







ISO/IEC17025 Accredited Lab.

Report No: FCC 1003166
File reference No: 2010-05-05

Applicant: Shenzhen A-OK Technology Grand Development Co., Ltd.

Product: RF Transmitter

Model No: AC114

Trademark: N/A

Test Standards: FCC Part 15 Subpart C, Paragraph 15.231

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.231 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: May 05,2010

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen.CHINA.

Tel (755) 83448688 Fax (755) 83442996

Report No: 1003166 Page 2 of 29

Date: 2010-05-05



Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.:899988.

IC- Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration No.: IC 5205A-01.

Page 3 of 29

Report No: 1003166 Date: 2010-05-05



Test Report Conclusion Content

1.0	General Details	4
1.1	Test Lab Details	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration.	5
1.6	Test Uncertainty	5
1.7	Test By	5
2.0	List of Measurement Equipment.	5
3.0	Technical Details	6
3.1	Summary of Test Results	6
3.2	Test Standards.	6
4.0	EUT Modification.	6
5.0	Power Line Conducted Emission Test.	7
5.1	Schematics of the Test.	7
5.2	Test Method and Test Procedure.	7
5.3	Configuration of the EUT	7
5.4	EUT Operating Condition.	8
5.5	Conducted Emission Limit.	8
5.6	Test Result.	8
6.0	Radiated Emission test.	9
6.1	Test Method and Test Procedure.	9
6.2	Configuration of the EUT	9
6.3	EUT Operation Condition.	9
6.4	Radiated Emission Limit.	10
6.5	Test Result.	11
7.0	20dB Bandwidth Test.	14
8.0	Deactivate Test	16
9.0	Duty Cycle	18
10.0	FCC ID Label.	23
10.0	Photo of Testing	24

Report No: 1003166 Page 4 of 29

Date: 2010-05-05



1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-01

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: Shenzhen A-OK Technology Grand Development Co., Ltd.

Address: 3rd F1,34 Bldg, Chentian Industry, Xi'xiang Town, Ban'an Zone, Shenzhen City

Telephone: +86-755-27582809 Fax: +86-755-27582185

1.3 Description of EUT

Product: RF Transmitter

Brand Name: N/A
Model Number: AC114
Additional Model Name N/A
Additional Trade Name N/A

Rating: 3VDC, 2pcs AAA batteries

Operation Frequency 433.92MHz

Antenna Designation A permanent fixed antenna, designed as an indispensable part of the EUT.

1.4 Submitted Sample

2 Sample

Page 5 of 29

Report No: 1003166 Date: 2010-05-05



1.5 Test Duration

2010-03-17 to 2010-04-30

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

2.0	Test Equipments					
Instrument Type		Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESDV Rece		ROHDE&SCHWARZ	ESDV	100008	2009-04-22	2010-04-21
System C	Controller	CT	SC100	-	2010-03-01	2011-02-28
Bilog A	Antenna	Chase	CBL6111C	2576	2010-03-01	2011-02-28
ESPI Rece	I Test eiver	ROHDE&SCHWARZ	ESI26	838786/013	2010-03-01	2011-02-28
3m C	DATS			N/A	2010-03-01	2011-02-28
Horn A	Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2010-03-01	2011-02-28

Page 6 of 29

Report No: 1003166 Date: 2010-05-05



3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted	N/A	N/A
	Emission Test		
FCC Part 15, Paragraph 15.209	General Requirement	PASS	Meets Class B Limit
FCC Part 15, Paragraph 15.231 (b)	Radiated Emission Test	PASS	Compliant
FCC Part 15, Paragraph 15.231 (c)	20dB	PASS	Compliant
	Bandwidth		
	Testing		
FCC Part 15, Paragraph 15.231 (a) (1)	Deactivate	PASS	Compliant
	Testing		

3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.231

4.0 EUT Modification

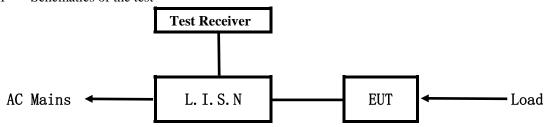
No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

Report No: 1003166 Date: 2010-05-05



5. Power Line Conducted Emission Test

5.1 Schematics of the test

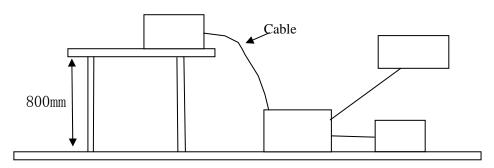


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
RF Transmitter	Transmitter Shenzhen A-OK Technology Grand		YC5AC114-01
	Development Co., LTD		

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

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Report No: 1003166 Page 8 of 29

Date: 2010-05-05



5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

	<u> </u>					
	Frequency	Class A Limits (dB μ V) Class B Limits (dB μ		nits (dB \mu V)		
	(MHz)	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*	
($0.50 \sim 5.00$	73.0	60.0	56.0	46.0	
1	$5.00 \sim 30.00$	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

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: Owing to DC operation of EUT, this test item is not performed

Page 9 of 29

Report No: 1003166 Date: 2010-05-05



6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, 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 C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup Distance = 3m Computer Pre -Amplifier EUT Turn-table Receiver

- 6.2 Configuration of The EUT

 Same as section 5.3 of this report
- 6.3 EUT Operating Condition
 Same as section 5.4 of this report.

Report No: 1003166 Page 10 of 29

Date: 2010-05-05



6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

A FCC Part 15 Subpart C Paragraph 15.231 Limit

Fundamental Frequency (MHz)	Field Strength of		Field Strength of Spurious	
	Fundamental		Emission	
	uV/m	dBuV/m	uV/m	dBuV/m
40.66-40.70	2250	67.04	225	47.04
70-130	1250	61.94	125	41.94
130-174	1250-3370	61.94-70.55	125-375	41.94-51.48
174-260	3750	71.48	375	51.48
260-470	3750-12500	71.48-81.94	375-1250	51.48-61.94
Above 470	12500	81.94	1250	61.94

Note:

- 1. RF Field Strength $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.
- 4.Linear interpolations for frequency ranges 130-174MHz and 260-470MHz
- 5.the above field strength limits are specified at a distance of 3-meters and the tighter limits apply at the band edges

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

		<u> </u>
Frequency Range (MHz)	Distance (m)	Field strength (dB \(\mu \) V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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 EUT
- 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz. As to 1G-4G, the final emission level got using PK detector. And Average = $peak(dBuV/m) duty \ cycle(dB)$
- 5. New batteries were installed in the equipment under test for radiated emission testing.
- 6. This is a handhold 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.

The report refers only to the sample tested and does not apply to the bulk.

Page 11 of 29 Report No: 1003166

Date: 2010-05-05



6.5 Test result

Fundamental Radiated Emission Data \mathbf{A}

Product:	RF Transmitter	Test Mode:	Keeping Tx transmitting
Test Item:	Fundamental Radiated Emission and Spurious Emission Data	Temperature:	25℃
Test Voltage:	12V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
433.92	73.89/66.34	Horizontal	100.82/80.82	26.93/14.48
433.92	57.32/49.77	Vertical	100.82/80.82	43.50/31.05
867.84	45.66/38.11	Horizontal	80.82/60.82	35.16/22.71
867.84	37.58/30.03	Vertical	80.82/60.82	43.24/30.79
1301.76	43.24/35.69	Horizontal	80.82/60.82	37.58/25.13
1301.76	35.65/28.10	Vertical	80.82/60.82	45.17/32.72
1735.68		Horizontal	80.82/60.82	
1735.68		Vertical	80.82/60.82	
2169.60		Horizontal	80.82/60.82	
2169.60		Vertical	80.82/60.82	
2603.52		Horizontal	80.82/60.82	
2603.52		Vertical	80.82/60.82	
3037.44		Horizontal	80.82/60.82	
3037.44		Vertical	80.82/60.82	
3471.36		Horizontal	80.82/60.82	
3471.36		Vertical	80.82/60.82	
3905.28		Horizontal	80.82/60.82	
3905.28		Vertical	80.82/60.82	
4339.2		Horizontal	80.82/60.82	
4339.2		Vertical	80.82/60.82	

Note: Average = $peak(dBuV/m) - duty \ cycle(dB)$

Report No: 1003166 Date: 2010-05-05

B.



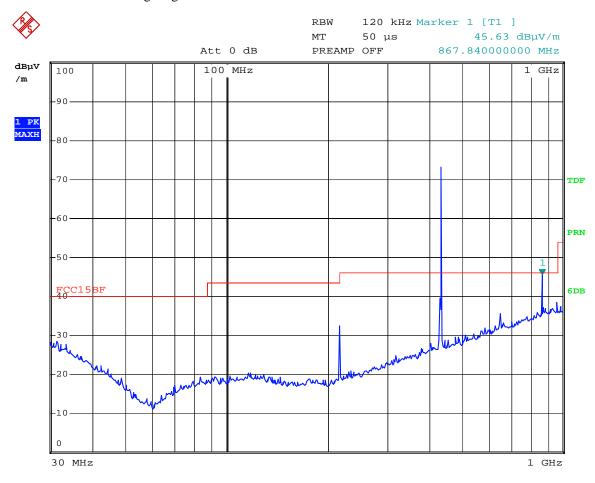
General Radiated Emission Data and Harmonies Radiated Emission Da

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx Transmitting

Results: Pass

Please refer to following diagram for individual



Date: 26.MAR.2010 15:38:17

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
	-	Н	-
	-	Н	-

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Report No: 1003166 Date: 2010-05-05



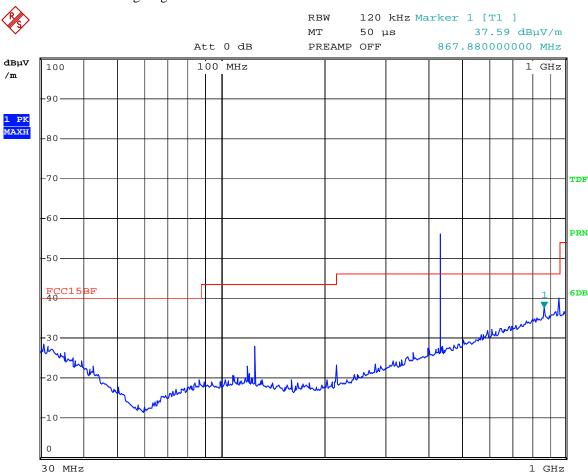
B. General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx Transmitting

Results: Pass

Please refer to following diagram for individual



Date: 26.MAR.2010 15:39:59

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
		V	

Report No: 1003166 Page 14 of 29

Date: 2010-05-05



7.0 20dB Bandwidth Testing

7.1 Requirement

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

7.2 Test Procedure

With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

7.3 Test Data

Frequency (MHz)	20dB Bandwidth Emission (kHz)	Limit (MHz)	Result
433.92	565.13	1.08	Pass

Limit=Frequency x 0.25%=433.92 x 0.25%=1.08MHz

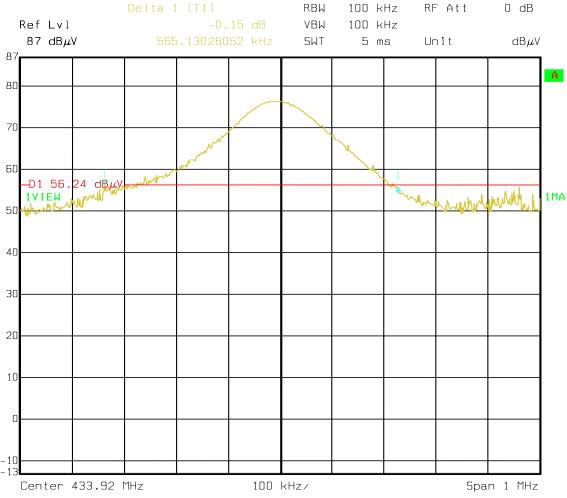
Refer to attached plots:

Page 15 of 29

Report No: 1003166 Date: 2010-05-05

Date:





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Page 16 of 29

Report No: 1003166 Date: 2010-05-05

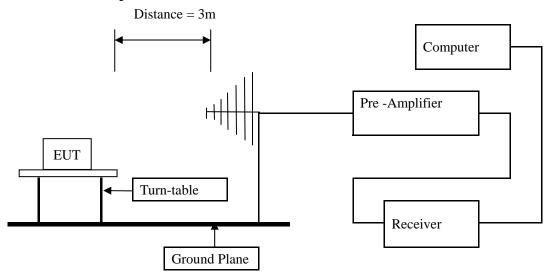


8.0 Deactivate Test

8.1 Requirement

Per 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.

8. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing The deactivation test was performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4 - 2003. The specification used was the FCC 15.231(a) limits.

8.3 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

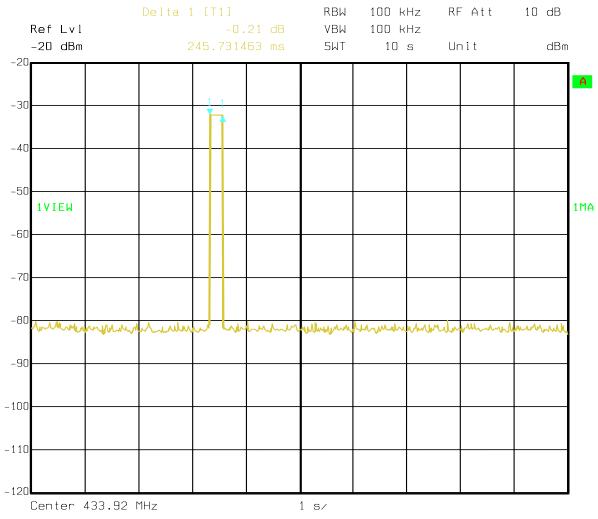
8.4 Test Data

Refer to attached plots:

Page 17 of 29

Report No: 1003166 Date: 2010-05-05





Date: 01.APR.2010 17:59:25

Report No: 1003166 Page 18 of 29

Date: 2010-05-05



9.0 Duty Cycle

9.1 Limit

Nil (No dedicated limit specified in the Rules).

9.2 Test Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer=operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=1MHz, Span=0Hz, Adjust Sweep=200ms.
- 5. Repeat above procedures until all frequency measured were complete.

9.3 Test Data

Tp = 54.569 ms

 $Ton_1 = 5.251*1 = 5.251$ (ms)

 $Ton_2 = 0.551*16 = 8.816$ (ms)

 $Ton_3 = 0.180*49 = 8.820$ (ms)

 $Ton = Ton_1 + Ton_2 + Ton_3 = 22.887$

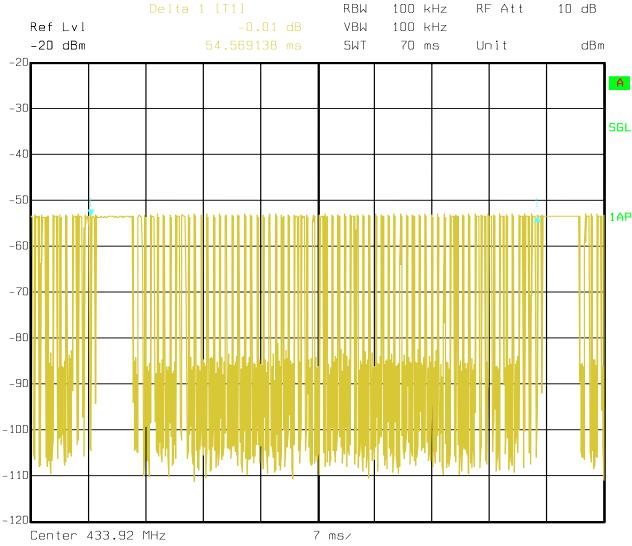
Factor = $20 * \log (Ton / Tp) = 20 * \log (22.887/54.569) = -7.55dB$

Refer to attached plots for details:

Page 19 of 29

Report No: 1003166 Date: 2010-05-05



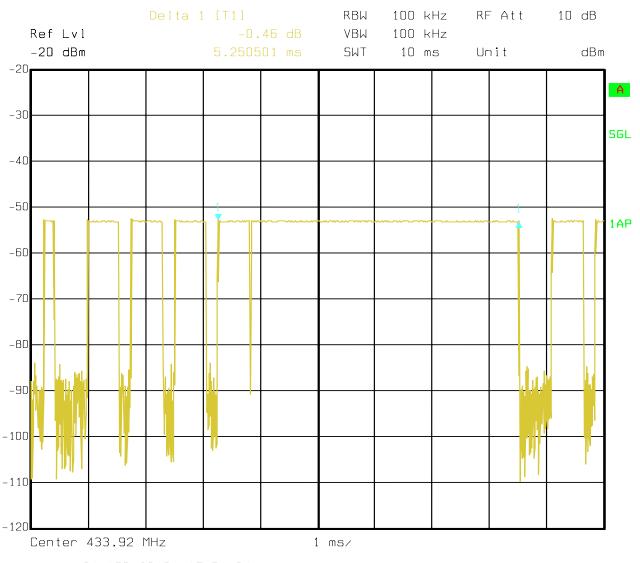


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Page 20 of 29

Report No: 1003166 Date: 2010-05-05



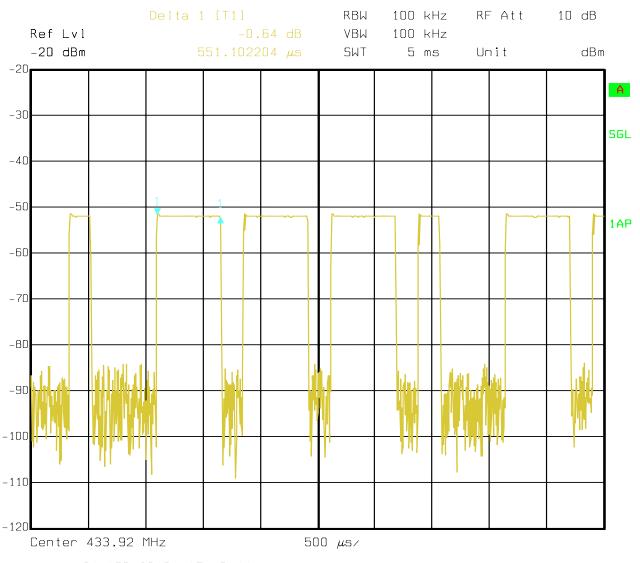


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Page 21 of 29

Report No: 1003166 Date: 2010-05-05



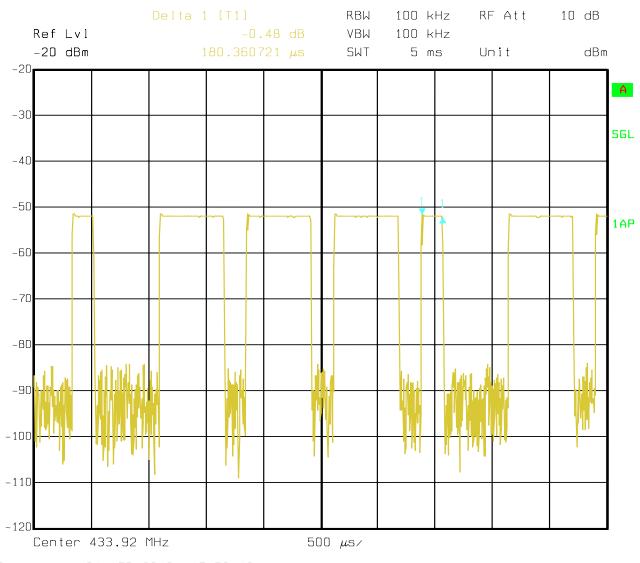


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Page 22 of 29

Report No: 1003166 Date: 2010-05-05





Date: 01.APR.2010 17:50:13

Page 23 of 29

Report No: 1003166 Date: 2010-05-05

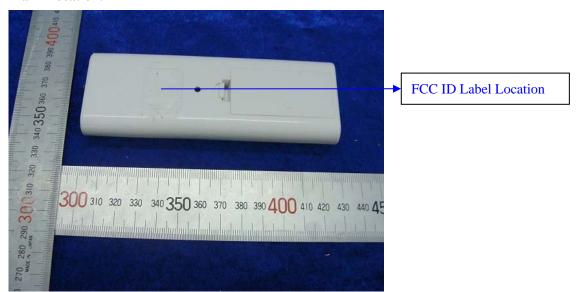


10.0 FCC ID Label

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



Page 24 of 29

Report No: 1003166 Date: 2010-05-05



11.0. Photo of testing

11.1 Conducted test View—N/A

11.2 Radiated emission test view



Page 25 of 29

Report No: 1003166 Date: 2010-05-05



Photo for the EUT



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Page 26 of 29

Report No: 1003166 Date: 2010-05-05



Photo for the EUT



Page 27 of 29

Report No: 1003166 Date: 2010-05-05





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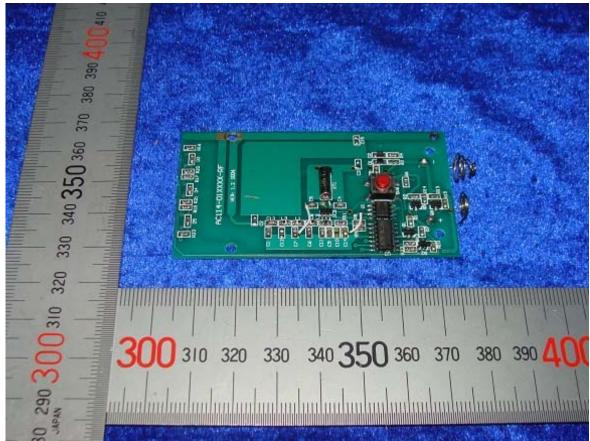
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Page 28 of 29

Report No: 1003166 Date: 2010-05-05

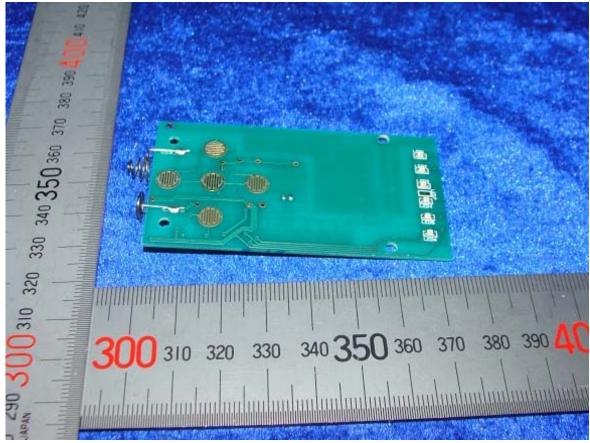




Page 29 of 29

Report No: 1003166 Date: 2010-05-05





End of the report