PRECISE TESTING

FCC PART15C TEST REPORT
FCC ID: OK475A00-2

Product： PROXIMITY ACCESS READER

Trade Name： N/A

Model Name： 75A00-2

Serial Model： DC10,DC20,DC30

Report No.： PTS2012072345F

Prepared for

DAWEI COMMUNICATION CO.,LTD

UNIT B 6/F MG TOWRR 133 HOI RUN ROAD KWUN TONG KOWLOON HONGKONG, China

Prepared by

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http:// www.pts-testing.com

TEST RESULT CERTIFICATION

Applicant's name	:	DAWEI COMMUNICATION CO.,LTD
Address	:	UNIT B 6/F MG TOWRR 133 HOI RUN ROAD KWUN TONG KOWLOON HONGKONG, China
Manufacture's Name	:	DAWEI COMMUNICATION CO.,LTD
Address	:	UNIT B 6/F MG TOWRR 133 HOI RUN ROAD KWUN TONG KOWLOON HONGKONG, China

Product description

Product name	:	PROXIMITY ACCESS READER
Model and/or type reference	:	75A00-2
Rating(s)	:	DC 12V
Standards	:	FCC Part15.209:2011 ANSI C63.4: 2009

This device described above has been tested by PTS, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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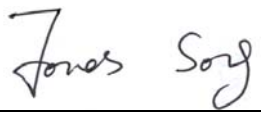
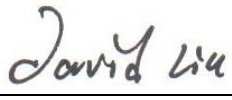
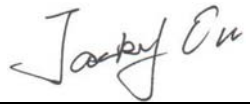
Date of Test	:	
Date (s) of performance of tests	:	15 Jul. 2012 ~25 Jul. 2012
Date of Issue	:	25 Jul. 2012
Test Result	:	**Pass**

Testing Engineer : 
Assistant

Technical Manager : 
Supervisor

Authorized Signatory : 
Jack Ou / Manager

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission			
Standard	Test Item	Judgment	Remark
FCC Part15.207	Conducted Emission	PASS	
FCC Part15.209	Radiated Emission	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd.
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
FCC Registration Number:238937; IC Registration Number:9270A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
NTEKC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
NTEKA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	PROXIMITY ACCESS READER
Brand Name	N/A
Model No.	75A00-2
Serial No.	DC10,DC20,DC30
Model Difference	Model name is difference ,the other is same
Product Description	The EUT is a PROXIMITY ACCESS READER.. TX frequency: 125KHz Number of Channels 1 Antenna Designation: Inductive Loop Coil Antenna modulation type RFID Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Power Source	DC 12V by battery
Battery	N/A

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

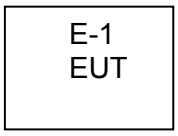
Pretest Mode	Description
Mode 1	TX mode

For Conducted Test	
Final Test Mode	Description
Mode 1	TX mode

For Radiated Test	
Final Test Mode	Description
Mode 1	TX mode

2.3 DESCRIPTION OF TEST SETUP

Mode 1:



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	PROXIMITY ACCESS READER	N/A	75A00-2	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

2.5.1 CONDUCTED TEST SITE **Conduction Test equipment**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Test Receiver	R&S	ESCI	101160	Jul. 06. 2013
2	LISN	R&S	ENV216	101313	Jul. 06. 2013
3	LISN	EMCO	3816/2	00042990	Jul. 06. 2013
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	Jul. 06. 2013
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	Jul. 06. 2013
6	Absorbing clamp	R&S	MOS-21	100423	Jul. 06. 2013

2.5.2 RADIATED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06, 2013
2	Test Cable	N/A	R-01	N/A	Jul. 06, 2013
3	Test Cable	N/A	R-02	N/A	Jul. 06, 2013
4	EMI Test Receiver	R&S	ESCI-7	101318	Jul. 06, 2013
5	Antenna Mast	EM	SC100_1	N/A	N/A
6	Turn Table	EM	SC100	060531	N/A
7	50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 06, 2013
8	Spectrum Analyzer	Aglient	E4407B	MY45108040	Jul. 06, 2013
9	Loop Antenna	ARA	PLA-1030/B	1029	Jul. 06. 2012
10	Amplifier	EM	EM-30180	060538	Jul. 06, 2013

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

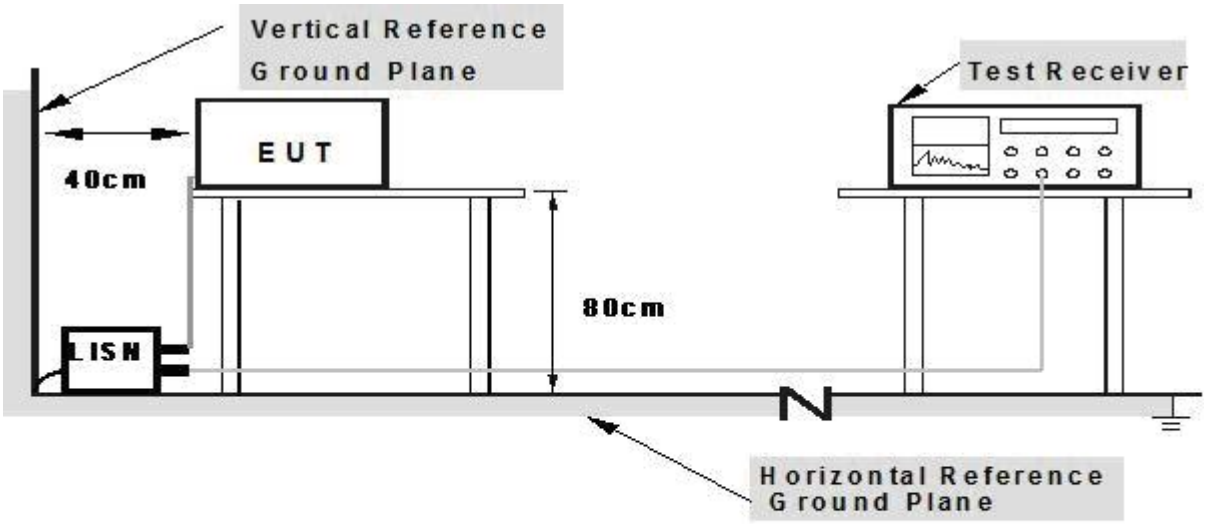
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

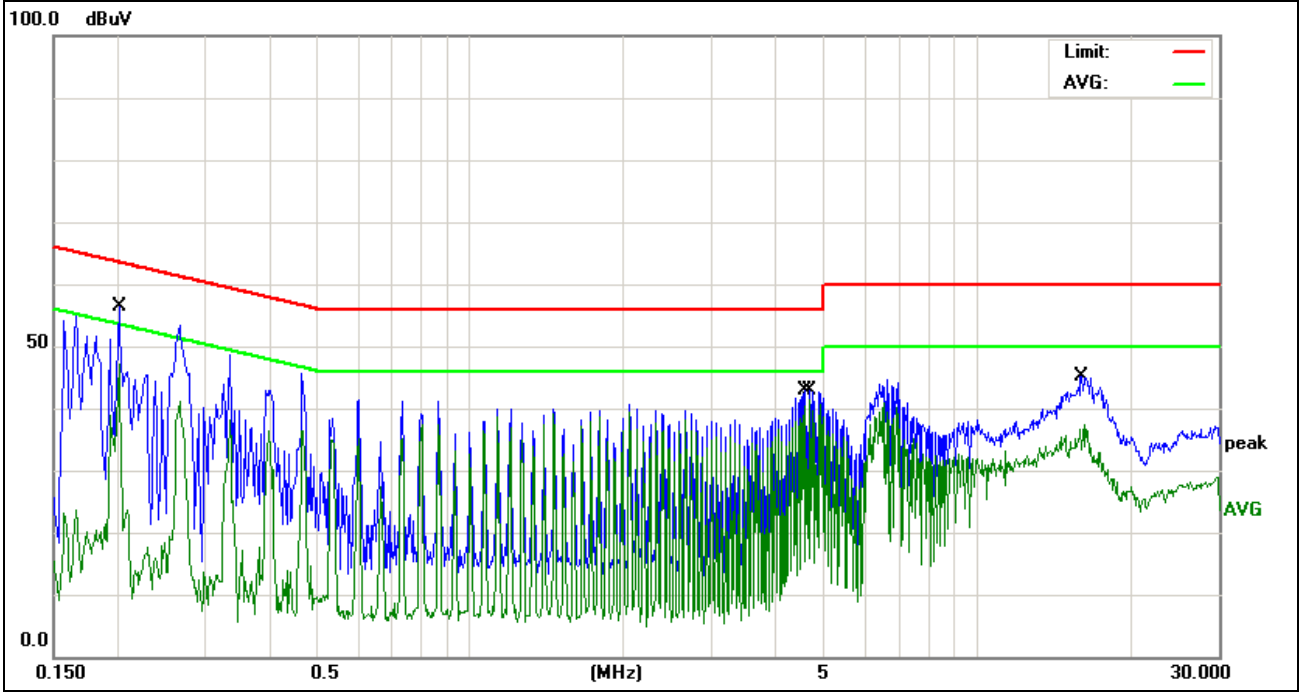
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.1.5 TEST RESULTS

EUT：	PROXIMITY ACCESS READER	Model Name. ：	75A00-2
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 12V from adapter AC 120V/60Hz	Test Mode：	TX

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.202	46.05	10.44	56.49	63.52	-7.03	QP
0.202	36.72	10.44	47.16	53.52	-6.36	AVG
4.5899	32.22	10.64	42.86	56	-13.14	QP
4.6577	30.63	10.64	41.27	46	-4.73	AVG
16.1056	34.39	10.71	45.1	60	-14.9	QP
16.3059	26.66	10.71	37.37	50	-12.63	AVG

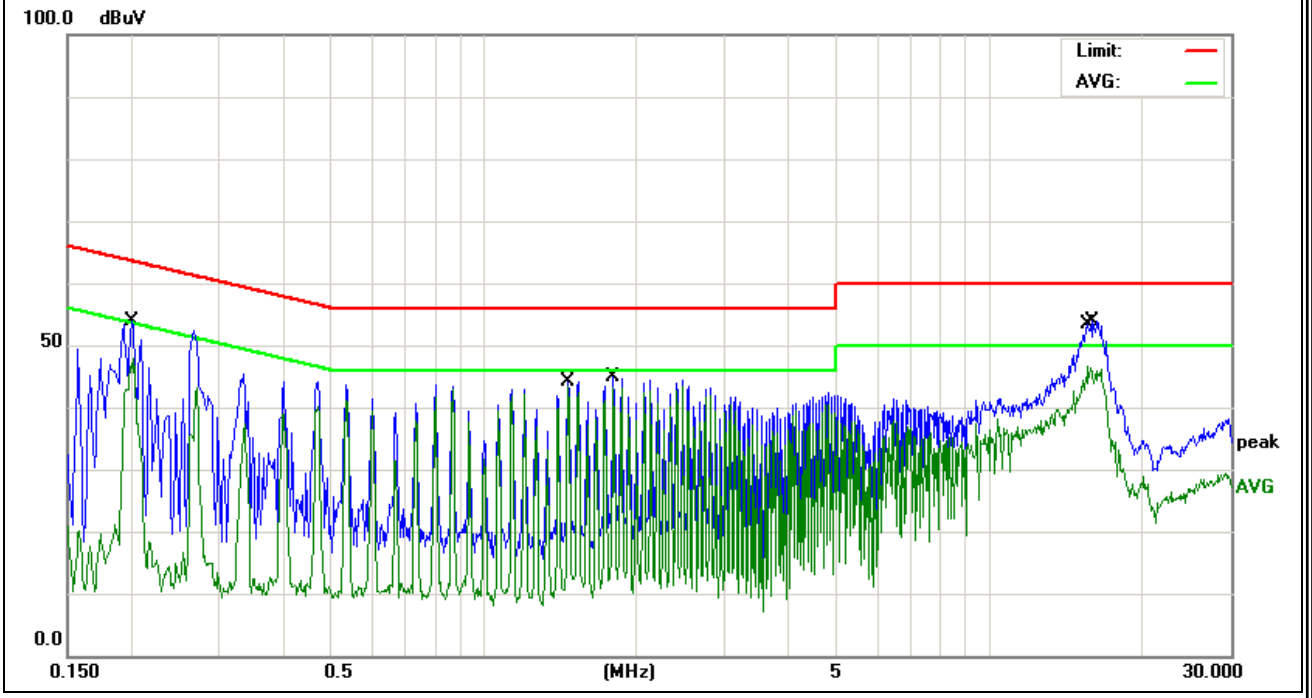
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



EUT：	PROXIMITY ACCESS READER	Model Name. ：	75A00-2
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 12V from adapter AC 120V/60Hz	Test Mode：	TX

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2006	43.52	10.43	53.95	63.58	-9.63	QP
0.2028	37.51	10.43	47.94	53.49	-5.55	AVG
1.4697	33	10.45	43.45	46	-2.55	AVG
1.806	34.33	10.44	44.77	56	-11.23	QP
15.6379	35.87	10.73	46.6	50	-3.4	AVG
15.9739	43.24	10.73	53.97	60	-6.03	QP

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Notes:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

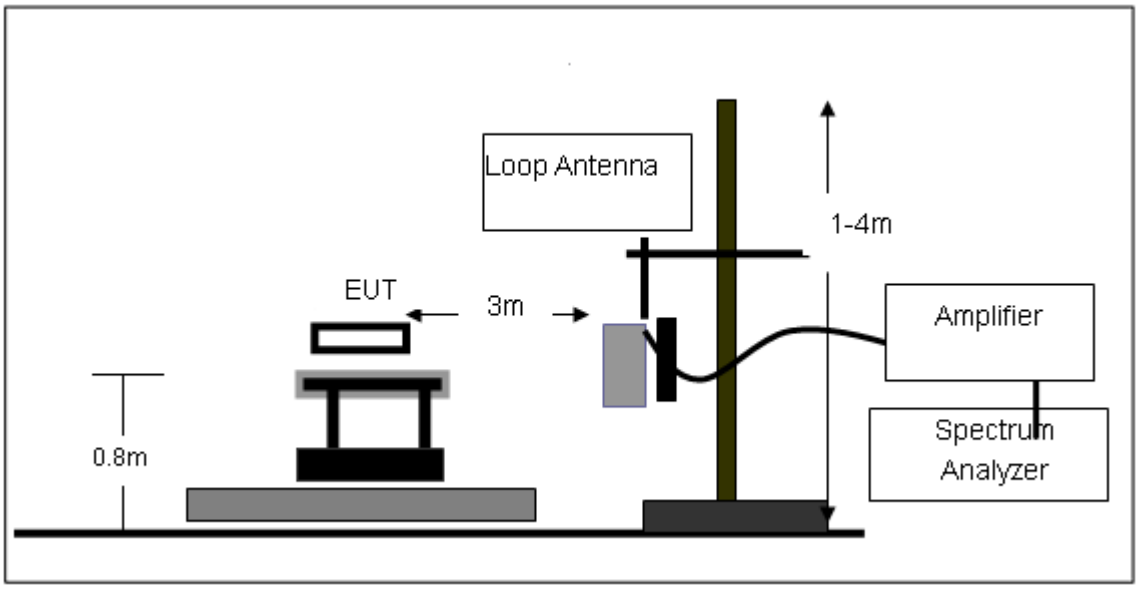
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.

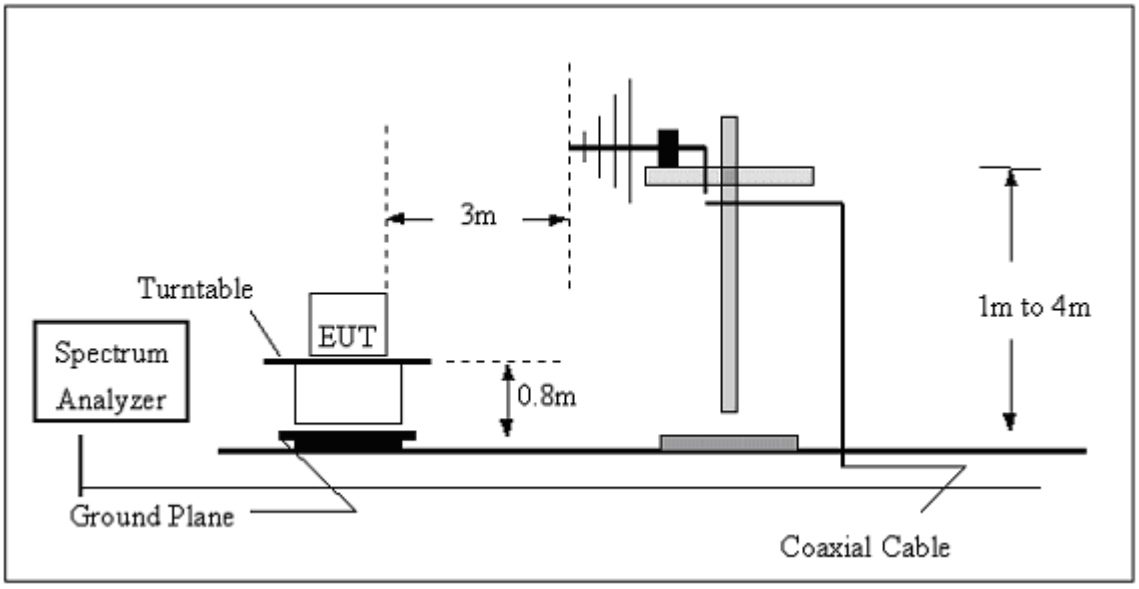
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 30MHz



(B) Radiated Emission Test Set-Up Frequency Above 30MHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS(Blow 30MHZ)

EUT：	PROXIMITY ACCESS READER	Model Name ：	75A00-2
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX mode	Polarization：	--

Frequency (kHz)	Detector	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement Distance (m)
125	AV	72.54	105.67	-33.13	3
No suspicious signal found in other frequency.					

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =20 log (specific distance/test distance)^2(dB)

=20 log(300/3)^2

=20 log100^2

=80dB

Limit line = specific limits(dBuv) + distance extrapolation factor.

=20log2400/125+80

=25.67+80

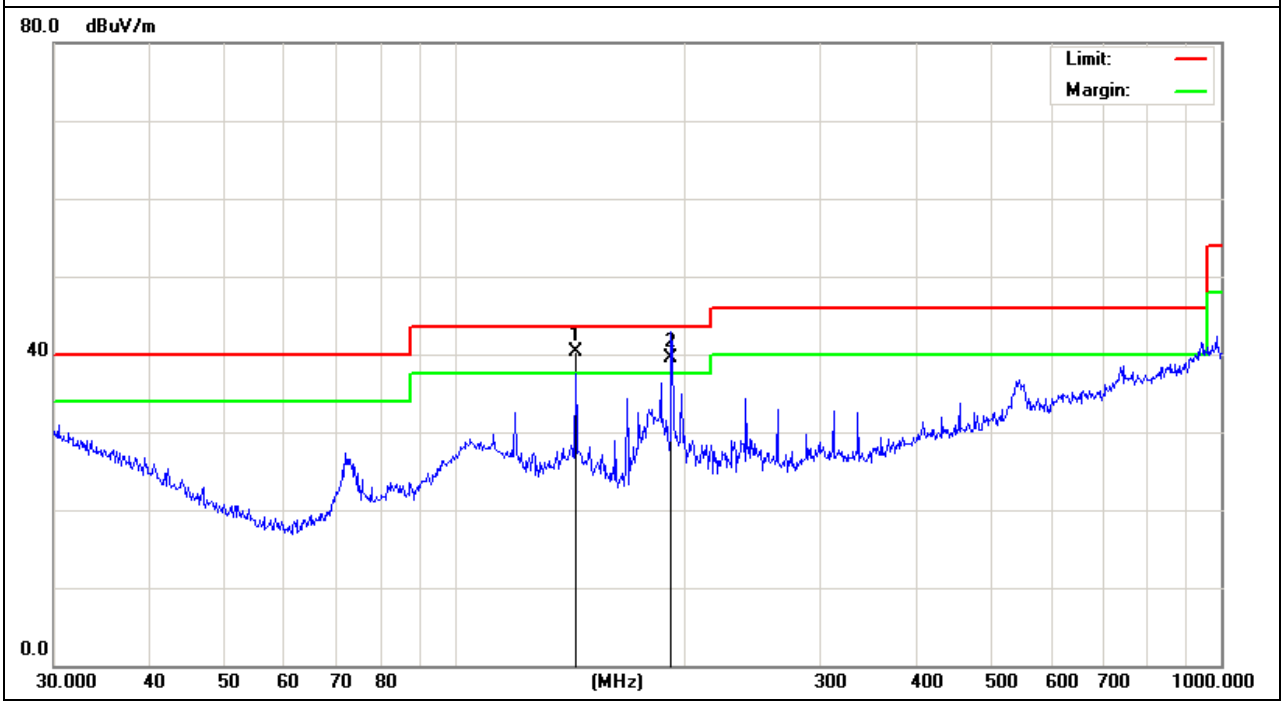
=105.67

3.2.6 TEST RESULTS(30MHZ-1GHZ)

EUT：	PROXIMITY ACCESS READER	Model Name ：	75A00-2
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX mode	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
143.8293	28.33	11.93	40.26	43.5	-3.24	QP
191.745	30.84	8.72	39.56	43.5	-3.94	QP

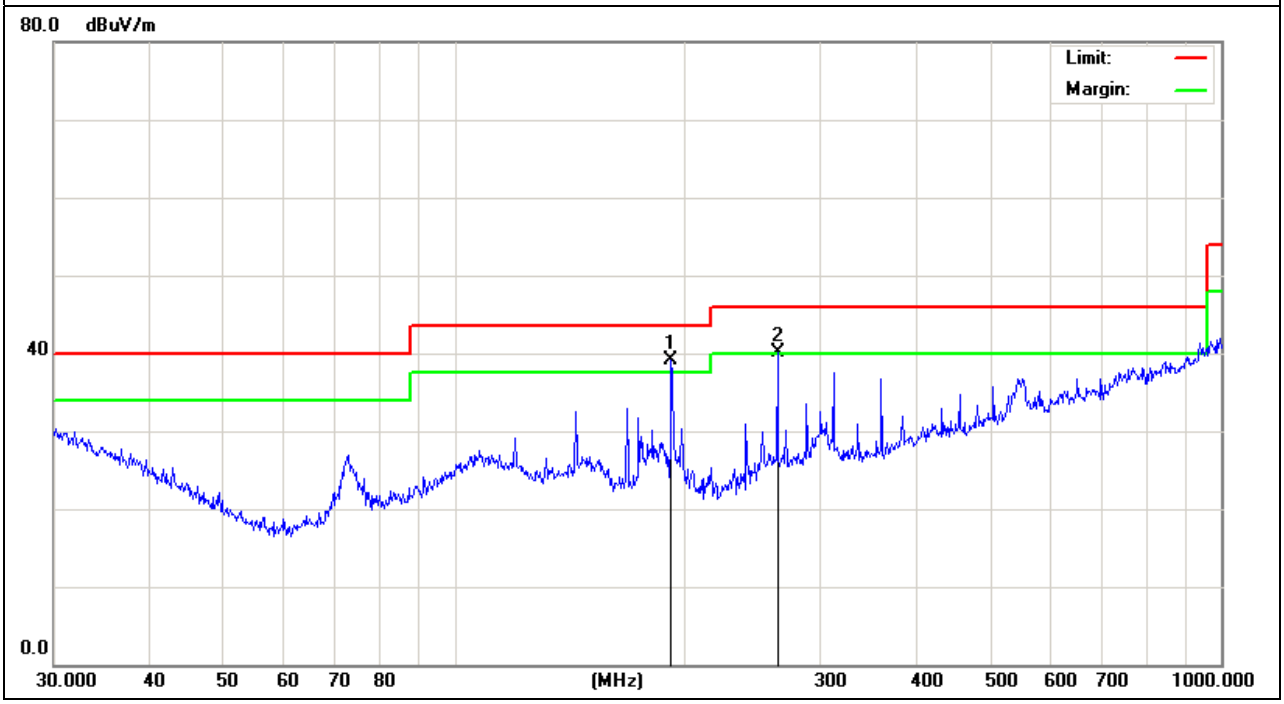
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	PROXIMITY ACCESS READER	Model Name ：	75A00-2
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12 V
Test Mode ：	TX mode	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
191.745	30.43	8.72	39.15	43.5	-4.35	QP
263.819	26.04	13.99	40.03	46	-5.97	QP

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



3.2.7 TEST RESULTS(Above 1GHz)

EUT：	PROXIMITY ACCESS READER	Model Name ：	75A00-2
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	N/A	Polarization :	N/A

Note: The operating frequency is 125kHz, radiated emission above 1GHz don’t need test.

4. EUT TEST PHOTO

Radiated Measurement Photos

Conducted Measurement Photos