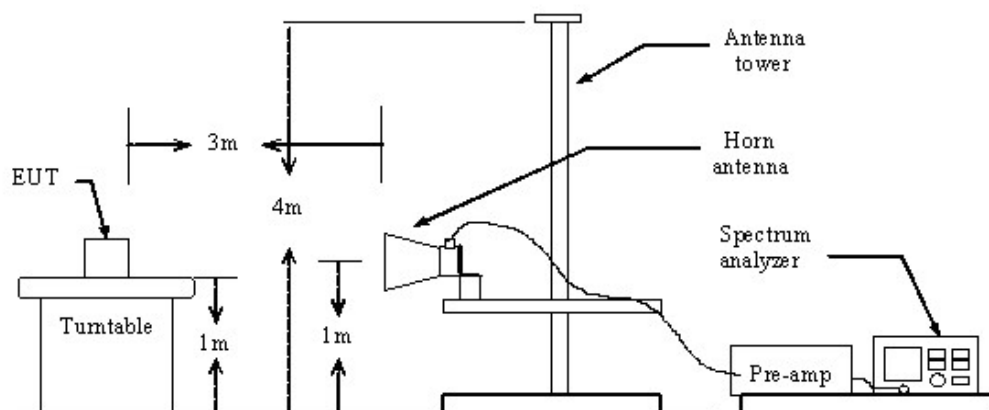
Block diagram of Test setup for frequency below 30MHz



Block diagram of Test setup for frequency from 30MHz to 1GHz



Block diagram of Test setup for frequency above 1GHz



8.4 E.U.T. Operating Condition

Operating condition is according to ANSI C63.10-2009 & ANSI C63.4-2003

8.5 Radiated Emission Limit

According to 15.231(b) requirements, the field strength of emissions from intentional radiators operated under this section shall not exceed the following

Fundamental Frequency (MHz)	Filed Strength of Fundamental (microvolts/meter)	Filed Strength of Spurious Emission (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750*	125 to 375*
174-260	3750	375
260-470	3750 to 12500*	375 to 1250*
Above 470	12500	1250
*Linear interpolations		
[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, $\mu\text{V/m}$ at 3 meters = $56.81818(F) - 6136.3636$; for the band 260-470 MHz, $\mu\text{V/m}$ at 3 meters = $41.6667(F) - 7083.3333$. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]		

For this E.U.T.

Working Frequency(MHz)	Filed Strength of Fundamental(dB $\mu\text{V/m}$)	Filed Strength of Spurious Emission(dB $\mu\text{V/m}$)
433.92	80.8	60.8
Intentional radiators operating under the provisions of this Section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions.		

According to 15.35, on any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths, unless otherwise specified the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test.

According to 15.231(b), The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in Section 15.209, whichever limit permits a higher field strength.

Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	$20\log 2400/F$ (kHz) + 80
0.490-1.705	3	$20\log 24000/F$ (kHz) + 40
1.705-30	3	$20\log 30 + 40$
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1) RF Voltage (dBuV) = 20 log RF Voltage (uV)

- 2) In the Above Table, the tighter limit applies at the band edges.
- 3) Distance refers to the distance in meters between the measuring instrument antenna and the E.U.T.
- 4) This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 5) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula $Ld1 = Ld2 * (d2/d1)$

8.6 Test specification:

Environmental conditions: Temperature 24° C Humidity: 51% Atmospheric pressure: 103kPa

8.7 Test result

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp (dB)	Final Level (dBuV/m)	Limit (dBuV/m)	Remark	Antenna Polarity
433.92	86.80	17.56	0.81	26.88	78.29	100.8	Peak	Horizontal
433.92	83.66	17.56	0.81	26.88	75.15	100.8	Peak	Vertical

Frequency (MHz)	Peak Emission Level (dBμV/m)	AV Factor (dB)	AV Emission Level (dBμV/m)	Limit (dBμV/m)	Remark	Antenna Polarity
433.92	78.29	-6.56	71.73	80.8	AV	Horizontal
433.92	75.15	-6.56	68.59	80.8	AV	Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp (dB)	Final Level (dBuV/m)	Limit (dBuV/m)	Remark	Antenna Polarity
66.3816	29.28	14.52	0.46	26.84	17.42	80.8	Peak	Horizontal
108.1362	27.34	15.24	0.58	26.81	16.35	80.8	Peak	Horizontal
255.6275	26.29	16.82	0.84	26.91	17.04	80.8	Peak	Horizontal
867.8400	43.61	19.67	1.76	26.75	38.29	80.8	Peak	Horizontal
1301.7600	41.52	21.05	2.34	26.38	38.53	74.0	Peak	Horizontal
42.2684	28.29	13.94	0.42	26.82	15.83	80.8	Peak	Vertical
103.3461	27.14	14.86	0.59	26.91	15.68	80.8	Peak	Vertical
240.1068	26.62	16.64	0.78	26.34	17.7	80.8	Peak	Vertical
867.8400	38.34	18.53	0.92	26.75	31.04	80.8	Peak	Vertical
1301.7600	36.19	21.08	2.34	26.38	33.23	74.0	Peak	Vertical

Frequency (MHz)	Peak Emission Level (dBμV/m)	AV Factor (dB)	AV Emission Level (dBμV/m)	Limit (dBμV/m)	Remark	Antenna Polarity
66.3816	17.42	-6.56	10.86	60.8	AV	Horizontal
108.1362	16.35	-6.56	9.79	60.8	AV	Horizontal
255.6275	17.04	-6.56	10.48	60.8	AV	Horizontal
867.8400	38.29	-6.56	31.73	60.8	AV	Horizontal
1301.7600	38.53	-6.56	31.97	54.0	AV	Horizontal
42.2684	15.83	-6.56	9.27	60.8	AV	Vertical
103.3461	15.68	-6.56	9.12	60.8	AV	Vertical
240.1068	17.7	-6.56	11.14	60.8	AV	Vertical
867.8400	31.04	-6.56	24.48	60.8	AV	Vertical
1301.7600	33.23	-6.56	26.67	54.0	AV	Vertical

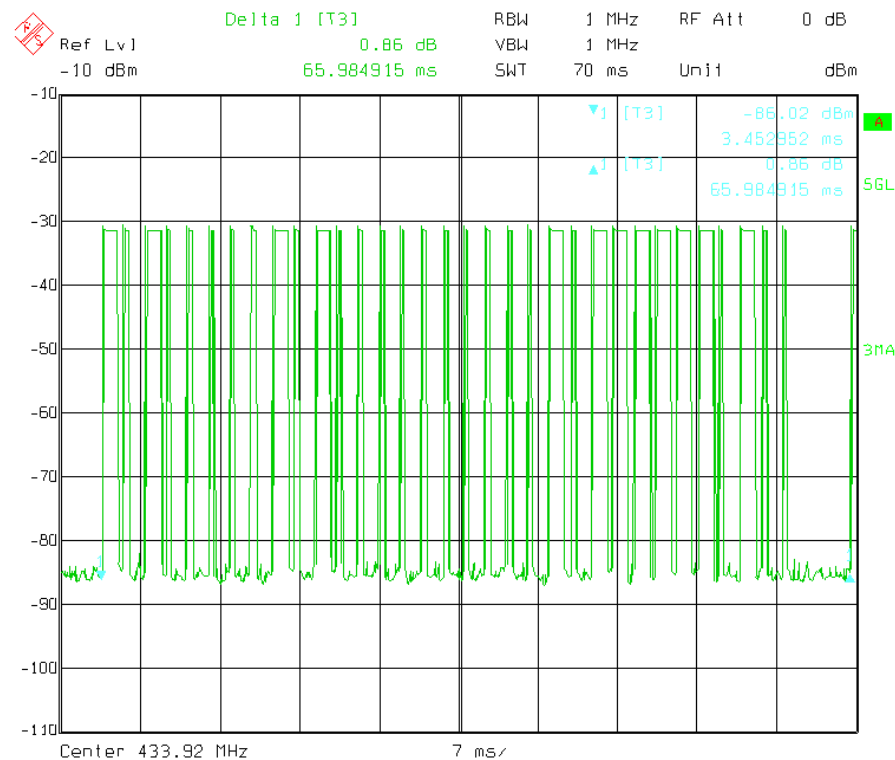
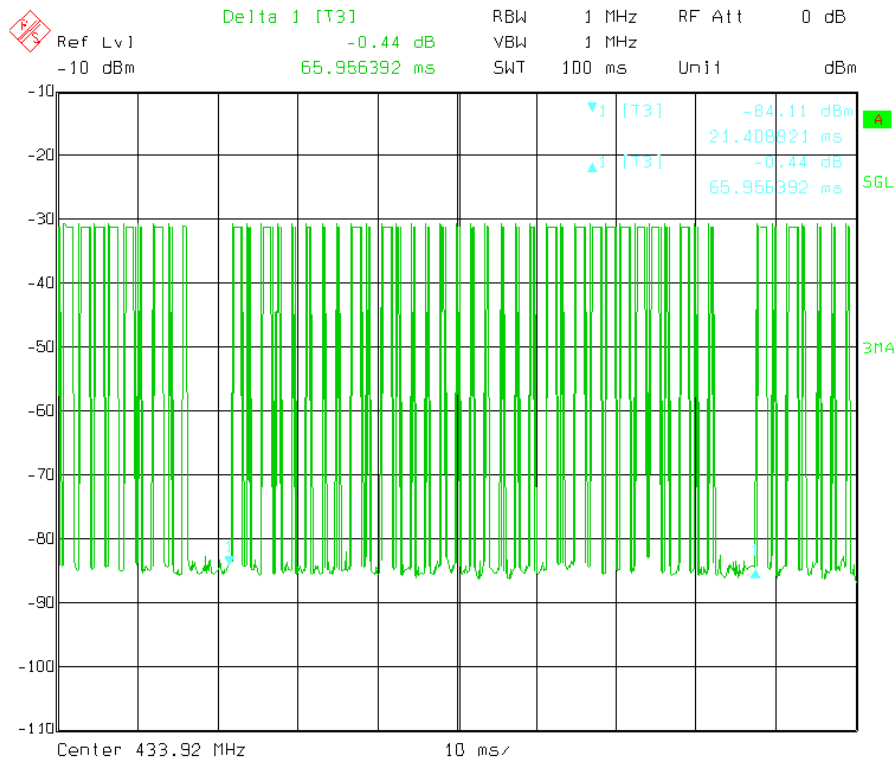
- Note:
- 1) Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor
 - 2) Test Frequency form 9kHz to 5GHz, the emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement
 - 3) AV=Average
 - 4) AV Emission level = Peak Emissions level +AV Factor
 - 5) AV Factor = 20 log(Duty Cycle)

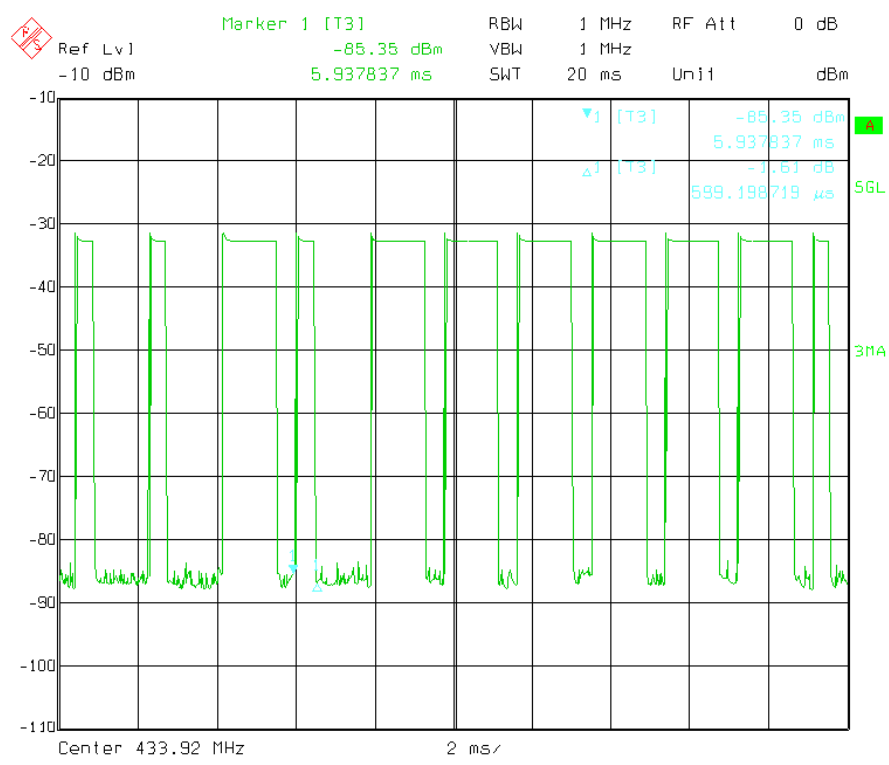
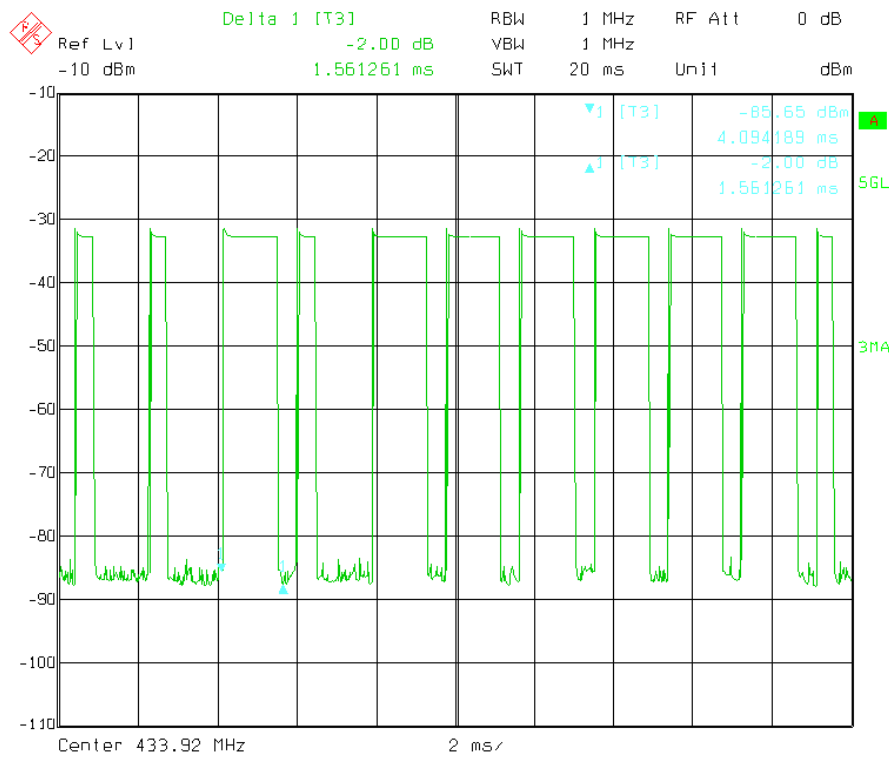
Duty cycle test data as follows

Total time one cycle	Effective time one cycle	Duty Cycle	AV Factor(dB)
65.98	31.32	0.47	-6.56

Note: Effective time one cycle=1.56*12+0.60*21=31.32

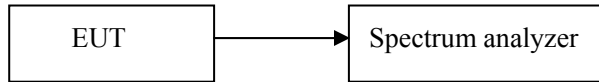
Duty Cycle= Effective time one cycle/ Total time one cycle=0.47





9.0 Occupied Bandwidth

9.1 Block diagram of Test setup



9.2 Test Specification

Environmental conditions: Temperature 22° C Humidity: 50% Atmospheric pressure: 103kPa

9.3 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	Nov. 20, 2013	Nov. 19, 2014

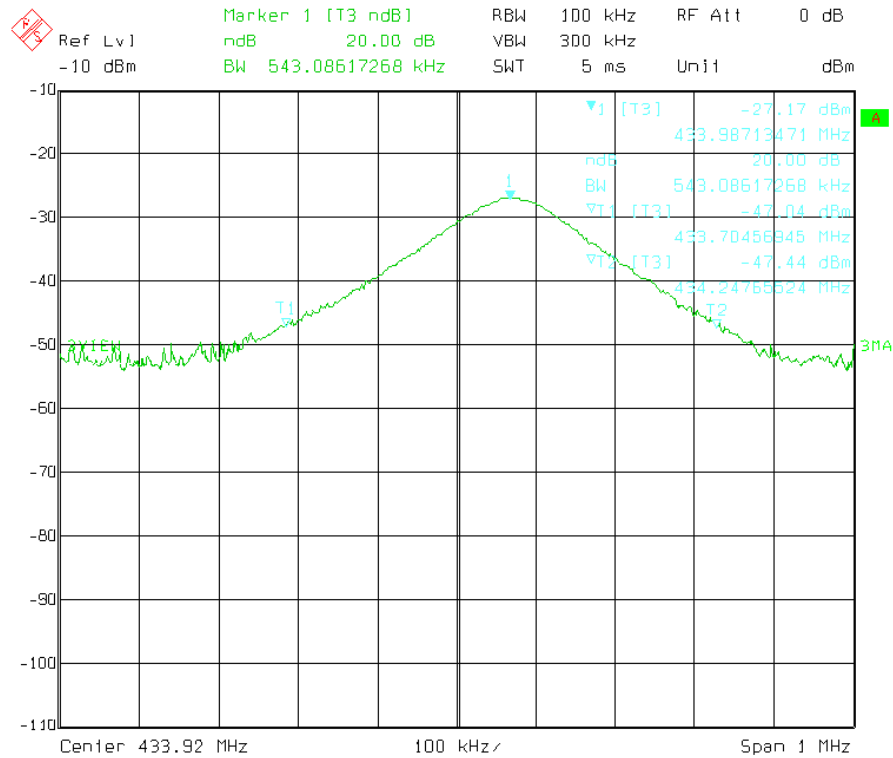
9.4 Limit

According to 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the centre frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

9.6 Test Result

Channel	20dB Bandwidth (kHz)	Limit (kHz)	Conclusion
(Low)	543.1	1084.8	PASS

Note: Limit = 433.92MHz *0.25% = 1084.8 kHz



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