

APPLICATION CERTIFICATION

On Behalf of
Shenzhen New Force Communication Technology Co., Ltd

433MHz Active Reader

Model No.: NFC-4311, NFC-4301, NFC-4320, NFC-4330, NFC-4340, NFC-4312, NFC-4321,
NFC-4322, NFC-4331, NFC-4341

FCC ID: VM7-NFC-4311

Prepared for : Shenzhen New Force Communication Technology Co.,
Ltd
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Report Number : ATE201222451
Date of Test : Oct 24-Nov 13, 2012
Date of Report : Nov 13, 2012

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APPENDIX I (TEST CURVES) (10 pages)

Test Report Certification

Applicant : Shenzhen New Force Communication Technology Co., Ltd
 Manufacturer : Shenzhen New Force Communication Technology Co., Ltd
 EUT Description : 433MHz Active Reader
 (A) MODEL NO.: NFC-4311, NFC-4301, NFC-4320, NFC-4330,
 NFC-4340, NFC-4312, NFC-4321, NFC-4322, NFC-4331,
 NFC-4341
 (B) Trade Name.: NFC
 (C) POWER SUPPLY: AC 120V/60Hz

Measurement Procedure Used:


FCC Rules and Regulations Part 15 Subpart C Section 15.231 ANSI 63.10: 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 : Oct 24-Nov 13, 2012

Prepared by : 
 (Engineer)

Approved & Authorized Signer : 
 (Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	433MHz Active Reader
Model Number	:	NFC-4311, NFC-4301, NFC-4320, NFC-4330, NFC-4340, NFC-4312, NFC-4321, NFC-4322, NFC-4331, NFC-4341 Note: These samples are same except for the product Model is different. So we prepare the NFC-4311 for FCC test
Trade Name	:	NFC
Power Supply Adapter:	:	AC 120V/60Hz M/N: SWN006S050100C1 Input: 100-240VAC 50/60Hz Output: 5VDC 1A
Operation Frequency	:	433.050MHz – 434.790MHz
Applicant	:	Shenzhen New Force Communication Technology Co., Ltd
Address	:	8061 west HongLi Rd.zhongHe Bldg.ste.110-218 Fu Ti, Shenzhen, China
Manufacturer	:	Shenzhen New Force Communication Technology Co., Ltd
Address	:	8061 west HongLi Rd.zhongHe Bldg.ste.110-218 Fu Ti, Shenzhen, China
Date of sample received	:	Oct 24, 2012
Date of Test	:	Oct 24- Nov 13, 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	CBLU118354 0-01	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	Compliant
Section 15.231(e)	Radiated Emission	Compliant
Section 15.231(e)	20dB Bandwidth	Compliant
Section 15.231(e)	Release Time Measurement	Compliant
Section 15.203	Antenna Requirement	Compliant

The product is a automatically operated 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.

By the software what supplied by manufacturer the EUT can transmitted at a frequency unit you change the frequency by the software.

4. THE FIELD STRENGTH OF RADIATION EMISSION

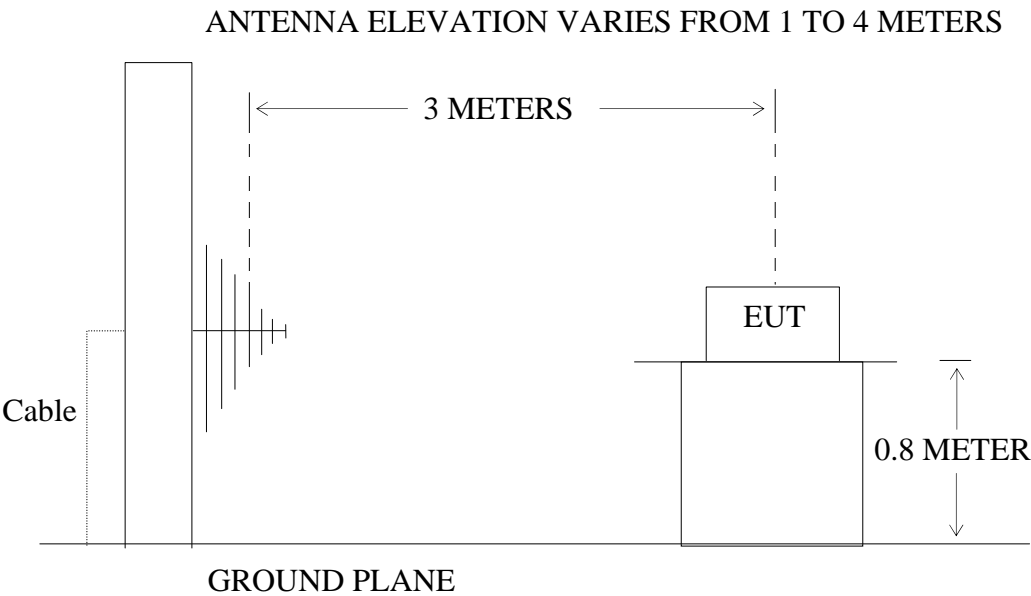
4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



(EUT: 433MHz Active Reader)

4.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: 433MHz Active Reader)

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(e)

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [$\mu\text{V/m}$]	Field Strength of Spurious Emission [$\mu\text{V/m}$]
40.66-40.70	1000	100
70-130	500	50
130-174	500 to 5000	50 to 150
174-260	1500	150
260-470	1500-5000	150-500
Above 470	5000	500

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; for the band 260-470 MHz, $\mu\text{V/m}$ at 3 meters. 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. 433MHz Active Reader (EUT)

Model Number : NFC-4311
 Serial Number : N/A
 Manufacturer : Shenzhen New Force Communication 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 63.10 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:	Nov 2, 2012	Temperature:	25°C
EUT:	433MHz Active Reader	Hu433MHz Active	
Model No.:	NFC-4311	Readerity:	50%
Test Mode:	TX 433.050MHz	Power Supply:	AC 120V
		Test Engineer:	Bob

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
433.0500	45.88	22.95	68.83	72.90	-4.07	Vertical
866.1000	13.69	28.64	42.33	52.90	-10.57	Vertical
433.0500	44.68	22.95	67.63	72.90	-5.07	Horizontal
866.1000	13.04	28.64	41.68	52.90	-11.22	Horizontal

For 1GHz-5GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

AV = PK + duty cycle factor

Frequency (MHz)	Duty cycle factor	Reading (dBμV/ m)	Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polariza tion
		PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
1299.150	-9.84	62.34	-12.20	40.30	50.14	52.90	72.90	-12.60	-22.76	Vertical
1732.200	-9.84	58.99	-10.37	38.78	48.62	52.90	72.90	-14.12	-24.28	Vertical
2598.300	-9.84	54.75	-6.72	38.19	48.03	52.90	72.90	-14.71	-24.87	Vertical
1299.150	-9.84	62.22	-12.20	40.18	50.02	52.90	72.90	-12.72	-22.88	Horizontal
1732.200	-9.84	58.23	-10.37	38.02	47.86	52.90	72.90	-14.88	25.04	Horizontal
2598.300	-9.84	56.41	-6.72	39.85	49.69	52.90	72.90	-13.05	-23.21	Horizontal

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, the AV value computed by duty cycle factor. 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:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

$$\text{FCC Limit for Measurement} = 72.9 \text{ dB}\mu\text{V/m}$$

$$\text{Pulse Width (PW)} = 0.47\text{ms} \times 1 = 0.47\text{ms}$$

$$1/\text{PW} = 1/0.47\text{ms} = 2.128\text{kHz}$$

$$\text{RBW}(100 \text{ kHz}) > 1/\text{PW} (2.128\text{kHz})$$

Therefore PDCF is not needed.

$$\text{Duty cycle} = (\text{Ton} / (\text{Toff} + \text{Ton})) \times 100\% = (0.47/1.46) \times 100\% = 32.20\%$$

$$\text{Duty cycle factor} = 20\log (\text{Duty cycle}) = 20\log (0.3220) = -9.84$$

Date of Test:	Nov 2, 2012	Temperature:	25°C
EUT:	433MHz Active Reader	Hu433MHz Active	
Model No.:	NFC-4311	Readerity:	50%
Test Mode:	TX 433.790MHz	Power Supply:	AC 120V
		Test Engineer:	Bob

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
433.0500	44.40	22.93	67.33	72.90	-5.57	Vertical
866.1000	12.81	28.63	41.44	52.90	-11.46	Vertical
433.0500	44.20	22.93	67.13	72.90	-5.77	Horizontal
866.1000	13.95	28.63	42.58	52.90	-10.32	Horizontal

For 1GHz-5GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

AV = PK + duty cycle factor

Frequency (MHz)	Duty cycle factor	Reading (dBμV/ m)	Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polarization
		PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
1299.150	-9.72	61.83	-12.19	39.92	49.64	52.90	72.90	-12.98	-23.26	Vertical
1732.200	-9.72	58.53	-10.41	38.40	48.12	52.90	72.90	-14.50	-24.78	Vertical
2598.300	-9.72	53.46	-6.72	37.02	46.74	52.90	72.90	-15.88	-26.16	Vertical
1299.150	-9.72	60.21	-12.19	38.30	48.02	52.90	72.90	-14.60	-24.88	Horizontal
1732.200	-9.72	57.30	-10.41	37.17	46.89	52.90	72.90	-15.73	-26.01	Horizontal
2598.300	-9.72	54.41	-6.72	37.97	47.69	52.90	72.90	-14.93	-25.21	Horizontal

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, the AV value computed by duty cycle factor. 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

FCC Limit for Measurement = 72.9 dB μ V/m

Pulse Width (PW) = 0.48ms * 1 = 0.48ms

1/PW = 1/0.48ms = 2.08kHz

RBW(100 kHz) > 1/PW (2.08kHz)

Therefore PDCF is not needed.

Duty cycle = (Ton/ (Toff+Ton)) * 100% = (0.48/1.47)*100% = 32.65%

Duty cycle factor = 20log (Duty cycle) = 20log (0.3265) = -9.72

5. 20DB OCCUPIED BANDWIDTH

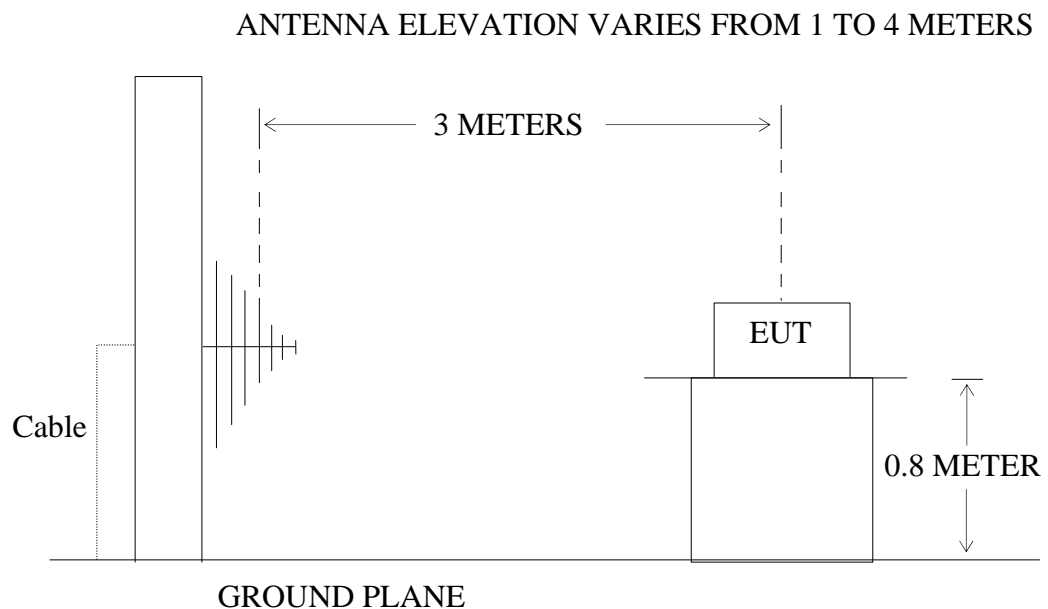
5.1. Block Diagram of Test Setup

5.1.1. Block diagram of connection between the EUT and simulators



(EUT: 433MHz Active Reader)

5.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: 433MHz Active Reader)

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 $433.050 \text{ MHz} \times 0.25\% = 1082.625 \text{ kHz}$. Bandwidth is determined at the two points 20 dB down from the top of modulated carrier. 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.

5.2.1.433MHz Active Reader (EUT)

Model Number : NFC-4311
Serial Number : N/A
Manufacturer : Shenzhen New Force Communication Technology Co.,
Ltd

5.3.Operating Condition of EUT

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

5.3.2.Turn on the power of all equipment.

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

5.4.Test Procedure

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

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

5.5.Measurement Result

The EUT does meet the FCC requirement.

433.050MHz

-20 dB bandwidth = 26.0 kHz.

$(26.0 \text{ kHz}/433.050\text{MHz}) * 100\% = 0.006 \% < 0.25\%$

The spectral diagrams in appendix I.

433.790MHz

-20 dB bandwidth = 26.0 kHz.

$(26.0 \text{ kHz}/433.790\text{MHz}) * 100\% = 0.006 \% < 0.25\%$

The spectral diagrams in appendix I.

6. RELEASE TIME MEASUREMENT

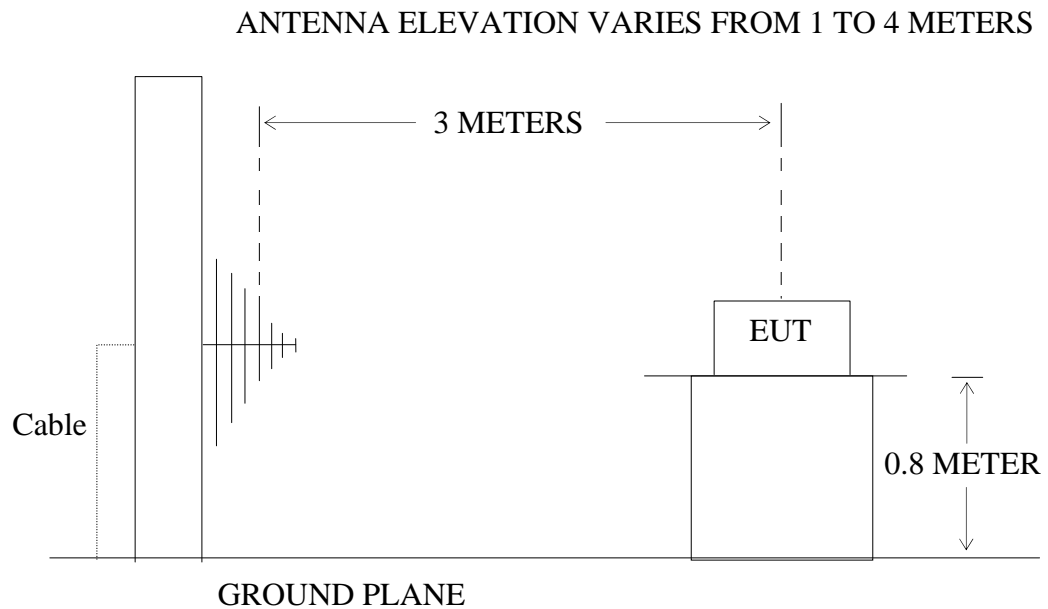
6.1. Block Diagram of Test Setup

6.1.1. Block diagram of connection between the EUT and simulators



(EUT: 433MHz Active Reader)

6.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: 433MHz Active Reader)

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

Section 15.231(e) Devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

.

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. 433MHz Active Reader (EUT)

Model Number	:	NFC-4311
Serial Number	:	N/A
Manufacturer	:	Shenzhen New Force Communication 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 = 60 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

433.050MHz

Release Time = 0.580s

Silent Time= 40.56s

The space of transmitting time= $40.56 > 0.580s * 30 = 17.40s > 10s$

The spectral diagrams in appendix I.

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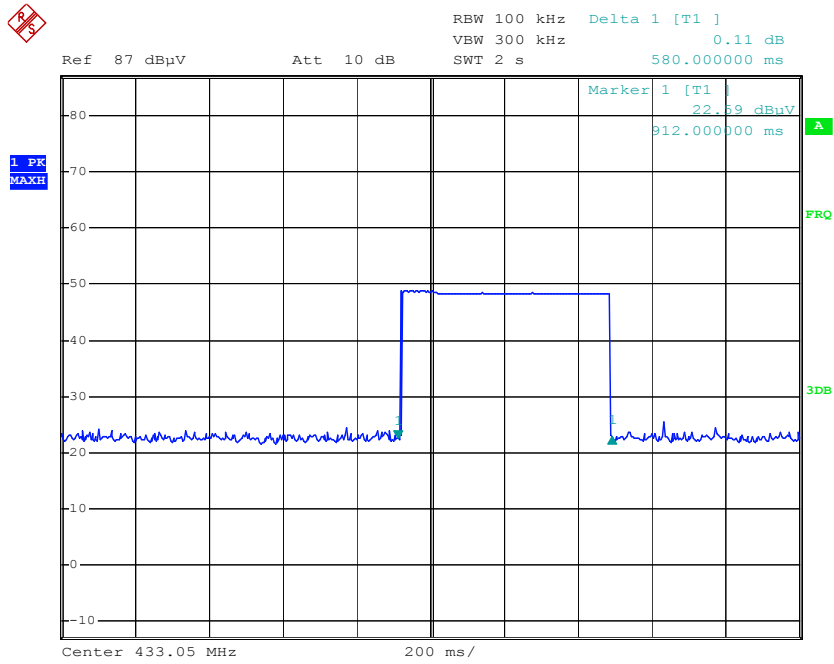
434.790MHz

Release Time = 0.536s

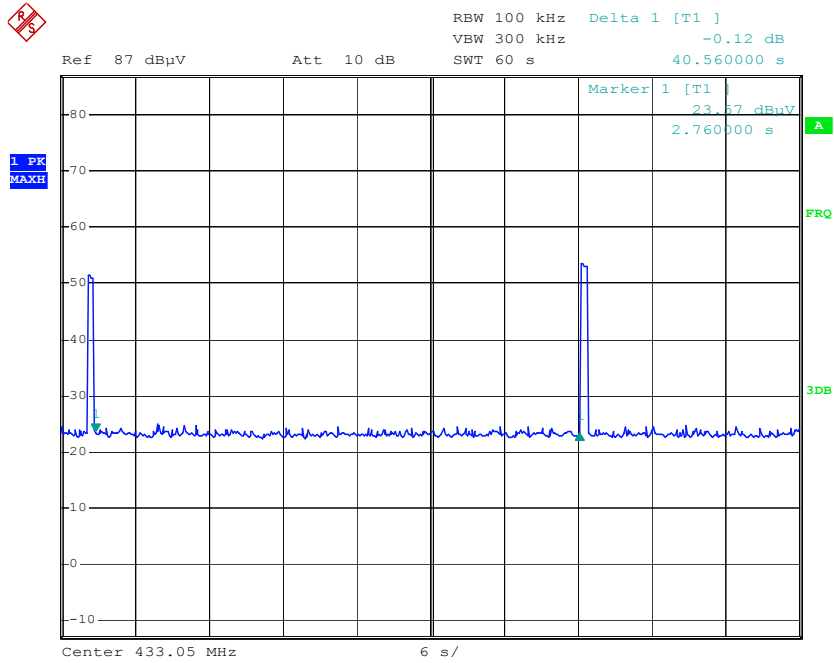
Silent Time= 40.56s

The space of transmitting time= $40.56 > 0.536s * 30 = 16.08s > 10s$

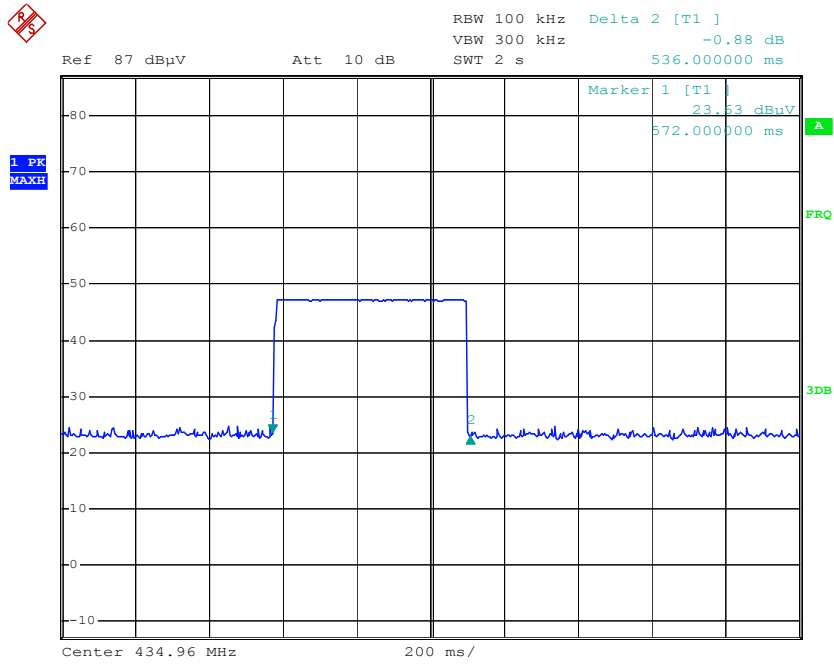
The spectral diagrams in appendix I.



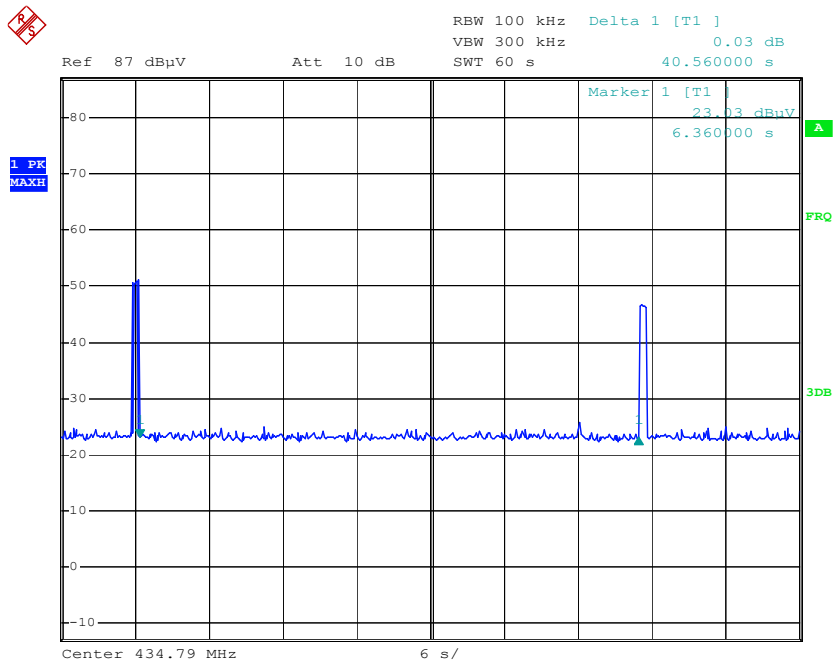
Date: 13.Nov.2012 15:49:19



Date: 13.Nov.2012 15:52:51



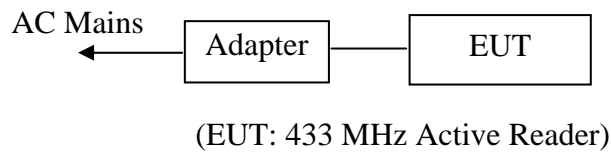
Date: 13.Nov.2012 15:01:23



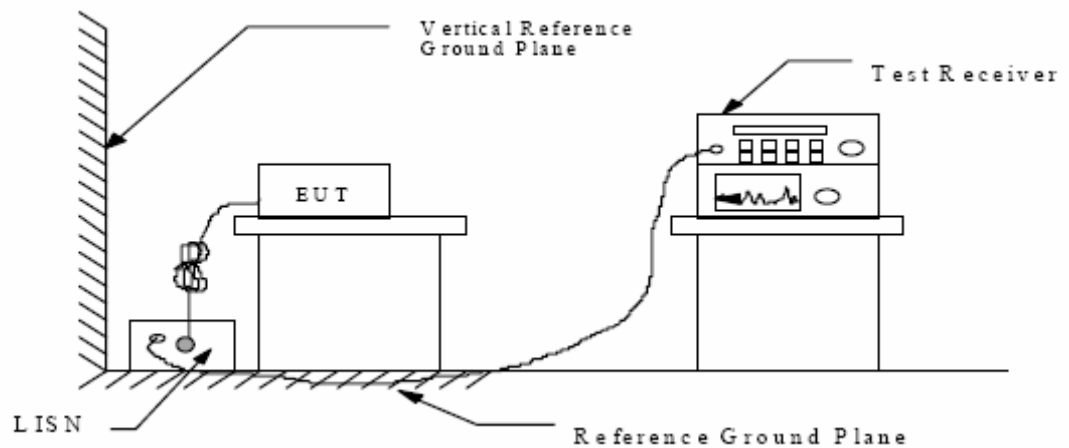
7. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207

7.1. Block Diagram of Test Setup

7.1.1. Block diagram of connection between the EUT and simulators



7.1.2. Shielding Room Test Setup Diagram



(EUT: 433 MHz Active Reader)

7.2. The Emission Limit

7.2.1. Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

7.3.Configuration of EUT on Measurement

The following equipment are installed on the Conducted Emission 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. 433 MHz Active Reader (EUT)

Model Number	:	NFC-4311
Serial Number	:	N/A
Manufacturer	:	Shenzhen New Force Communication Technology Co., Ltd

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 11.1.

7.4.2.Turn on the power of all equipment.

7.4.3. Let the EUT work in TX (Operation) mode measure it.

7.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

The frequency range from 150 kHz to 30MHz is checked.

7.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150 kHz to 30MHz is checked.

Date of Test:	Nov 1, 2012	Temperature:	25°C
EUT:	433 MHz Active Reader	Humidity:	50%
Model No.:	NFC-4311	Power Supply:	AC 120V/60Hz
Test Mode:	operation	Test Engineer:	Bob

Frequency (MHz)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector	Line
0.672926	40.30	56	15.1	QP	Neutral
3.805385	29.80	56	26.2	QP	
15.024355	40.70	60	19.3	QP	
0.664915	33.30	46	12.7	AV	
3.835889	24.90	46	21.1	AV	
15.205370	36.20	50	13.8	AV	
0.667575	40.90	56	15.1	QP	Live
1.015172	30.10	56	25.9	QP	
15.084453	42.70	60	17.3	QP	
0.670245	32.50	46	13.5	AV	
1.019233	32.90	46	23.1	AV	
15.144790	37.60	50	12.4	AV	

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

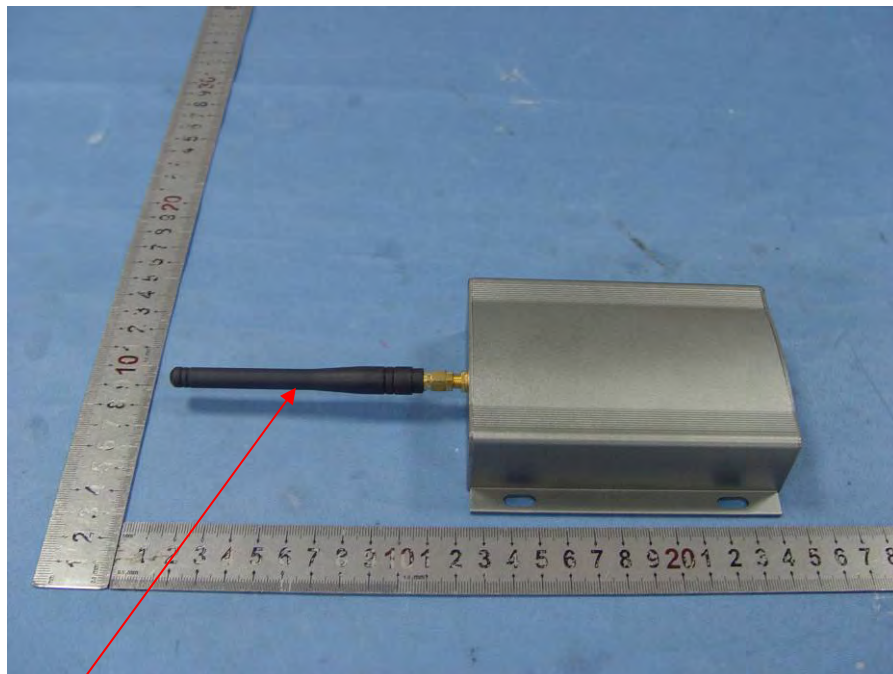
8. ANTENNA REQUIREMENT

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

This product use Reverse Polarity (RP-SMA) Antenna. And it is considered to meet antenna requirement of FCC. Refer to the product photo.



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: 震 龟喷

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Bob #3817

Standard: 433M AUTO

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 433.05MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Vertical

Power Source: AC120V/60Hz

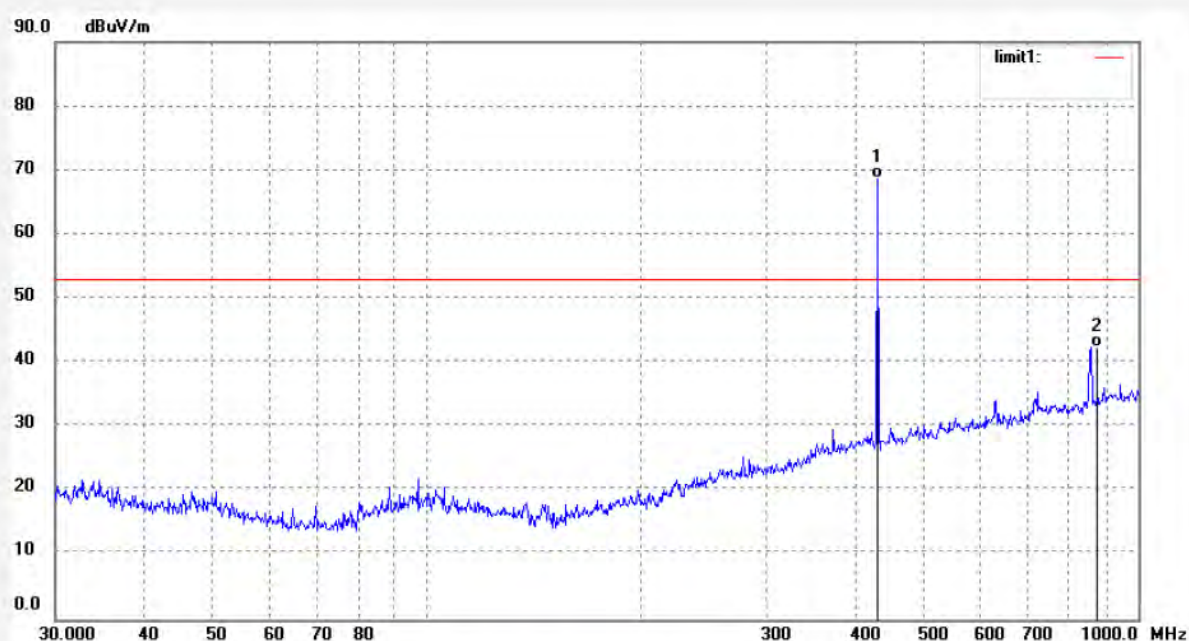
Date: 2012/11/02

Time: 18:06:34

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	433.0500	45.88	22.95	68.83	72.90	-4.07	QP			
2	866.1000	13.69	28.64	42.33	52.90	-10.57	QP			



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Fax:+86-0755-26503396

Job No.: Bob #3818

Standard: 433M AUTO

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 433.05MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Horizontal

Power Source: AC120V/60Hz

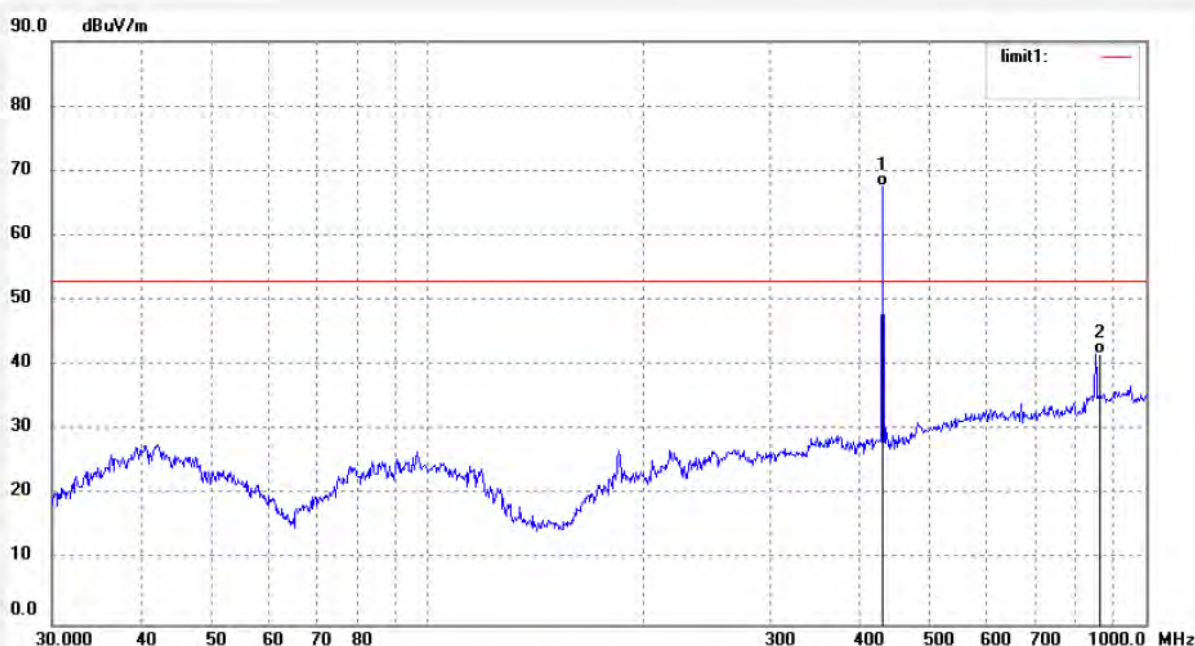
Date: 2012/11/02

Time: 18:07:33

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	433.0500	44.68	22.95	67.63	72.90	-5.07	QP			
2	866.1000	13.04	28.64	41.68	52.90	-11.22	QP			



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Job No.: Bob #3821

Standard: 433M AUTO

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 434.79MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Vertical

Power Source: AC120V/60Hz

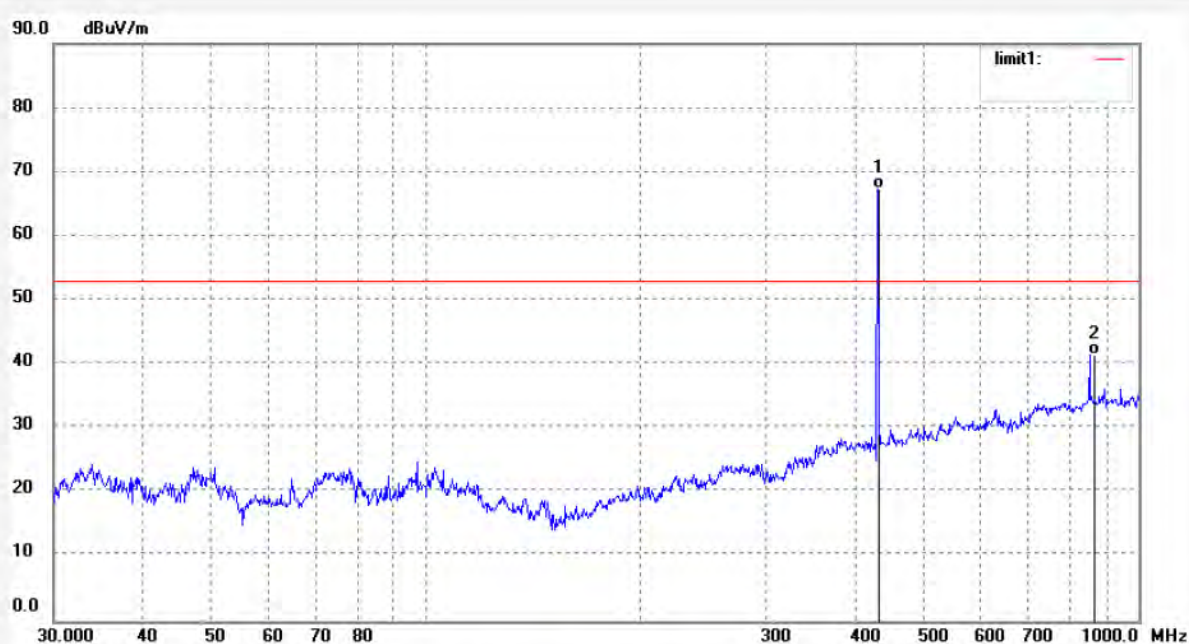
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Time: 18:06:34

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	434.7900	44.40	22.93	67.33	72.90	14.43	QP			
2	869.5800	12.81	28.63	41.44	52.90	-11.46	QP			



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Job No.: Bob #3822

Standard: 433M AUTO

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 434.79MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Horizontal

Power Source: AC120V/60Hz

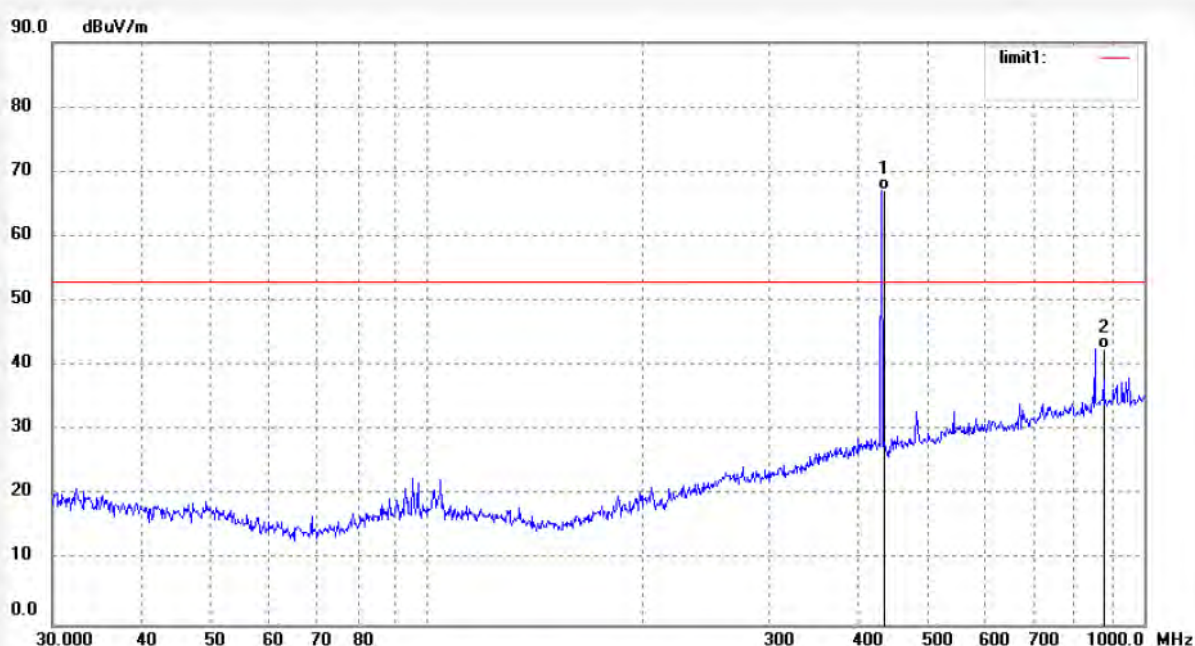
Date: 2012/11/02

Time: 18:07:33

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	434.7900	44.20	22.93	67.13	72.90	-5.77	QP			
2	869.5800	13.95	28.63	42.58	52.90	-10.32	QP			



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Job No.: Bob #3819

Standard: 433M AUTO ABOVE1G

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 433.05MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Horizontal

Power Source: AC120V/60Hz

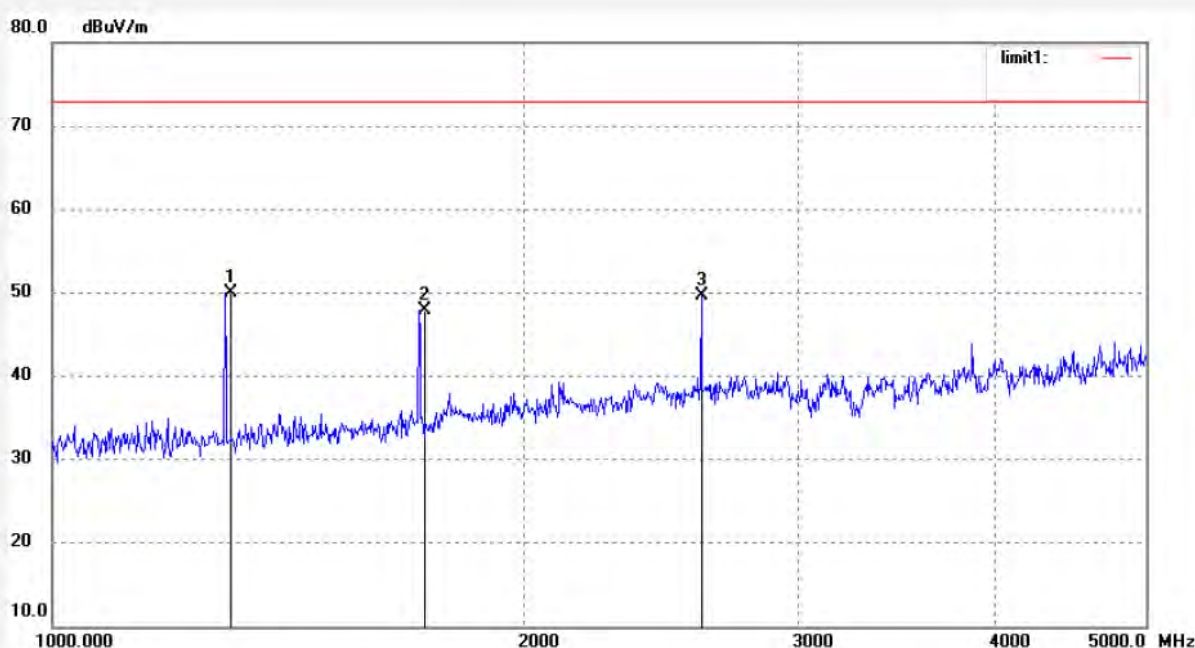
Date: 2012/11/02

Time: 18:18:56

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1299.150	62.22	-12.20	50.02	72.90	-22.88	peak			
2	1732.200	58.23	-10.37	47.86	72.90	-25.04	peak			
3	2598.300	56.41	-6.72	49.69	72.90	-23.21	peak			



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Job No.: Bob #3820

Standard: 433M AUTO ABOVE1G

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 433.05MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Vertical

Power Source: AC120V/60Hz

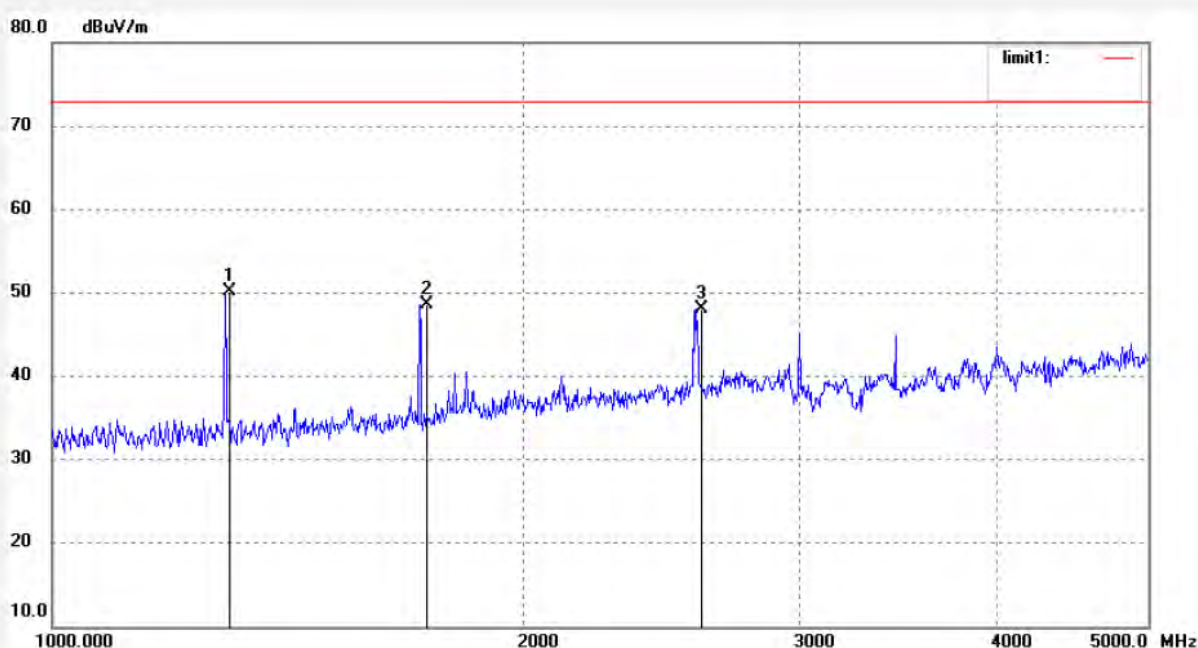
Date: 2012/11/02

Time: 18:23:55

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1299.150	62.34	-12.20	50.14	72.90	-22.76	peak			
2	1732.200	58.99	-10.37	48.62	72.90	-24.28	peak			
3	2598.300	54.75	-6.72	48.03	72.90	-24.87	peak			



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Fax:+86-0755-26503396

Job No.: Bob #3823

Standard: 433M AUTO ABOVE1G

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 434.79MHz

Model: NFC-4311

Polarization: Horizontal

Power Source: AC120V/60Hz

Date: 2012/11/02

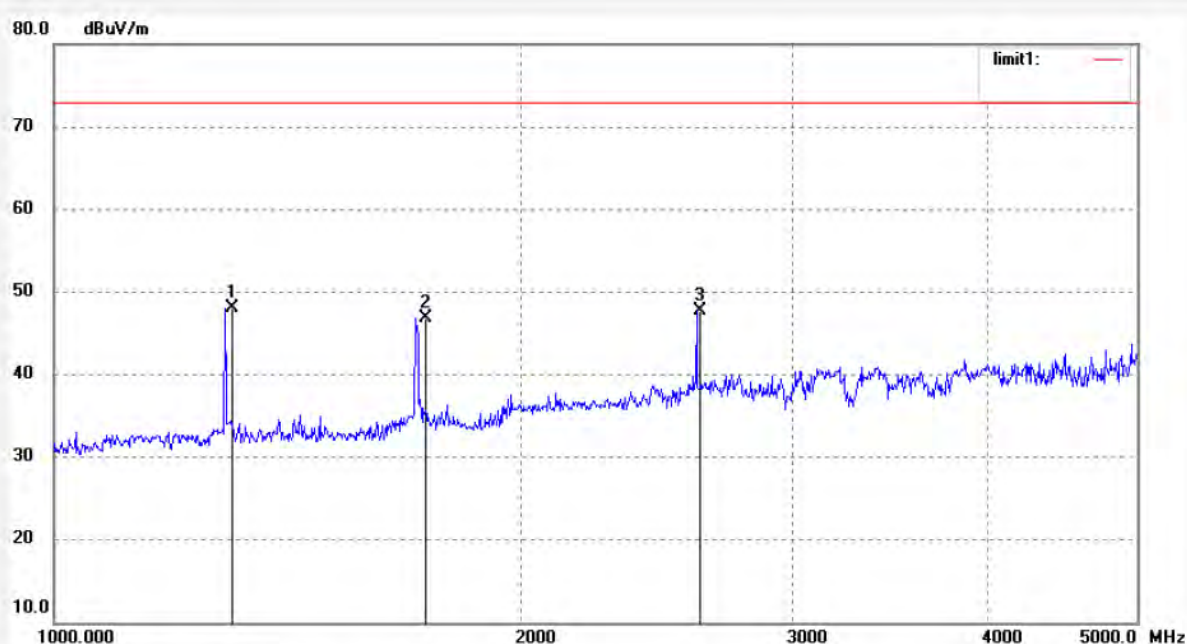
Time: 18:18:56

Engineer Signature: Bob

Distance: 3m

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Note: Report No.:ATE20122451



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1304.370	60.21	-12.19	48.02	72.90	-24.88	peak			
2	1739.160	57.30	-10.41	46.89	72.90	-26.01	peak			
3	2608.740	54.41	-6.72	47.69	72.90	-25.21	peak			



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Fax:+86-0755-26503396

Job No.: Bob #3824

Standard: 433M AUTO ABOVE1G

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: 433MHz Active Reader

Mode: TX 434.79MHz

Model: NFC-4311

Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.

Polarization: Vertical

Power Source: AC120V/60Hz

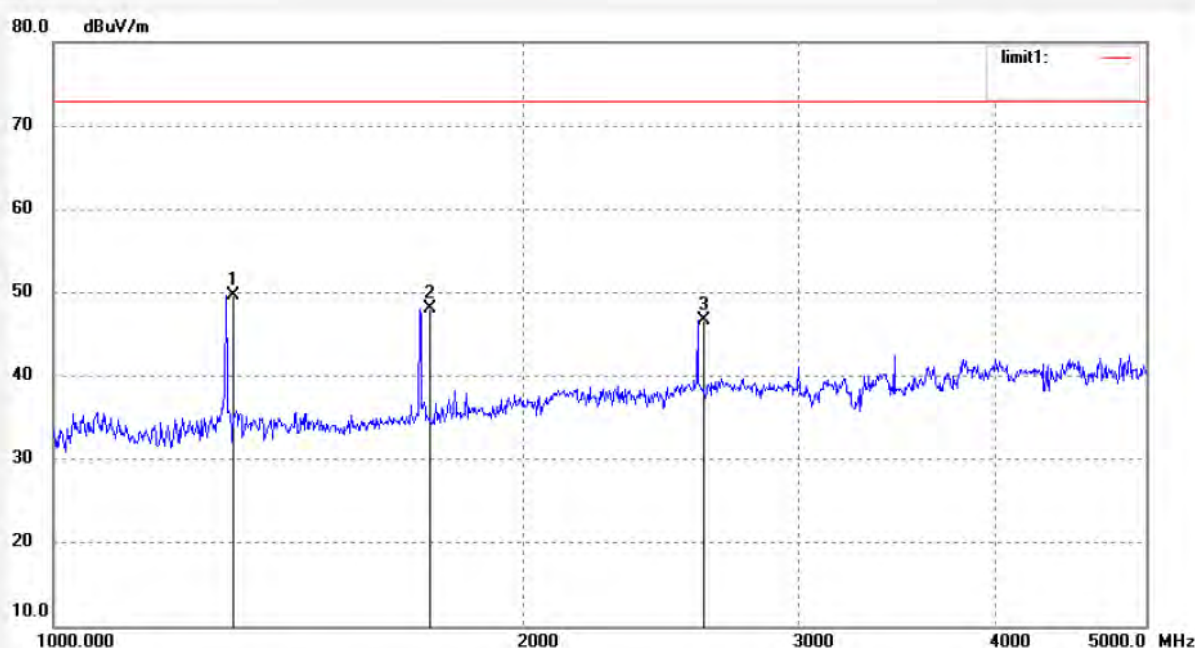
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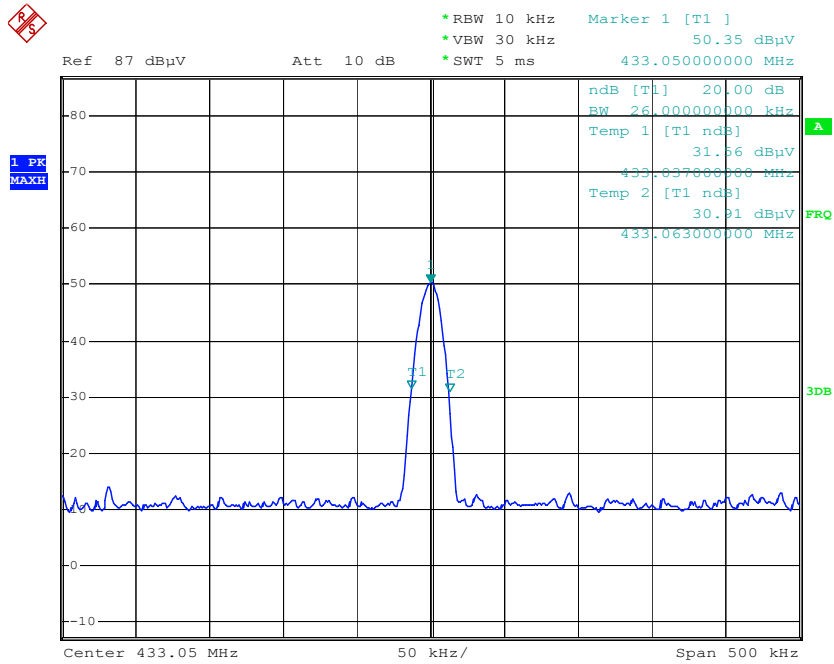
Engineer Signature: Bob

Distance: 3m

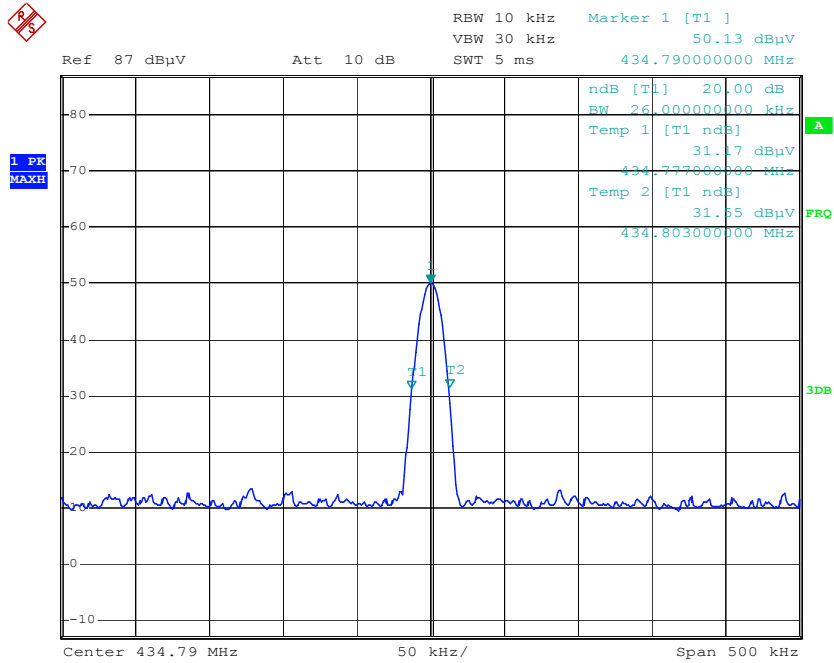
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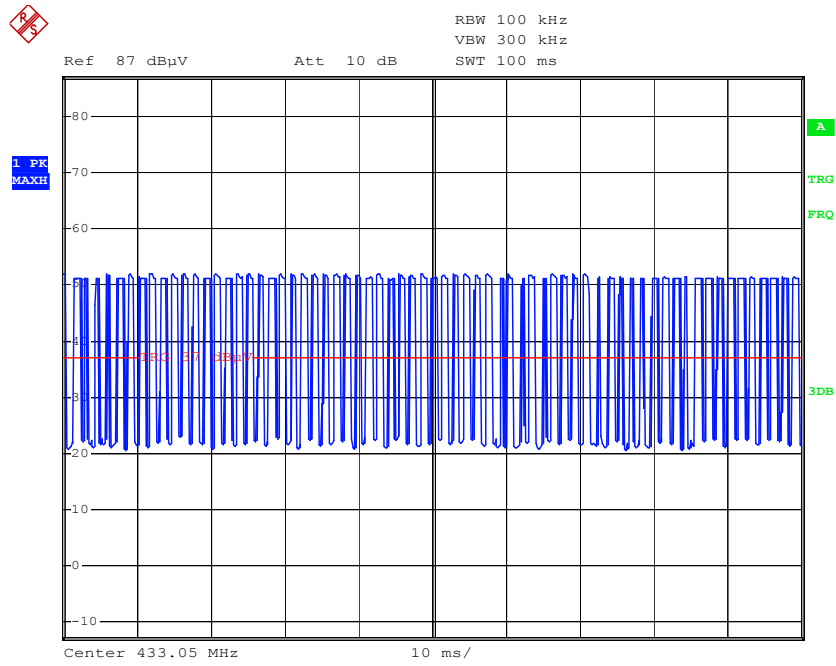
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1304.370	61.83	-12.19	49.64	72.90	-23.26	peak			
2	1739.160	58.53	-10.41	48.12	72.90	-24.78	peak			
3	2608.740	53.46	-6.72	46.74	72.90	-26.16	peak			



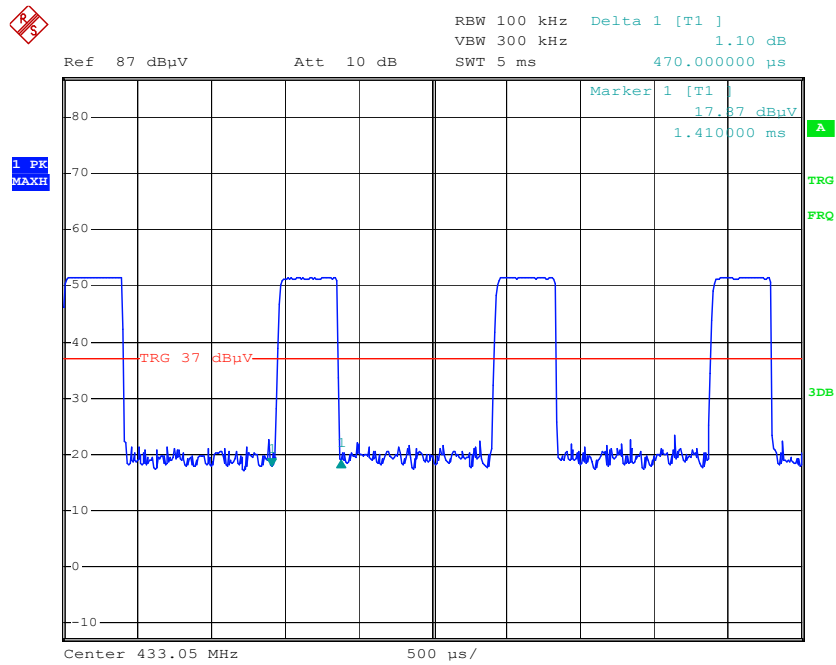
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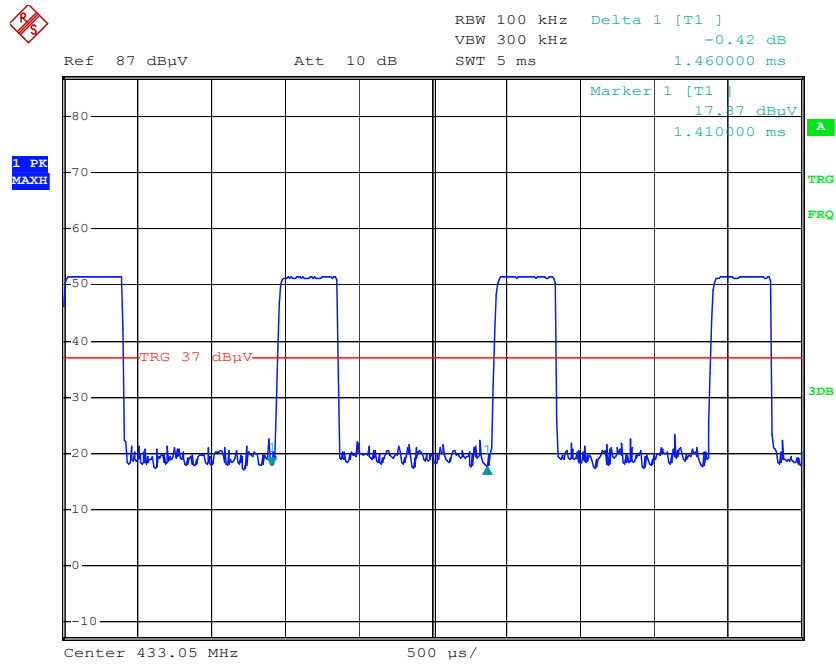
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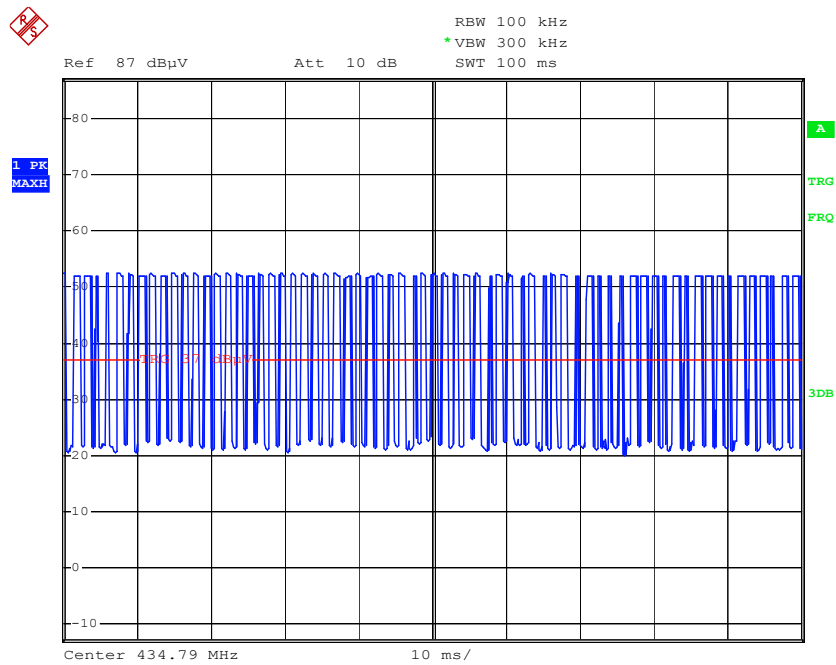
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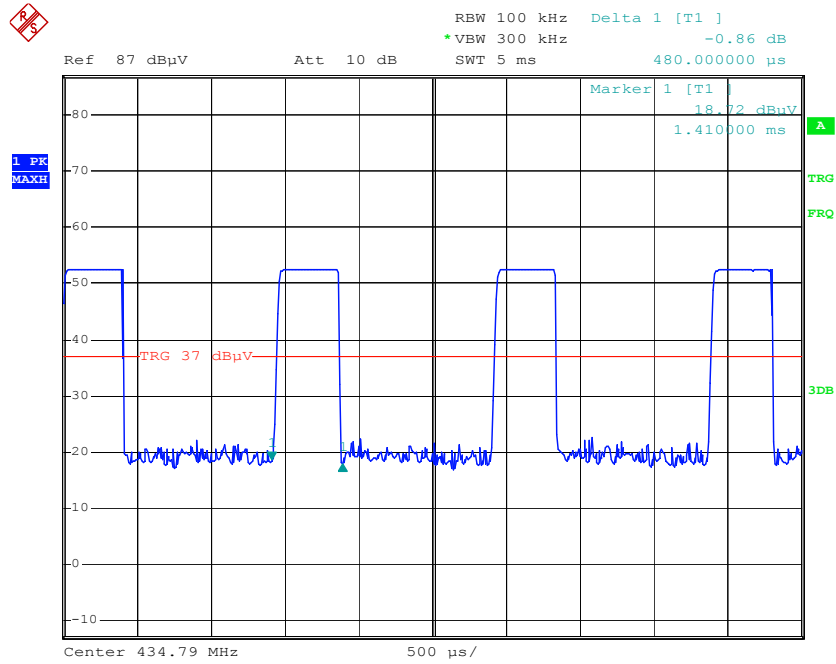
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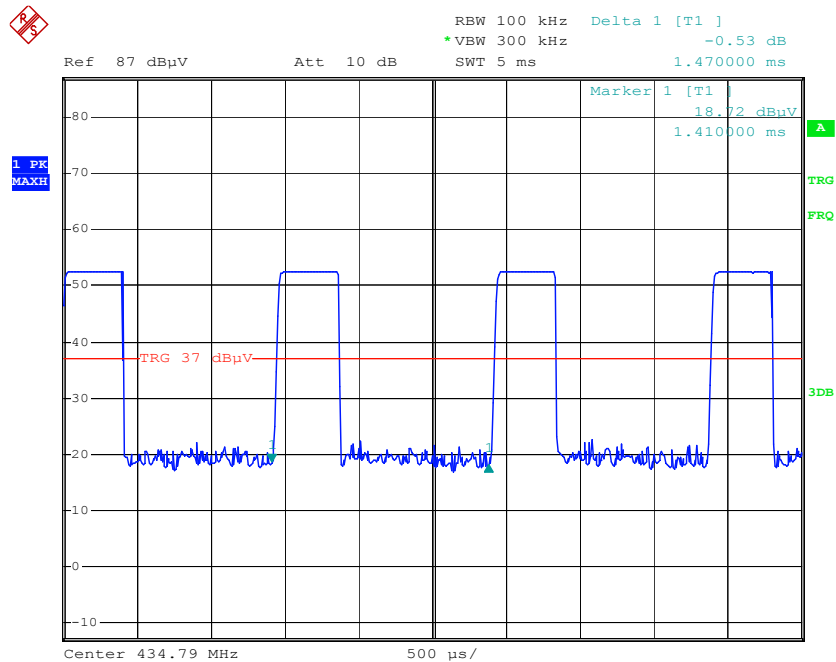
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Date: 13.Nov.2012 15:39:55



Date: 13.Nov.2012 15:41:17



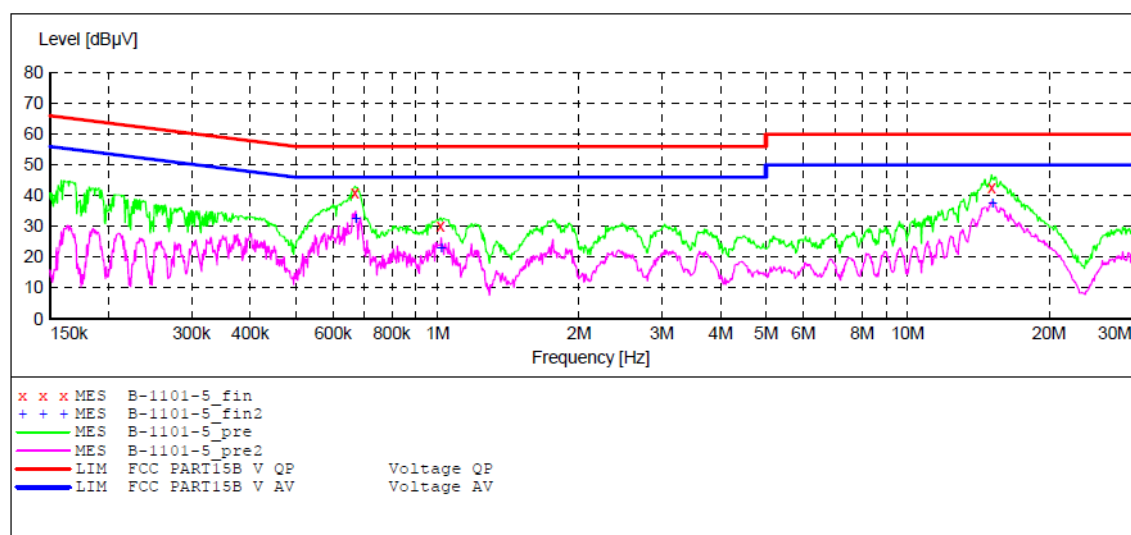
Date: 13.Nov.2012 15:41:43

ACCURATE TECHNOLOGY CO.,LTD**CONDUCTED EMISSION STANDARD FCC PART15B**

EUT: 433MHz Active Reader M/N:NFC-4311
 Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.
 Operating Condition: Operation
 Test Site: 1#Shielding Room
 Operator: Bob
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20122451
 Start of Test: 11/1/2012 / 7:36:08PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "B-1101-5_fin"**

11/1/2012 7:38PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.667575	40.90	11.9	56	15.1	QP	L1	GND
1.015172	30.10	11.8	56	25.9	QP	L1	GND
15.084453	42.70	11.2	60	17.3	QP	L1	GND

MEASUREMENT RESULT: "B-1101-5_fin2"

11/1/2012 7:38PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.670245	32.50	11.9	46	13.5	AV	L1	GND
1.019233	22.90	11.8	46	23.1	AV	L1	GND
15.144790	37.60	11.2	50	12.4	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD**CONDUCTED EMISSION STANDARD FCC PART15B**

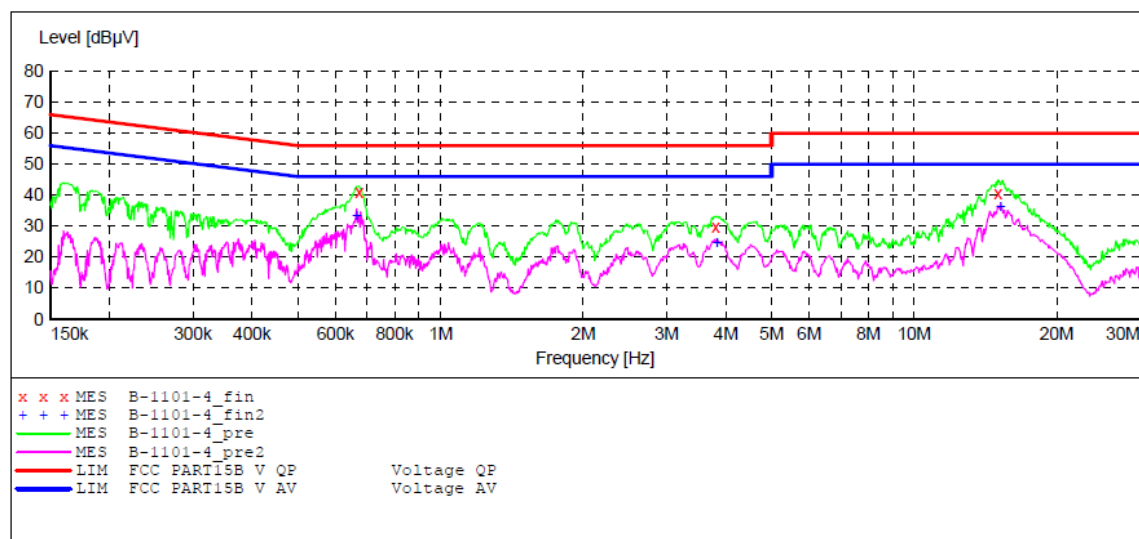
EUT: 433MHz Active Reader M/N:NFC-4311
 Manufacturer: Shenzhen New Force Communication Technology Co., Ltd.
 Operating Condition: Operation
 Test Site: 1#Shielding Room
 Operator: Bob
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20122451
 Start of Test: 11/1/2012 / 7:33:01PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	0.8 %	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008

 Average

**MEASUREMENT RESULT: "B-1101-4_fin"**

11/1/2012 7:35PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.672926	40.90	11.9	56	15.1	QP	N	GND
3.805385	29.80	11.5	56	26.2	QP	N	GND
15.024355	40.70	11.2	60	19.3	QP	N	GND

MEASUREMENT RESULT: "B-1101-4_fin2"

11/1/2012 7:35PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.664915	33.30	11.9	46	12.7	AV	N	GND
3.835889	24.90	11.5	46	21.1	AV	N	GND
15.205370	36.20	11.2	50	13.8	AV	N	GND