APPLICATION CERTIFICATION
On Behalf of
Chuango Security Technology Co., Ltd.

P.I.R. Motion Detector
Model No.: PIR-900

FCC ID: RJYP900

Prepared for	:	Chuango Security Technology Co., Ltd.
Address	:	6-17, Overseas Students Pioneer Park, No. 108, Jia Economic & Technological Development Zone, Fuzhou 350015, China
Prepared by	:	ACCURATE TECHNOLOGY CO., LTD
Address	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report Number	:	ATE20122854
Date of Test	:	December 20-29, 2012
Date of Report	:	December 29, 2012

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Test Report Certification

Test Report Certification

Applicant	:	Chuango Security Technology Co., Ltd.
Manufacturer	:	Chuango Security Technology Co., Ltd.
EUT Description	:	P.I.R. Motion Detector
		(A) MODEL NO.: PIR-900
		(B) SERIAL NO.: N/A
		(C) POWER SUPPLY: DC 3V ("AA battery" 2×)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.231
ANSI 63.4: 2009

The device described above is tested by 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 15.231. The measurement results are contained in this test report and 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 ACCURATE TECHNOLOGY CO., LTD.

Date of Test : December 20-29, 2012

Prepared by : Apple

(Engineer)

Approved & Authorized Signer :

(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	P.I.R. Motion Detector
Model Number	:	PIR-900
Power Supply	:	DC 3V (“AAA battery” 2×)
Operation Frequency	:	315.8599MHz
Applicant	:	Chuango Security Technology Co., Ltd.
Address	:	6-17, Overseas Students Pioneer Park, No. 108, Jia Economic & Technological Development Zone, Fuzhou 350015, China
Manufacturer	:	Chuango Security Technology Co., Ltd.
Address	:	6-17, Overseas Students Pioneer Park, No. 108, Jia Economic & Technological Development Zone, Fuzhou 350015, China
Date of sample received	:	December 20, 2012
Date of Test	:	December 20-29, 2012

1.2.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm	:	ACCURATE TECHNOLOGY CO., LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.3.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 date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 8, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 8, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 8, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 8, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 8, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 8, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 8, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 8, 2012	Jan. 7, 2013

3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	N/A
Section 15.231(b)	Radiated Emission	Compliant
Section 15.231(c)	20dB Bandwidth	Compliant
Section 15.231(a)(1)	Release Time Measurement	Compliant
Section 15.203	Antenna Requirement	Compliant

The product is a manually operated Remote Control transmitter.
Section 15.231 (a) (2), (3), (4) and (5) are not applicable.

All normal using modes of the normal function were tested but only the worst test data of the worst mode is recorded by this report.

4. THE FIELD STRENGTH OF RADIATION EMISSION

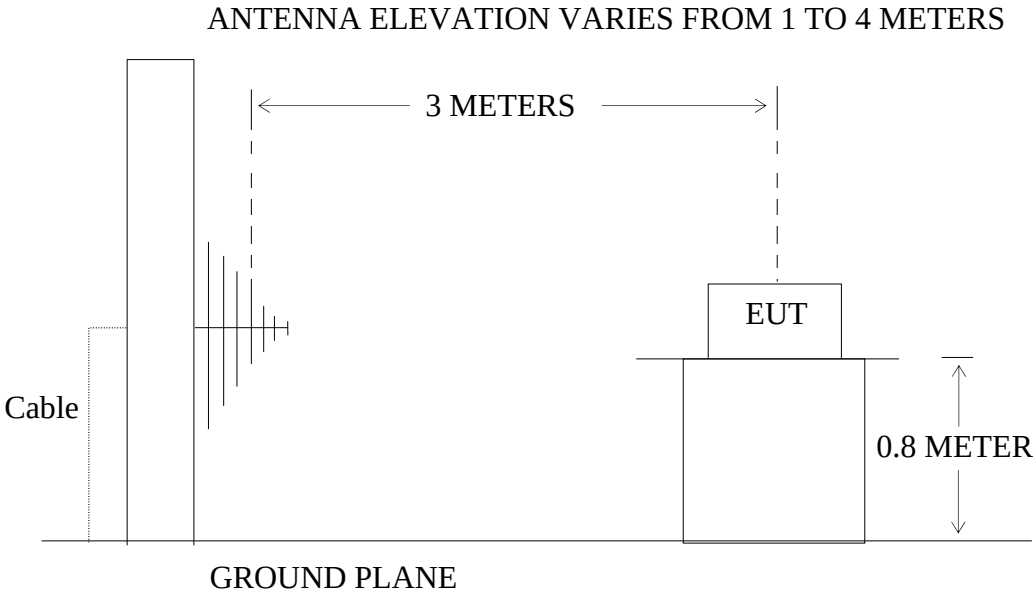
4.1.Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: P.I.R. Motion Detector)

4.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: P.I.R. Motion Detector)

4.2. The Field Strength of Radiation Emission Measurement Limits

4.2.1. Radiation Emission Measurement Limits According to FCC Part 15 Section 15.231(b)

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Average] [μV/m]	Field Strength of Spurious Emission [Average] [μV/m]
40.66-40.70	2250	225
70-130	1250	125
130-174	1250-3750	125-375
174-260	3750	375
260-470	3750-12500	375-1250
Above 470	12500	1250

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, uV/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

4.2.2. Restricted Band Radiation Emission Measurement Limits According to FCC part 15 Section 15.205 and Section15.209.

4.3. Configuration of EUT on Measurement

The following equipment is 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.

4.3.1. P.I.R. Motion Detector (EUT)

Model Number : PIR-900
Serial Number : N/A
Manufacturer : Chuango Security Technology Co., Ltd.

4.4. Operating Condition of EUT

4.4.1. Setup the EUT and simulator as shown as Section 4.1.

4.4.2. Turn on the power of all equipment.

4.4.3. Let the EUT work in TX mode measure it.

4.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter 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 bi-log 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 EUT location must be manipulated according to ANSI 63.4 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 120 kHz in 30-1000 MHz, and 1 MHz in 1000-5000 MHz.

The frequency range from 30 MHz to 5000 MHz is checked.

4.6. The Field Strength of Radiation Emission Measurement Results

PASS.

The frequency range 30MHz to 5000MHz is investigated.

Date of Test:	December 24, 2012	Temperature:	25°C
EUT:	P.I.R. Motion Detector	Humidity:	50%
Model No.:	PIR-900	Power Supply:	DC 3V
Test Mode:	TX	Test Engineer:	Pei

Frequency (MHz)	Reading (dBμV/m)	Factor Corr.	Average Factor	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	PEAK	(dB)	(dB)	AV	PEAK	AV	PEAK	AV	PEAK	
315.8599	**54.16**	**17.22**	**-8.59**	**62.79**	**71.38**	**75.7**	**95.7**	**-12.91**	**-24.32**	Horizontal
624.4895	19.50	23.94	-8.59	34.85	43.44	55.7	75.7	-20.85	-32.26	
1890.000	20.89	34.93	-8.59	47.23	55.82	55.7	75.7	-8.47	-19.88	
315.8599	**63.91**	**17.22**	**-8.59**	**72.54**	**81.13**	**75.7**	**95.7**	**-3.16**	**-10.57**	Vertical
938.7137	29.19	28.28	-8.59	45.88	54.47	55.7	75.7	-9.82	-21.23	
1260.000	22.93	30.87	-8.59	45.27	53.80	55.7	75.7	-10.43	-21.90	
1890.000	19.70	34.93	-8.59	46.04	54.63	55.7	75.7	-9.66	-21.07	

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. *: Denotes restricted band of operation.

   Measurements were made using a peak detector. Any emission falling within the restricted bands of FCC Part 15 Section 15.205 were compliance with the emission limit of FCC Part 15 Section 15.209.
3. 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

   Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
4. FCC Limit for Average Measurement = 41.6667(315.8599)-7083.3333 = 6077.5064 μV/m =75.7 dBμV/m
5. Pulse Desensitization Correction Factor

   Pulse Width (PW) = 25.59ms

   1/PW = 1/25.59ms = 0.0391 kHz

   RBW (100 kHz) > 1/PW (0.0391 kHz)

   Therefore PDCF is not needed
6. The spectral diagrams in appendix I display the measurement of peak values.
7. Average value= PK value + Average Factor (duty factor)

5. 20DB OCCUPIED BANDWIDTH

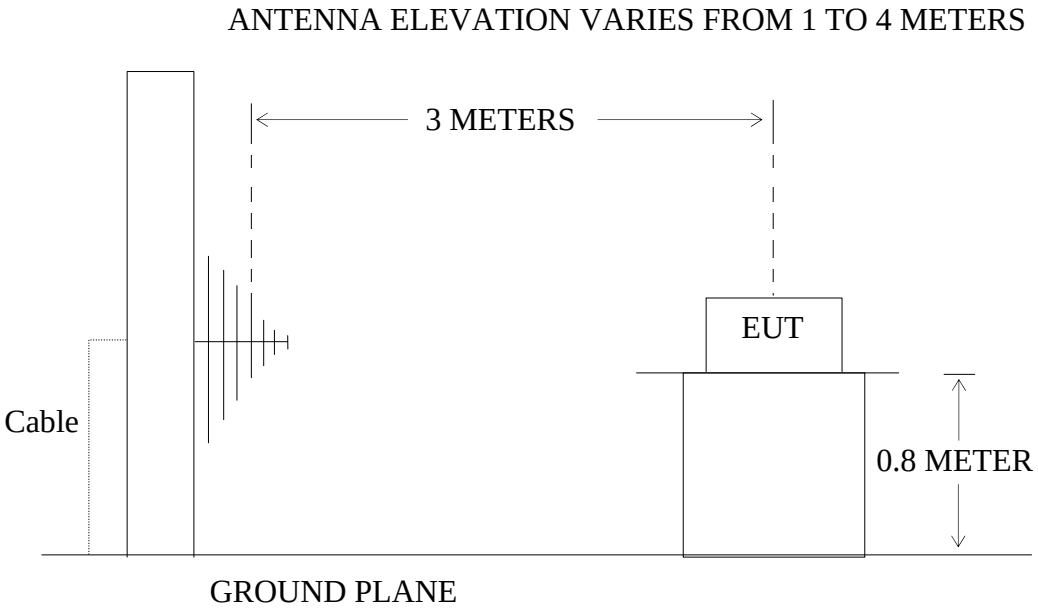
5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: P.I.R. Motion Detector)

5.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: P.I.R. Motion Detector)

5.2.The Bandwidth of Emission Limit According To FCC Part 15 Section

15.231(c)

The bandwidth of emission shall be no wider than 0.25% of the center frequency. Therefore, the bandwidth of the emission limit is 315.8599 MHz×0.25% = 789.6498 kHz. Bandwidth is determined at the two points 20 dB down from the top of modulated carrier.

5.3.EUT Configuration on Measurement

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

5.3.1.P.I.R. Motion Detector (EUT)

Model Number	**:**	PIR-900
Serial Number	**:**	N/A
Manufacturer	**:**	Chuango Security Technology Co., Ltd.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in TX mode measure it.

5.5.Test Procedure

5.5.1. Set SPA Center Frequency = Fundamental frequency, RBW = 10 kHz, VBW = 30 kHz, Span = 500 kHz.

5.5.2.Set SPA Max hold, Mark peak, -20 dB.

5.6.Measurement Result

The EUT does meet the FCC requirement.

-20 dB bandwidth = 40.0 kHz <789.6498 kHz.

The spectral diagrams in appendix I.

6. RELEASE TIME MEASUREMENT

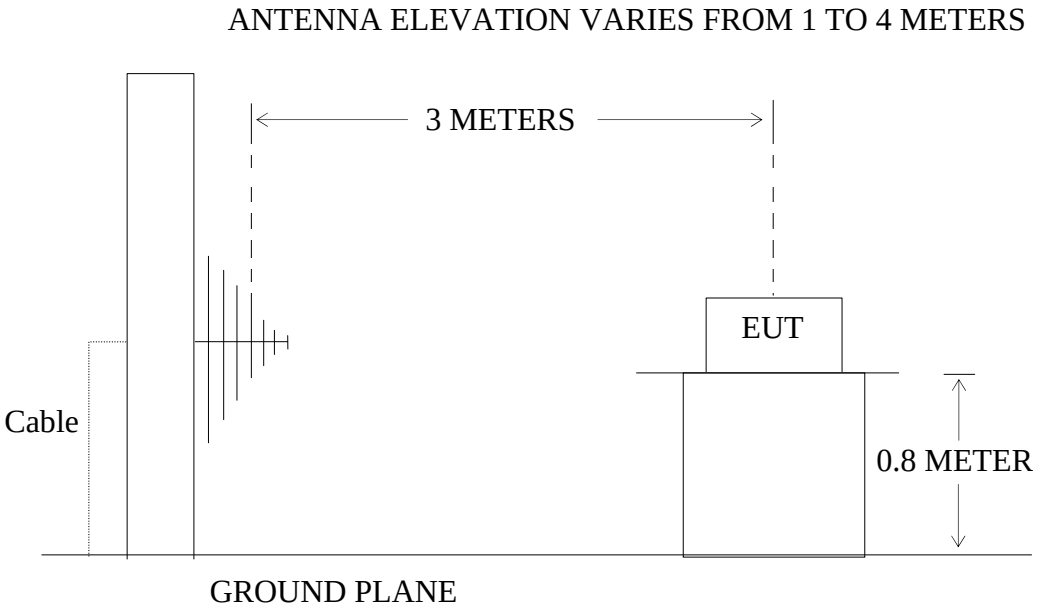
6.1.Block Diagram of Test Setup

6.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: P.I.R. Motion Detector)

6.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: P.I.R. Motion Detector)

6.2.Release Time Measurement According To FCC Part 15 Section 15.231(a)

Section 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.EUT Configuration on Measurement

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

6.3.1. P.I.R. Motion Detector (EUT)

Model Number	**:**	PIR-900
Serial Number	**:**	N/A
Manufacturer	**:**	Chuango Security Technology Co., Ltd.

6.4.Operating Condition of EUT

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

6.4.2.Turn on the power of all equipment.

6.4.3.Let the EUT work in TX mode measure it.

6.5.Test Procedure

6.5.1. Set SPA Center Frequency = Fundamental frequency, RBW = 100 kHz, VBW = 300 kHz, Span = 0 Hz. Sweep time = 10 s.

6.5.2.Set EUT as normal operation and press Transmitter button.

6.5.3.Set SPA View. Delta Mark time.

6.6. Measurement Result

The release time less than 5 seconds.

Release Time = 2.76s

The spectral diagrams in appendix I.

7. AVERAGE FACTOR MEASUREMENT

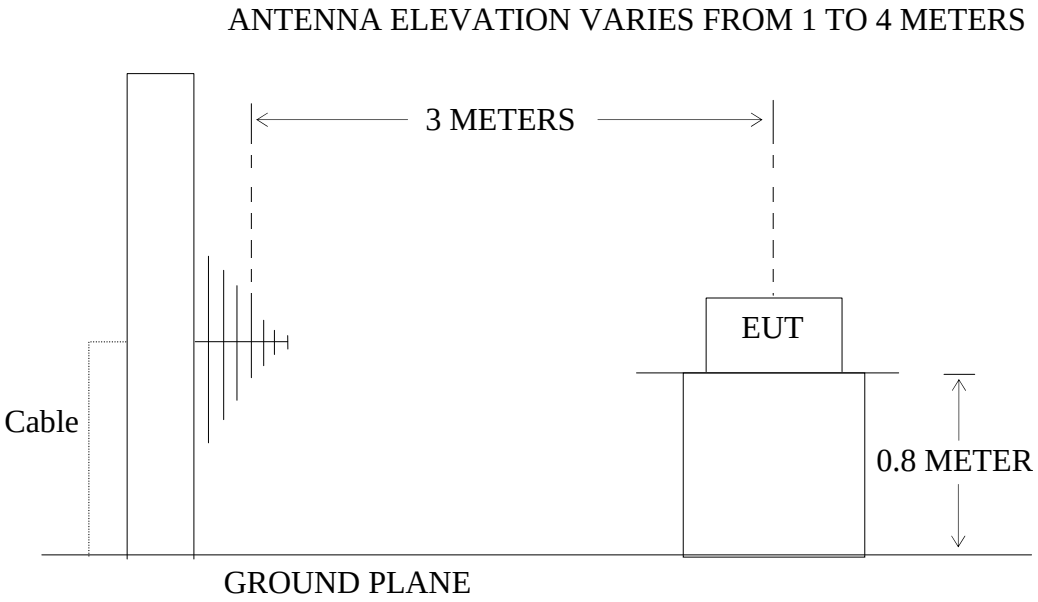
7.1.Block Diagram of Test Setup

7.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: P.I.R. Motion Detector)

7.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: P.I.R. Motion Detector)

7.2.Average factor Measurement according to ANSI 63.4: 2009

ANSI 63.4: 2009 Section 13.4.2 Devices transmitting pulsed emissions and subject to a limit requiring an average detector function for radiated emissions shall initially be measured with an instrument that uses a peak detector. A radiated emission measured with a peak detector may then be corrected to a true average using the appropriate factor for emission duty cycle. This correction factor relates the measured peak level to the average limit and is derived by averaging absolute field strength over one complete pulse train that is 0.1 s, or less, in length. If the pulse train is longer than 0.1 s, the average shall be determined from the average absolute field strength during the 0.1 s interval in which the field strength is at a maximum.

Average factor in dB = 20 log (duty cycle)

7.3.EUT Configuration on Measurement

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

7.3.1. P.I.R. Motion Detector (EUT)

Model Number	**:**	PIR-900
Serial Number	**:**	N/A
Manufacturer	**:**	Chuango Security Technology Co., Ltd.

7.4.Operating Condition of EUT

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

7.4.2.Turn on the power of all equipment.

7.4.3.Let the EUT work in TX mode measure it.

7.5.Test Procedure

7.5.1.The time period over which the duty cycle is measured is 100 milliseconds, or the repetition cycle, whichever is a shorter time frame. The worst case (highest percentage on) duty cycle is used for the calculation.

7.5.2.Set SPA Center Frequency = Fundamental frequency, RBW = 100 kHz, VBW = 300 kHz, Span = 0 Hz.

7.5.3.Set EUT as normal operation.

7.5.4.Set SPA View. Delta Mark time.

7.6. Measurement Result

The duty cycle is simply the on time divided by the period:

The duration of one cycle = 68.8 ms

Effective period of the cycle = (0.574×14) + (1.596×11)ms= 25.59 ms

DC = 25.59 ms/68.8 ms = 0.3719

Therefore, the average factor is found by 20log0.3719 = -8.59dB

The spectral diagrams in appendix I.

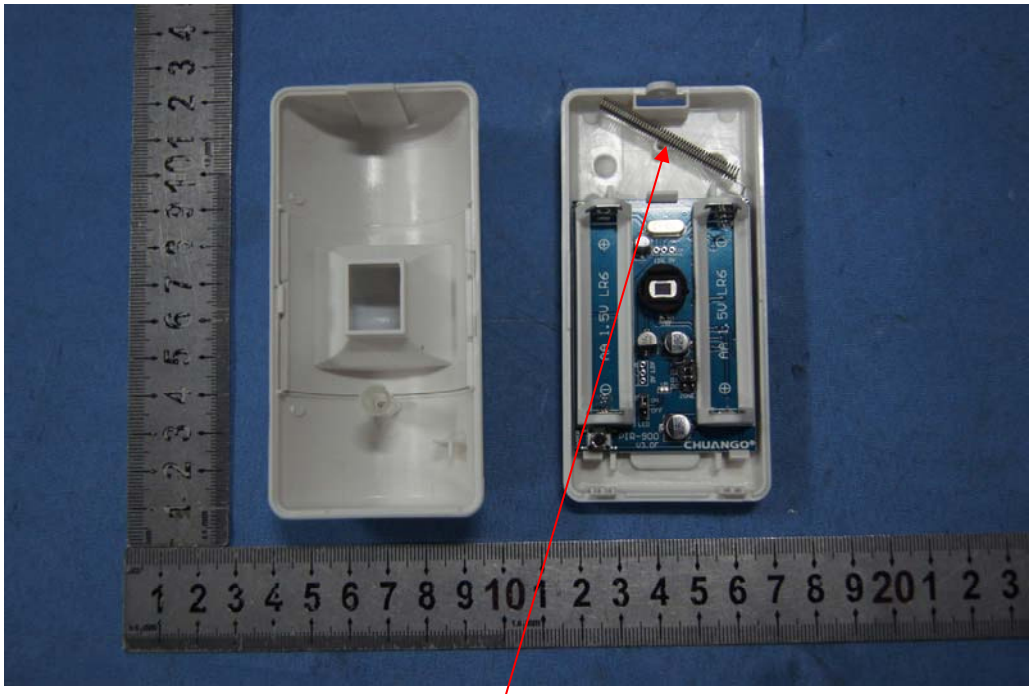
8. ANTENNA REQUIREMENT

8.1. The Requirement

According to 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.

8.2. Antenna Construction

Device is equipped with unique antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



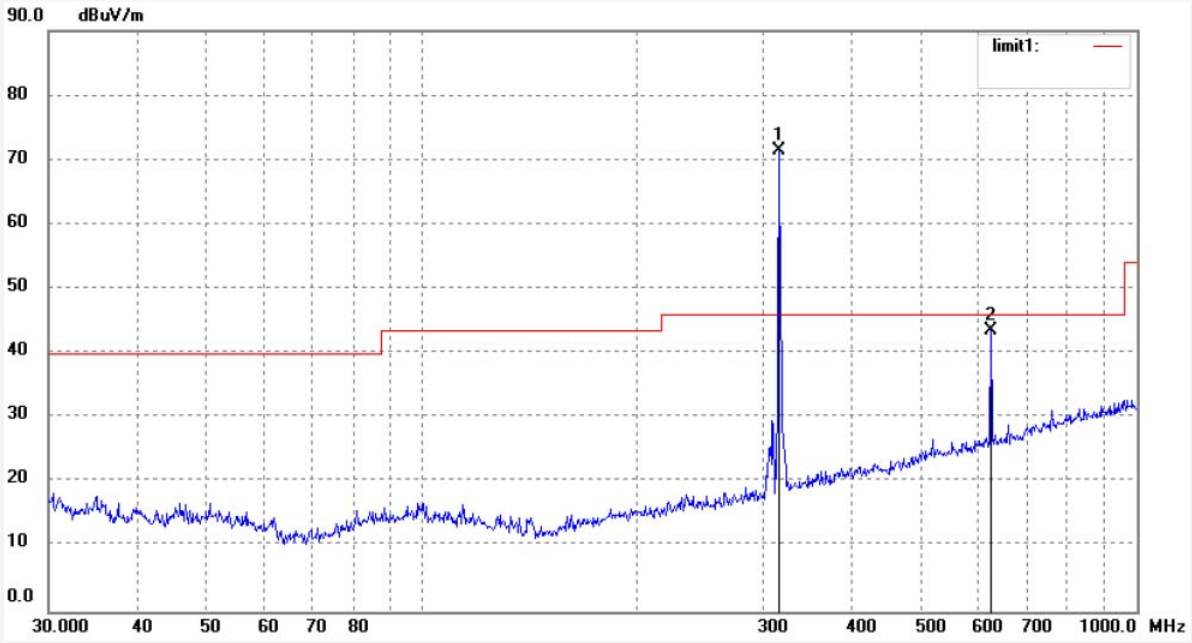
Antenna

APPENDIX I
(Test Curves)

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.: STAR #3473	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 12/12/24/
Temp.(C)/Hum.(%) 26 C / 60 %	Time: 8/30/21
EUT: P.I.R. Motion Detector	Engineer Signature:
Mode: TX	Distance: 3m
Model: PIR-900	
Manufacturer: Chuango	

Note: Report No.:ATE20122854

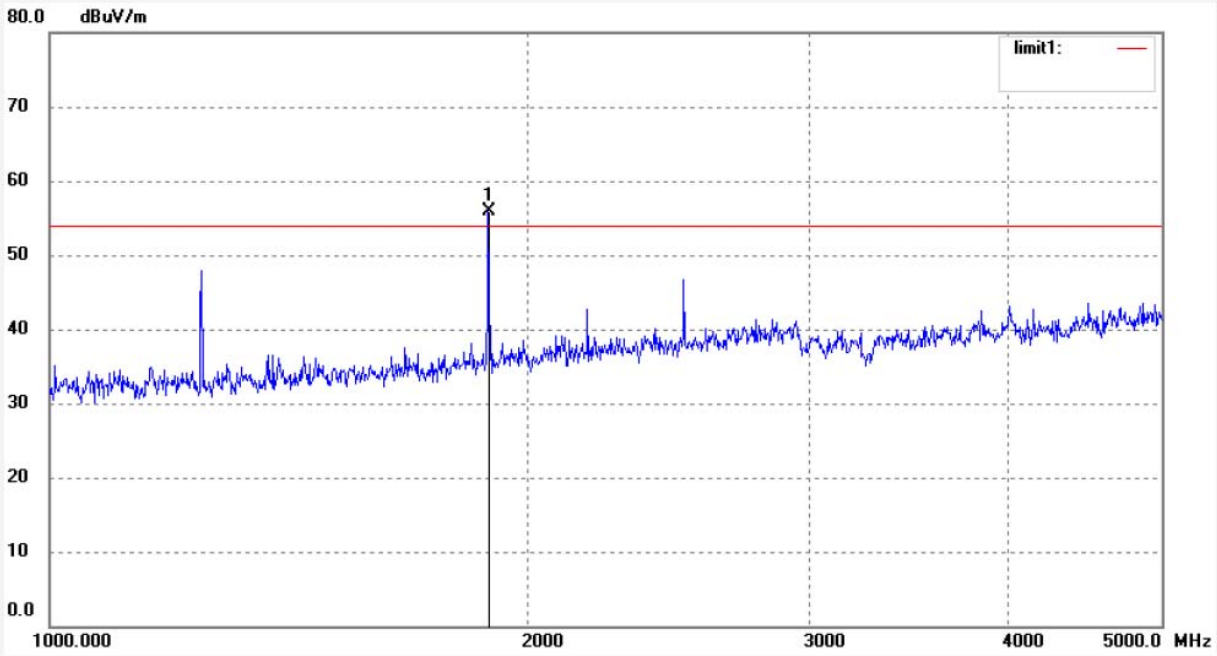


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	315.8599	54.16	17.22	71.38	75.7	-24.23	peak			
2	624.4895	19.50	23.94	43.44	75.7	-32.26	peak			

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.: star #3490	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 2012/12/24
Temp.(C)/Hum.(%) 26 C / 60 %	Time: 11:06:51
EUT: P.I.R. Motion Detector	Engineer Signature:
Mode: TX	Distance: 3m
Model: PIR-900	
Manufacturer: Chuango	

Note: Report No.:ATE20122854

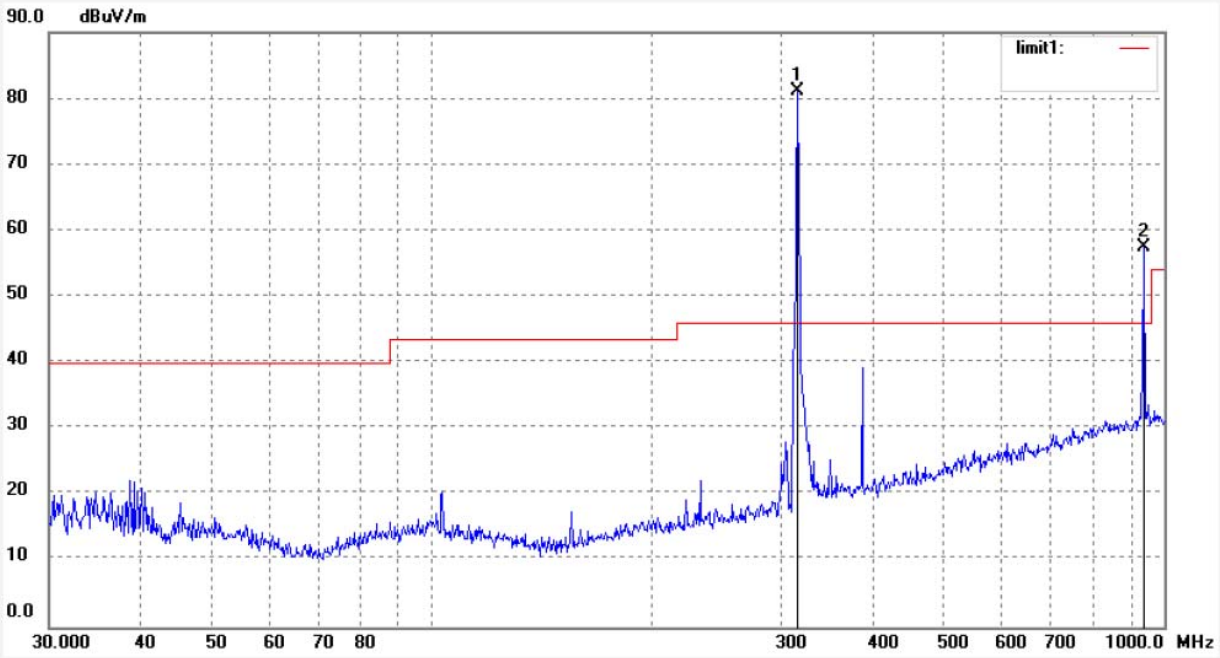


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1890.000	20.89	34.93	55.82	75.7	-19.88	peak			

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.: Star #3474	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 12/12/24/
Temp.(C)/Hum.(%) 26 C / 60 %	Time: 8/33/39
EUT: P.I.R. Motion Detector	Engineer Signature:
Mode: TX	Distance: 3m
Model: PIR-900	
Manufacturer: Chuango	

Note: Report No.:ATE20122854

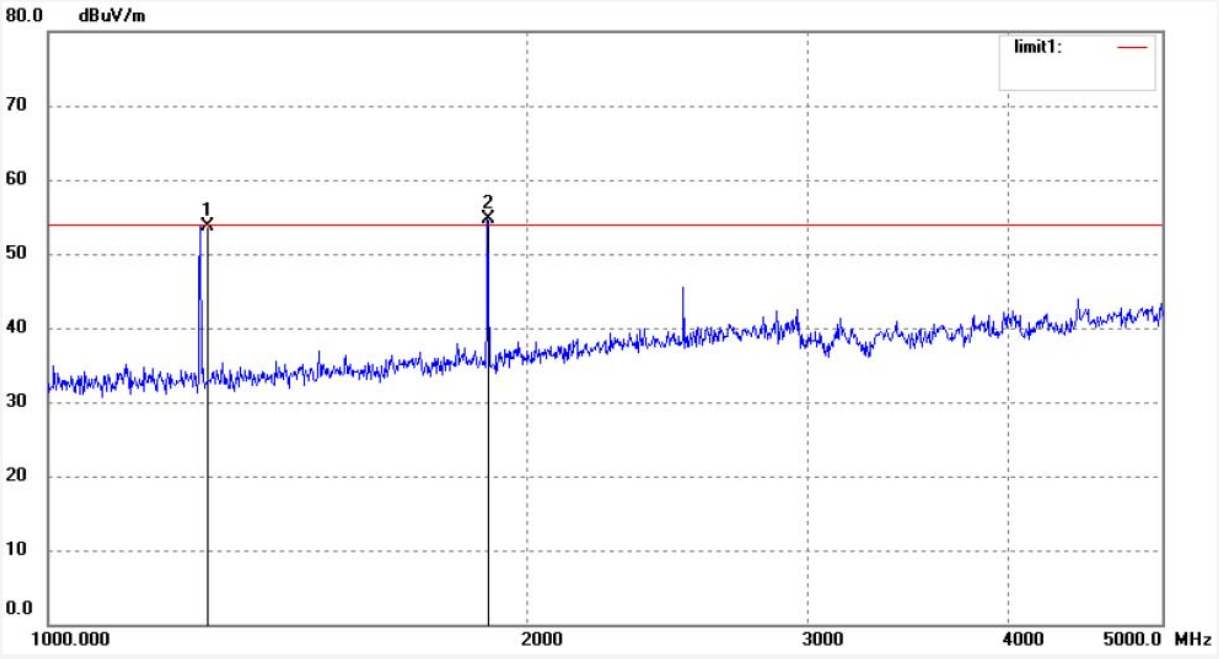


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	315.8599	63.91	17.22	81.13	95.7	-10.57	peak			
2	938.7137	29.19	28.28	57.47	75.7	-21.23	peak			

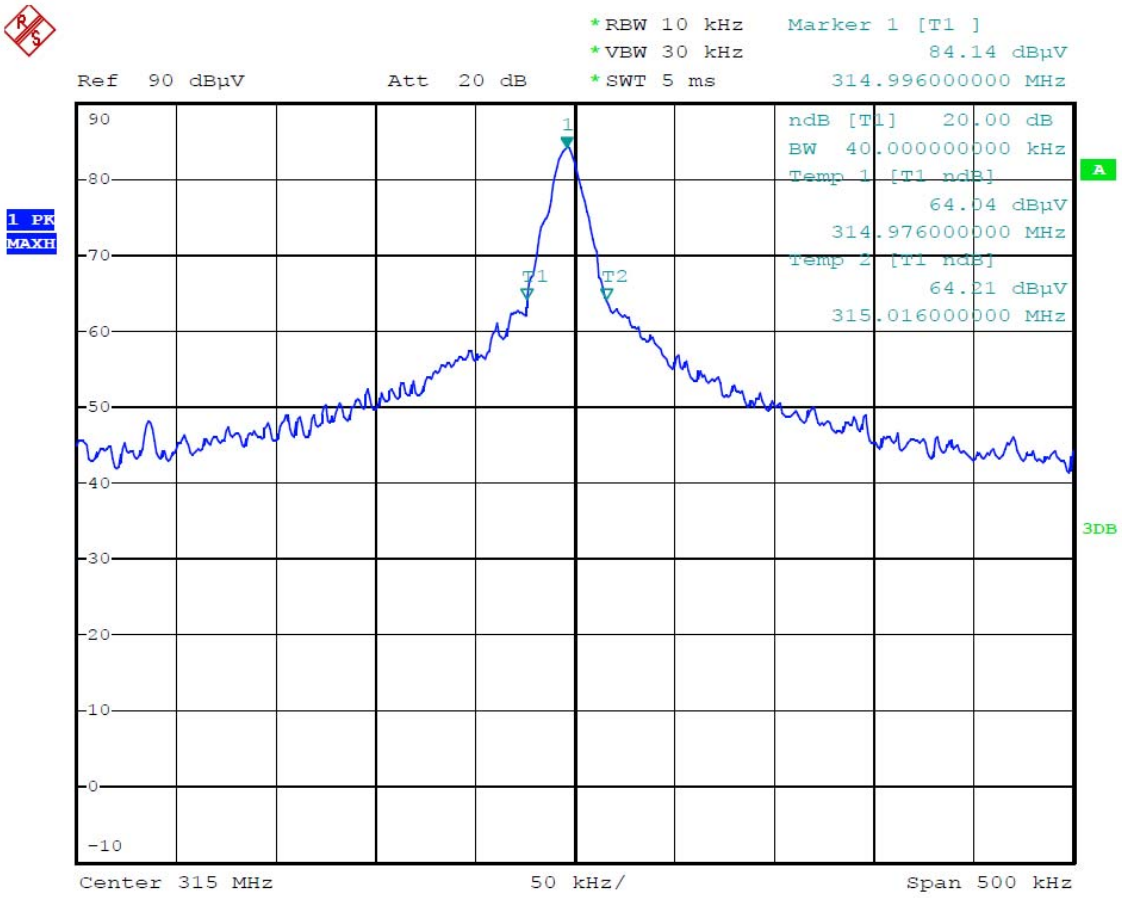
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: star #3491	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 2012/12/24
Temp.(C)/Hum.(%) 26 C / 60 %	Time: 11:08:16
EUT: P.I.R. Motion Detector	Engineer Signature:
Mode: TX	Distance: 3m
Model: PIR-900	
Manufacturer: Chuango	

Note: Report No.:ATE20122854



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1260.000	22.93	30.87	53.80	75.7	-21.90	peak			
2	1890.000	19.70	34.93	54.63	75.7	-21.07	peak			



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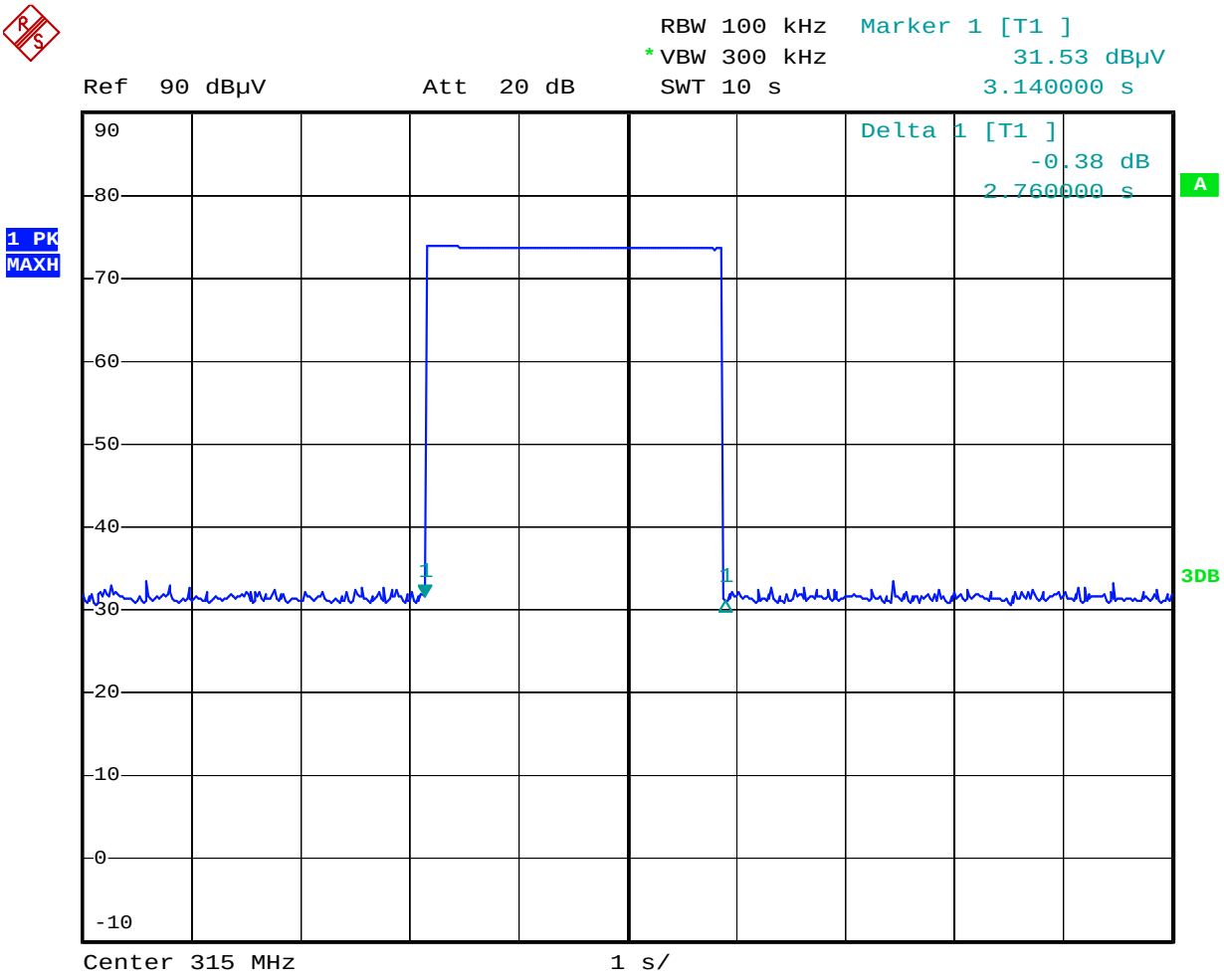
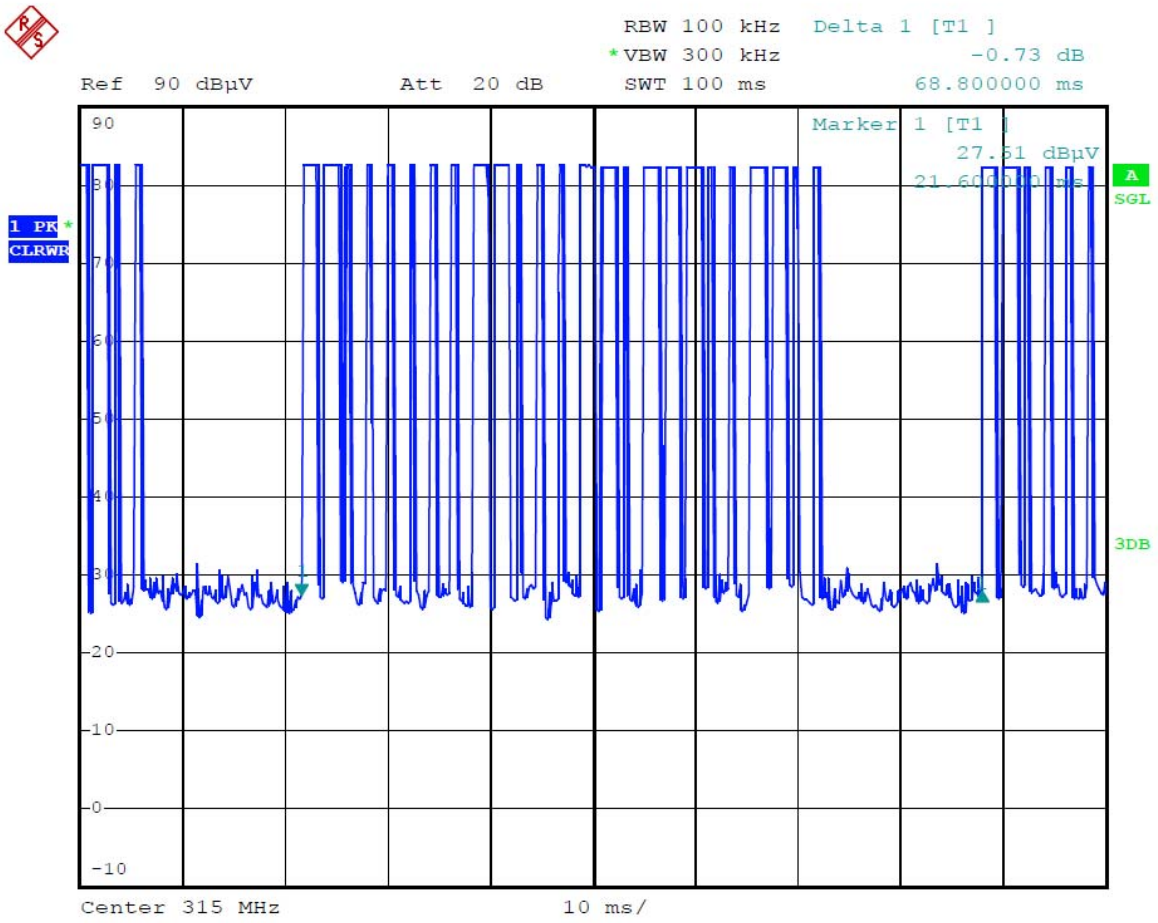
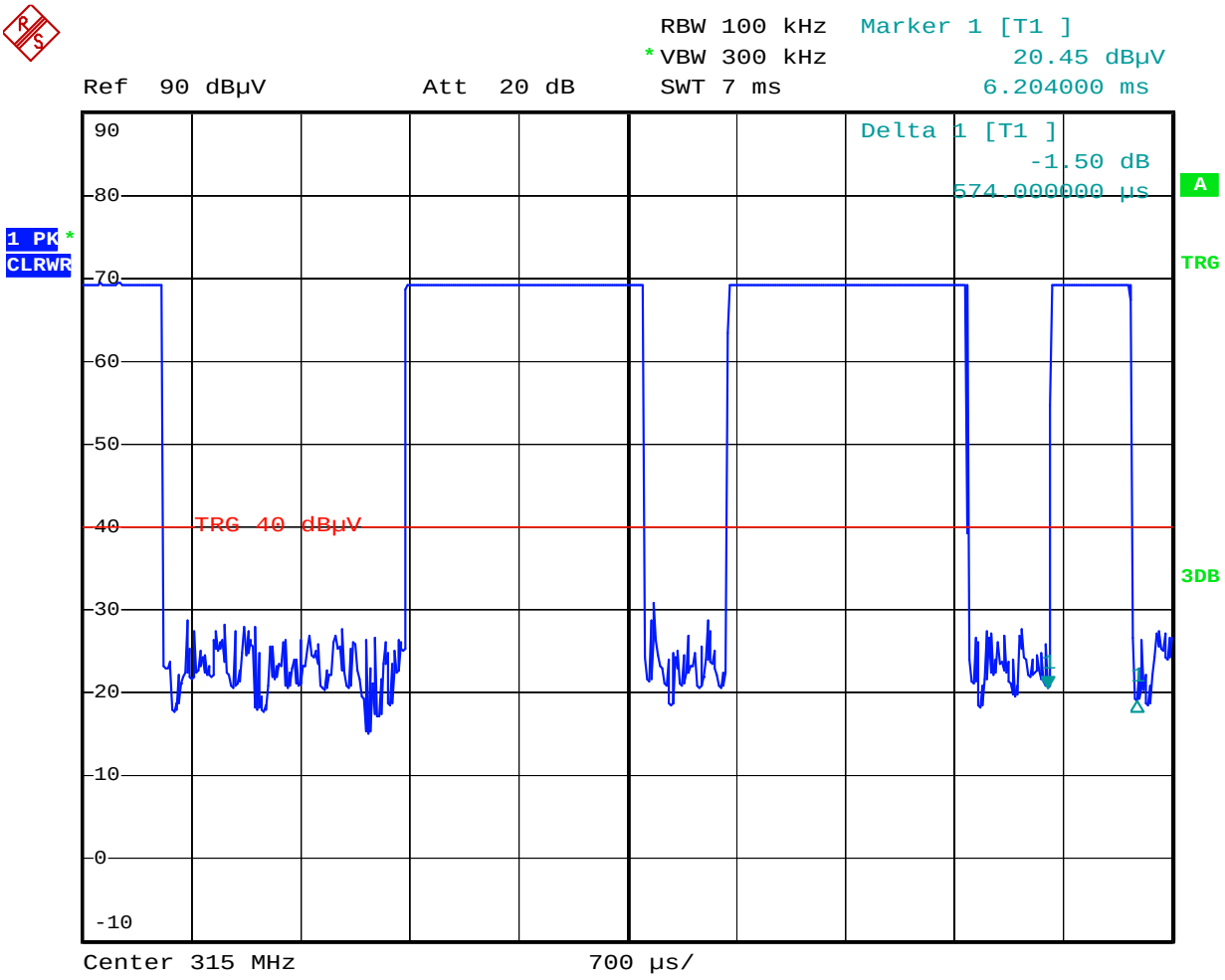


Date: 26.DEC.2012 14:50:57

Release Time = 2.76s

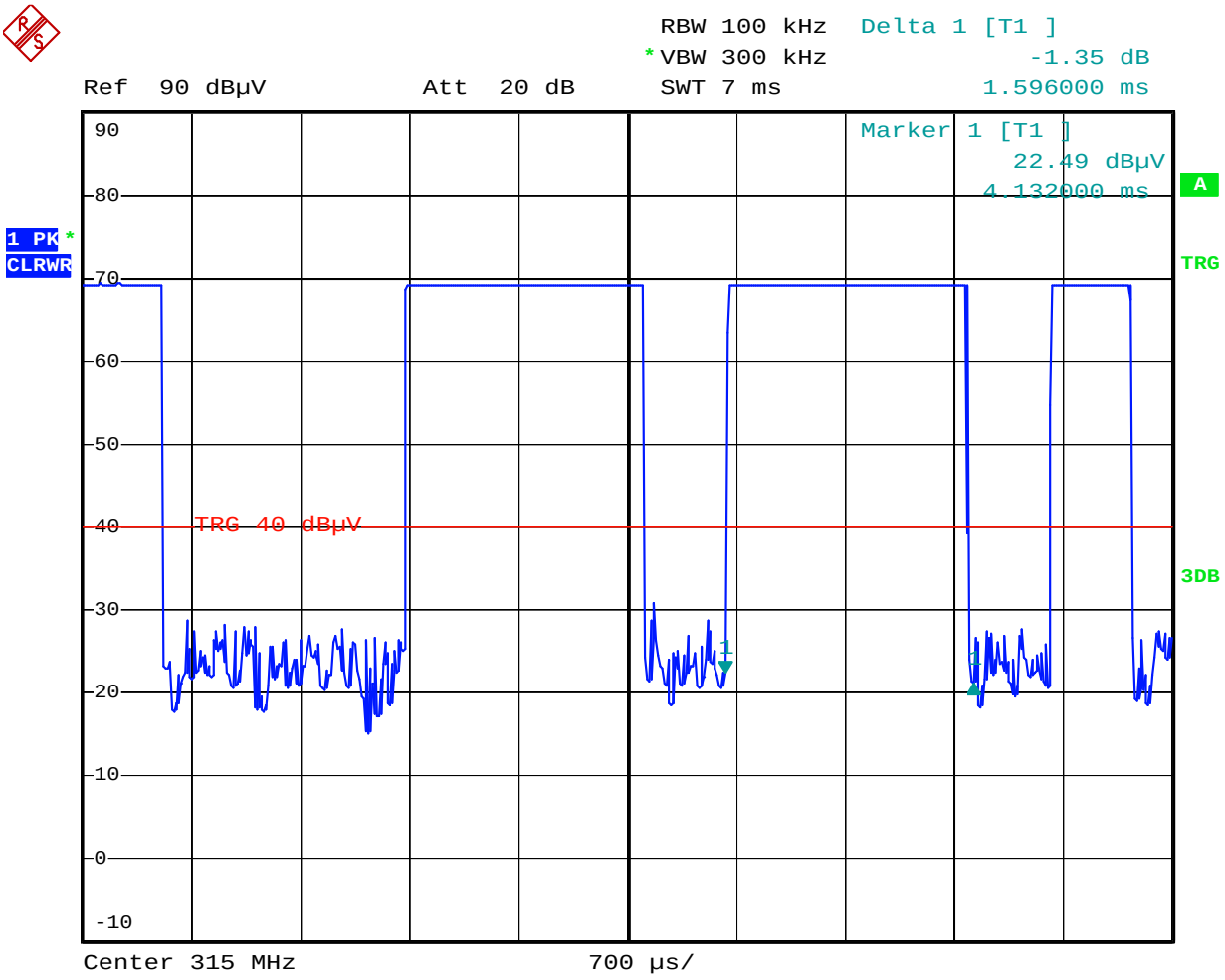


The graph shows the pattern of coding during the signal transmission.
The duration of one cycle = 68.8 ms.



Date: 24.DEC.2012 16:08:30

The graph shows the duration of ‘on’ signal. From marker 1 to marker 2, duration is 0.574 ms.



Date: 24.DEC.2012 16:08:53

The graph shows the duration of ‘on’ signal. From marker 1 to marker 2, duration is 1.596 ms.