



World Standardization Certification & Testing CO.,LTD
World Standardization Safety and EMC Testing Centre

FCC ID TEST REPORT

for

Wireless doorbell

Trade Mark: N/A

Model: C-136;C-138;C-139;S-136;S-138;S-139;K-136;K-138;K-139;2S-136;
2S-138; 2S-139;S136-2;S138-2;S-139-2;2C-136;2C-138; 2C-139;C136-2;
C-138-2; C139-2; C-126; C-128; C-129; S-126;S-128;S-129;D-290; E-291;
A-299; B298; S-289; T-288

Test Report Number: WSCT09080316E-T

Issued Date: September 4, 2009

Issued for

SHENZHEN YIROKA ELECTRONIC CO.,LTD

**2/F,5/B, Sanli industry park, Huangtian, Xixiang, Bao'an district, Shenzhen,
China**

Issued by:

WORLD STANDARDIZATION CERTIFICATION & TESTING CO., LTD.

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Revision History

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	WSCT09080316E-T	Initial Issue	ALL	Kallen Wang



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1 TEST RESULT CERTIFICATION

Product: Wireless doorbell

Model: C-136; C-138;C-139;S-136;S-138;S-139;K-136;K-138;K-139;2S-136;
 2S-138;2S-139;S136-2;S138-2;S-139-2;2C-136;2C-138;2C-139;C136-2;
 C-138-2;C139-2;C-126;C-128;C-129;S-126;S-128;S-129;D-290;E-291; A-299;
 B298; S-289; T-288

Trade Mark: N/A

Applicant: SHENZHEN YIROKA ELECTRONIC CO.,LTD
 2/F,5/B,Sanli industry park, Huangtian, Xixiang, Bao'an district, Shenzhen, China

Factory: SHENZHEN YIROKA ELECTRONIC CO.,LTD
 2/F,5/B,Sanli industry park, Huangtian, Xixiang, Bao'an district, Shenzhen, China

Tested Date: August 17~ 31, 2009

Test Voltage: DC 12V

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC PART 15C	No non-compliance noted
ANSI C63.4: 2003	No non-compliance noted

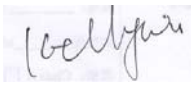
Note: 1. The test result judgment is decided by the limit of measurement standard
 2. The information of measurement uncertainty is available upon the customer's request.

Deviation from Applicable Standard
None

The above equipment has been tested by World Standardization Certification & Testing Co., Ltd and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Alan Geng
 (Alan Geng)

Date: 2009-09-04

Check By: 
 (Kelly Wu)

Date: 2009-09-04

Approved By: 
 (Kallen Wang)

Date: 2009-09-04



2 TEST RESULT SUMMARY

Test Item	Test Result
Conduct Emission	N/A
Radiation Emission	Pass
Bandwidth Test	Pass
Dwell time Test	Pass

- Note:**
1. The test result judgment is decided by the limit of test standard
 2. The information of measurement uncertainty is available upon the customer's request.
 3. N/A means to no applicable.



3 EUT DESCRIPTION

Product	Wireless doorbell
Brand Name	n.a.
Model	S-138
Applicant	SHENZHEN YIROKA ELECTRONIC CO.,LTD
Housing material	Plastic
EUT Type	<input checked="" type="checkbox"/> Engineering Sample. <input type="checkbox"/> Product Sample, <input type="checkbox"/> Mass Product Sample.
Serial Number	n.a.
Antenna Type	Integral Antenna
EUT Power Rating	DC12V
Temperature Range(Operating)	+15 ~+ 35°C
Type of the Equipment	Combined Equipment
Operating Frequency	433.92MHz
Number of Channels	1 Channels
Channel Separation	n.a.
Modulation type	ASK
Dwell time	less than 5s

n.a. mean to no applicable

Models Difference

Different Model	C-136;C-138;C-139;S-136; S-139;K-136;K-138;K-139;2S-136; 2S-138;2S-139;S136-2;S138-2;S-139-2;2C-136;2C-138;2C-139; C136-2;C-138-2;C139-2;C-126;C-128;C-129;S-126;S-128;S-129; D-290;E-291; A-299; B298; S-289; T-288
Different description	All models are identical except for the model name



4 TEST METHODOLOGY

4.1 DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and configuration, which produced the worst emission levels, was selected and recorded in this report.

The measurement was performed at 3 axis for lie orientation, side orientation and stand orientation. The lie orientation is the worst mode, so only the worst mode test data was reported.

the following test mode was recorder in this report.

Test Item	Test mode
Conduct Emission	N/A
Radiation Emission	TX mode
Bandwidth Test	TX mode
Dwell time Test	TX mode

4.2 EUT SYSTEM OPERATION

1. Set up EUT with the relative support equipments.
2. Make sure the EUT worked normally during the test.



5 SETUP OF EQUIPMENT UNDER TEST

5.1 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2 CONFIGURATION OF SYSTEM UNDER TEST



(EUT:Wireless doorbell)



6 FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at **1-2/F, DaChong Science&Technology Building, No.28 of Tonggu Road,Nanshan District, ShenZhen.PRC**

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 15. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC (The certificate registration number is 276008)
	TIMCO (The certificate registration number is Q2001)
Japan	VCCI (The certificate registration number is C-2912, R-2662)
Canada	INDUSTRY CANADA (The certificated registration number is 46405-7700)
Germany	TUV (The certificate registration number is UA50138086-0001,UA50138086-0002)
	EMCC (The certificated registration number is 080380)
China	CNAS (The certificated registration number is L3732)

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.wsct.org.cn>

6.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty	
Conducted emissions	450kHz~30MHz	+/- 3.59dB	
Radiated emissions	Horizontal	30MHz ~ 200MHz	+/- 4.77dB
		200MHz ~1000MHz	+/- 4.93dB
	Vertical	30MHz ~ 200MHz	+/- 5.04dB
		200MHz ~1000MHz	+/- 4.93dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



7 CONDUCTED EMISSION MEASUREMENT

7.1 LIMITS

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

7.2 TEST INSTRUMENTS

Conducted Emission Test Site G				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100005	06/23/2009
LISN	AFJ	LS16	16010222119	04/02/2009
LISN(EUT)	Meestec	AN3016	04/10040	04/02/2009

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).
 2. N.C.R = No Calibration Request.

7.3 TEST PROCEDURES

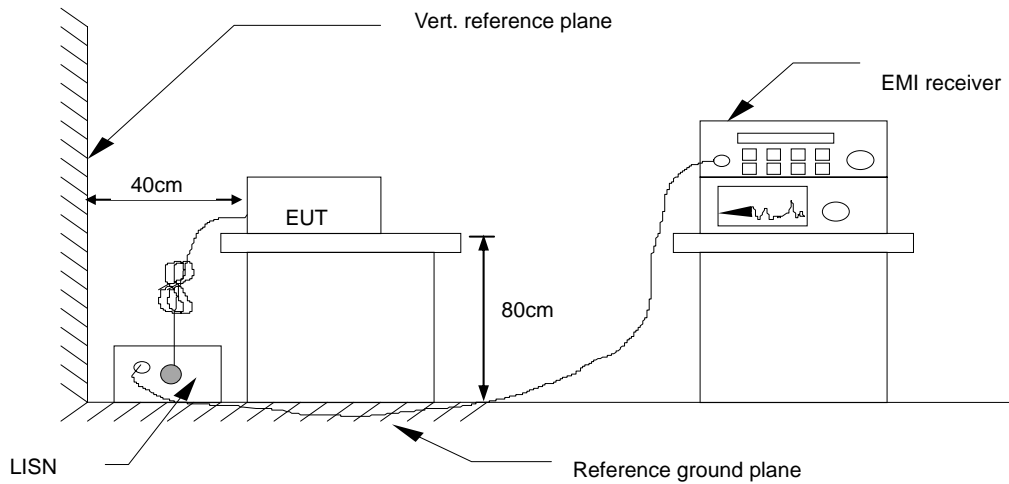
The EUT was put on a wooden table which was 0.8metre high above the ground and connected to the AC mains through a Artificial Mains Network (A.M.N). The mains lead in excess of 1 m separating the EUT from the AMN was folded back and forth parallel to the lead so as to form a bundle with a length of 0.3m to 0.4m. The EUT was kept 0.4m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during conducted emission test.

The bandwidth of the test receiver (ESCI) was set at 9KHz.

The frequency range from 150 KHz to 30 MHz was investigated.

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

7.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.5. TEST RESULTS

No applicable, due to this product is supplied for DC power



8 RADIATED EMISSION MEASUREMENT

8.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FCC Part 15 C (Section:15.205; Section:15.209; Section:15.231(b))

According to 15.231 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency(MHz)	Field Strength of Fundamental		Field Strength of Spurious	
	uV/meter	dBuV/meter	uV/meter	dBuV/meter
40.66 - 40.70	2250	67	225	47
70 -130	1250	62	125	42
130 - 174	1250 to 3750	62 to 71.5	125 to 375	42 to 51.5
174 - 260	3750	71.5	375	51.5
260 - 470	3750 to 12500	71.5 to 82	375 to 1250	51.5 to 62
Above 470	12500	82	1250	62

Note: (1) Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174MHz, uV/m at 3 meters = $56.81818(F) - 6136.3636$; for the band 260-470MHz, uV/m at 3 meters = $41.6667(F) - 7083.333$. The maximum permitted unwanted emission level is 20dB below the maximum permitted fundamental level.

(2) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges. Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength uV/meter	Measurement distance (meters)
0.009-0.490	$2400/F(\text{kHz})$	300
0.490-1.705	$24000/F(\text{kHz})$	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



8.2 TEST INSTRUMENTS

Radiated Emission Test Site 966				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	06/23/2010
Spectrum Analyser	ROHDE&SCHWARZ	FSU	100114	06/23/2010
Preamplifier	H.P.	HP8447E	2945A02715	06/15/2010
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/10/2010
Preamplifier	Compliance Direction	PAM0118	1360976	06/15/2010
Horn Antenna	Compliance Engineer	CE18000	001	06/10/2010
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	06/09/2010
System-Controller	CCS	N/A	N/A	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R

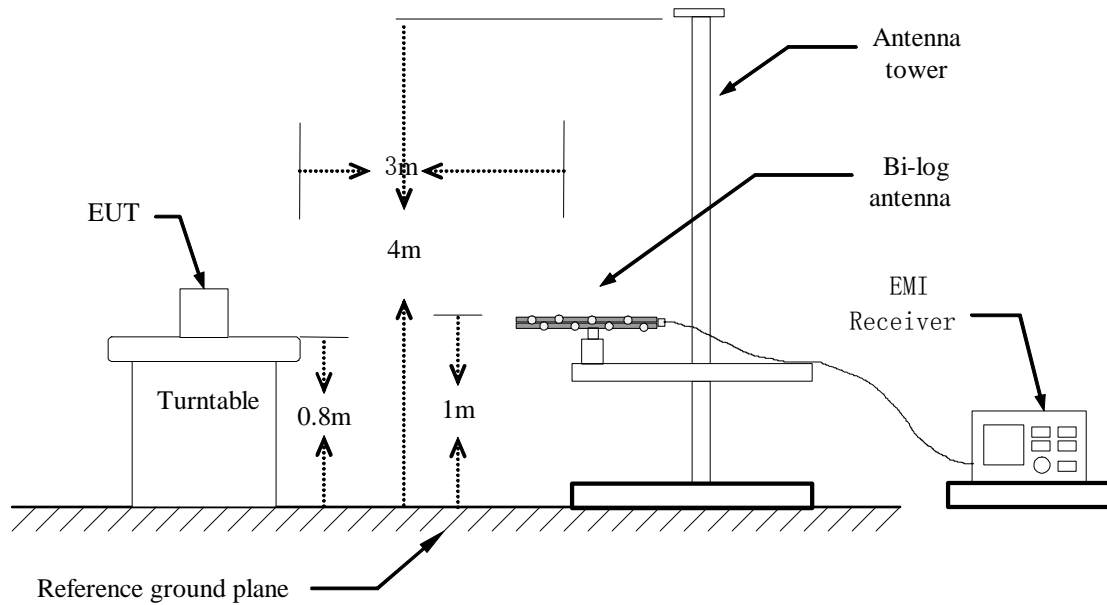
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).
 2. N.C.R = No Calibration Request.

8.3 TEST PROCEDURES

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency of 30 MHz~1000MHz ,the measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna was used as a receiving antenna. At the frequency of 1 GHz -5GHz ,the measuring antenna stands 1 m for horizontal and vertical polarizations. The horn antenna was used as a receiving antenna. The bandwidth setting on the test receiver was 120 KHz(30 MHz~1000MHz). The bandwidth setting on the test receiver was 1MHz(1 GHz~5GHz). The test data of the worst-case condition(s) was recorded.

8.4 TEST SETUP

Below 1G



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



8.5 TEST RESULTS

Model No.	S-138	Test Mode	TX mode
Environmental Conditions	25°C, 55% RH	Test Result	Pass

Frequency(MHz)	Orientation	Level(dBuV)	Limit(dBuV)	Margin	Detector	Result
433.92	H	72.51	100.82	-28.31	Peak	Pass
433.92	H	54.33	80.82	-26.49	AV	Pass
53.150	H	34.80	40.00	-5.20	QP	Pass
124.30	H	35.80	43.50	-7.70	QP	Pass
868.93	H	59.09	80.82	-21.73	Peak	Pass
868.93	H	40.91	60.82	-19.91	AV	Pass
1300.76	H	60.31	80.82	-20.51	Peak	Pass
1300.76	H	42.13	60.82	-18.69	AV	Pass
1735.68	H	63.25	80.82	-17.57	Peak	Pass
1735.68	H	45.07	60.82	-15.75	AV	Pass
2169.60	H	65.00	80.82	-15.82	Peak	Pass
2169.60	H	46.82	60.82	-14.00	AV	Pass
433.92	V	67.77	100.82	-33.05	Peak	Pass
433.92	V	49.59	80.82	-31.23	AV	Pass
53.818	V	33.20	40.00	-6.80	QP	Pass
120.20	V	34.11	43.50	-9.39	QP	Pass
868.93	V	48.26	80.82	-32.56	Peak	Pass
868.93	V	30.08	60.82	-30.74	AV	Pass
1300.76	V	61.50	80.82	-19.32	Peak	Pass
1300.76	V	43.32	60.82	-17.50	AV	Pass
1735.68	V	64.00	80.82	-16.82	Peak	Pass
1735.68	V	45.82	60.82	-15.00	AV	Pass
2169.60	V	65.80	80.82	-15.02	Peak	Pass
2169.60	V	47.62	60.82	-13.20	AV	Pass

Note: 1. Level (dBuV) =Receiver reading level (dBuV) + Corr. Factor (dB)
 2. AV level =PK level-|20logdutycycle|
 3. 20logdutycycle=-18.18

9 20dB OCCUPIED BANDWIDTH MEASUREMENT

9.1 LIMITS OF BAND

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

9.2 TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	06/23/2010
Pre Amplifier	H.P.	HP8447E	2945A02715	06/15/2010
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/10/2010

9.3 TEST PROCEDURE

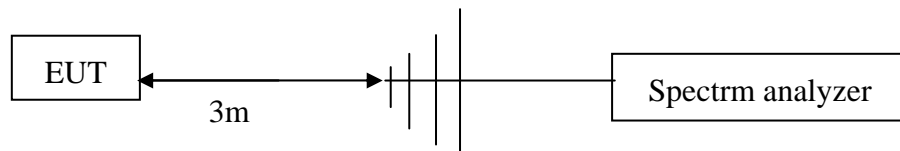
The EUT was placed on a turn table was 0.8meter above ground.

The signal was coupled to the specturm analyzer through an antenna.

Set SPA RBW:100KHz,VBW:100KHz sweep time :auto

Set SPA trace max hold,then view.

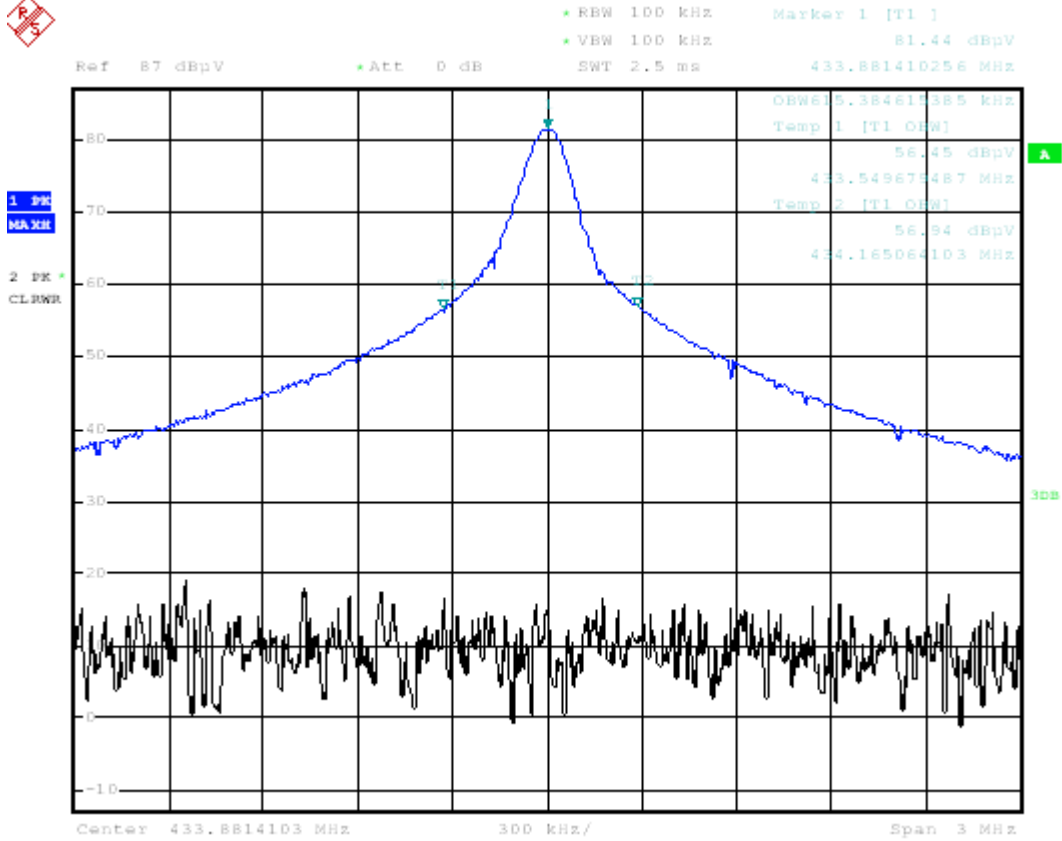
9.4 TEST SETUP



9.5 TEST RESULT

Frequency (MHz)	20dB bandwidth (KHz)	Maximum Limit (KHz)	Result
433.92	615	1084.8	Pass

Details please see the following test plots.



10 DWELL TIME MEASUREMENT

10.1 LIMIT OF DWELL TIME

The transmitting time shall not more than 5 seconds

10.2 TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	06/23/2010
Pre Amplifier	H.P.	HP8447E	2945A02715	06/15/2010
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/10/2010

10.3 TEST PROCEDURE

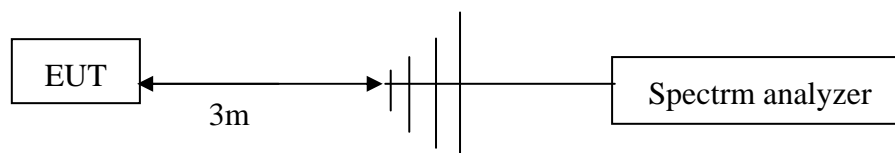
The EUT was placed on a turn table was 0.8meter above ground.

The signal was coupled to the specturm analyzer through an antenna.

Set SPA RBW:1MHz,VBW:1MHz Span:0Hz

Set SPA trace max hold,then view.

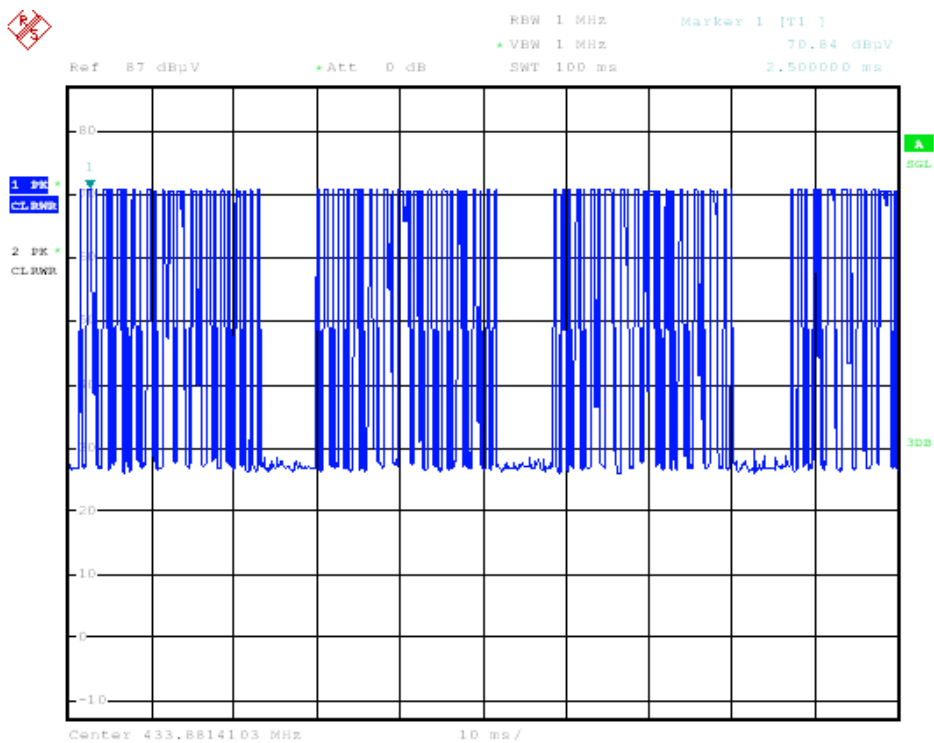
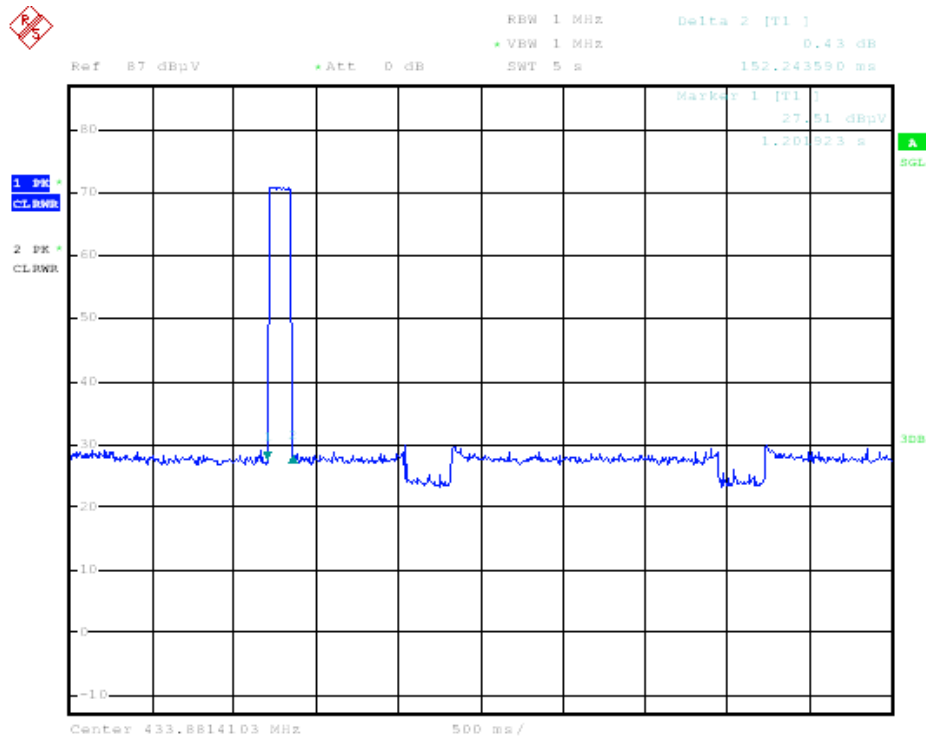
10.4 TEST SETUP



10.5 TEST RESULT

Transmission Limited Time (s)	Actual Transmission Time (s)	Result
≤ 5	1.2	Pass

Details please see the following test plots





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