FCC Test Report

FCC ID: TFJUIC6811

This report concerns (check one) : ■ **Original Grant** □ **Class II Change**

Issued Date : Jul. 26, 2007
Project No. : 0705028
Equipment : Contactless Smart Card Reader Module
Model Name : UIC6811 Series

Applicant : Uniform Industrial Corp.
47709 Fremont Blvd., Fremont,
California, United States 94539.

Tested by:
Neutron Engineering Inc. EMC Laboratory
Date of Test:
May 15, 2007 ~ Jul. 20, 2007

Testing Engineer: _____ (Rush Kao)

Technical Manager: _____ (Jeff Yang)

Authorized Signatory : _____ (Andy Chiu)

NEUTRON ENGINEERING INC.

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NVLAP Lab Code: 200145-0 ilac-MRA TAF Testing Laboratory 0659

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

Neutron's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

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Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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1. CERTIFICATION

Equipment : Contactless Smart Card Reader Module
Brand Name : Uniform
Model Name : UIC6811 Series
Applicant : Uniform Industrial Corp.
Data of Test : May 15, 2007 ~ Jul. 20, 2007
Standards : FCC Part15, Subpart C / RSS-210: 2004/ ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-0705028) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and CNLA according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards: (Antenna to EUT distance is **3** m)

FCC Part15, Subpart C		
Standard	Test Item	Remark
15.207	Conducted Emission	PASS
15.35 / 15.205 / 15.209 / 15.225	Radiated Emission	PASS
15.225(e)	Frequency Stability	PASS
15.203	Antenna Requirement	PASS

NOTE:

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

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS01** at the location of No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan.

2.2 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
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	

3. GENERAL INFORMATION

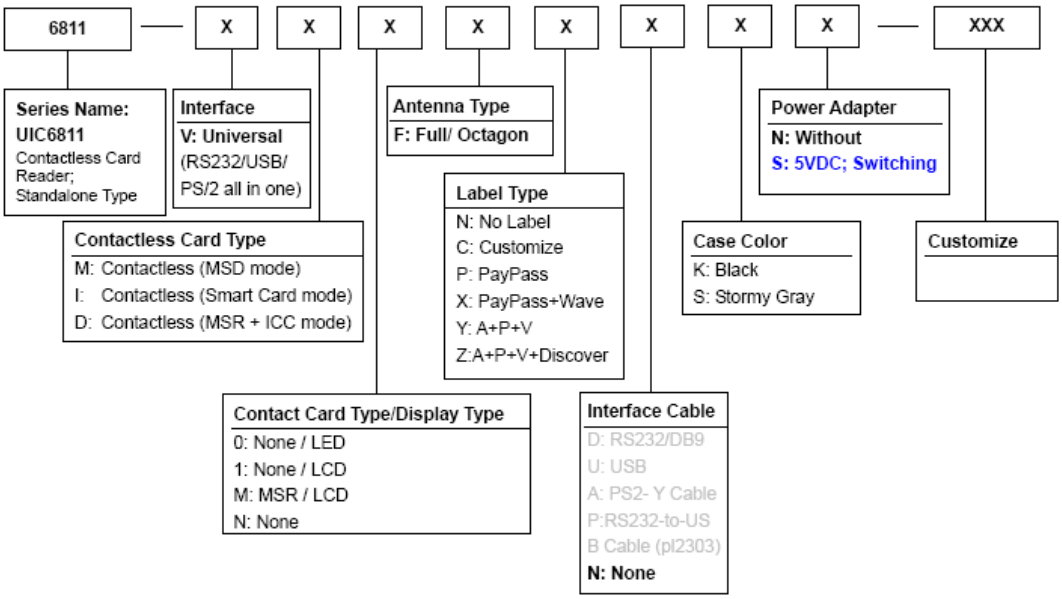
3.1 GENERAL DESCRIPTION OF EUT

Equipment	Contactless Smart Card Reader Module
Brand Name	Uniform
Model Name	UIC6811 Series
OEM Brand/Model Name	N/A
Model Difference	Please refer to next page the Part Number Description of UIC680 Series. All the models were tested, and the model: UIC6811-VM1FYDKS-XXX was found to be the worst case during the pr-scanning test. This model of the worst case was used for final testing and collecting test data included in this report.
Product Description	The EUT is a Contactless Smart Card Reader Module. A. Operation Frequency: 13.56 MHz B. Modulation Type: ASK C. Antenna Designation: Integral Antenna / Octagon 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	Supplied from PC RS232 port. / DC Voltage supplied from power adapter.
Power Rating	M6-7US05R-A : AC I/P 100-240Vac~0.3A, 50-60Hz/ DC O/P 5V, 1.44A (7.2W Max.) PA1008-1DU: AC I/P 100-240Vac~50/60Hz, 0.3A/ DC O/P 5V, 1.0A, 50W Max
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	AC/DC Adapter(Model Name: M6-7US05R-A & PA1008-1DU)
EUT Modification(s)	N/A

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Part Number Description of UIC6811 Series



Remark: The interface cable will be a separate option by order.

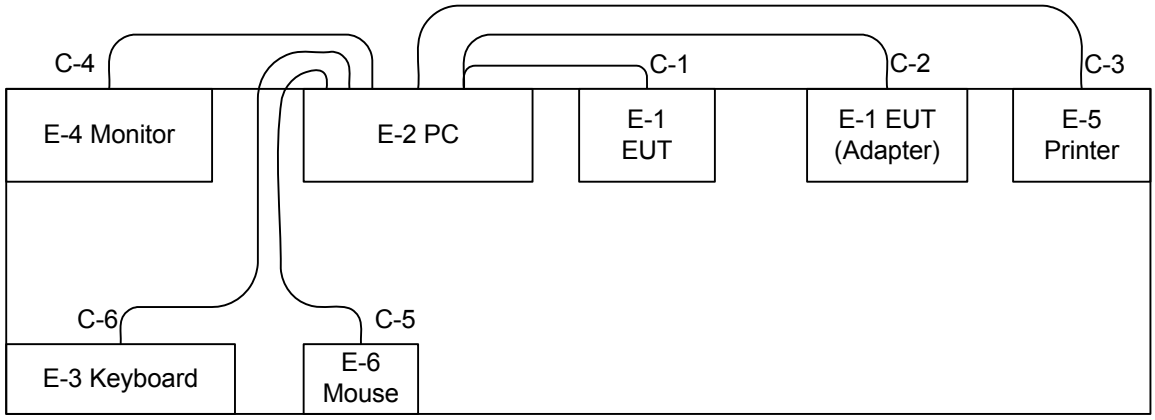
3.2 DESCRIPTION OF TEST MODES

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 Test Mode	Description
Mode 1	RS232
Mode 2	USB
Mode 3	PS/2

For Conducted / Radiated Test	
Final Test Mode	Description
Mode 1	RS232

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1 RS232/DB9 Cable
C-2 Power Cable
C-3 Parallel Cable
C-4 D-SUB Cable
C-5 PS/2 Cable
C-6 PS/2 Cable

3.4 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Contactless Smart Card Reader Module	Uniform	UIC6811-VM1FYDKS-XXX	TFJUIC6811	N/A	EUT
E-2	PC	IBM	8175-I5V	DOC	99MYG14	
E-3	PS/2 K/B	Logitech	Y-SJ17(ACK260A)	DOC	SYU44664880	
E-4	19" LCD Monitor	Samsung	193P	DOC	DI19H4JXC05517A	
E-5	Printer	SII	DPU-414	DOC	1045105A	
E-6	PS/2 Mouse	Logitech	M-SBF69	DOC	HCA44601156	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.8M	
C-2	NO	NO	1.8M	
C-3	YES	NO	1.8M	
C-4	YES	YES	1.8M	
C-5	YES	NO	1.5M	
C-6	YES	NO	1.5M	

Note:

(1) The support equipment was authorized by Declaration of Conformity.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 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.

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	Rolf Heine	NNB-2/16Z	98053	Dec. 27, 2007
2	4L-V-LISN	Rolf Heine	NNB-4/63TL	02/10040	Apr. 08, 2008
3	Pulse Limiter	Electro-Metrics	EM-7600	112644	Nov. 28, 2007
4	50Ω Terminator	N/A	N/A	N/A	May.13, 2009
5	Test Cable	N/A	C01	N/A	Nov. 28, 2007
6	EMI Test Receiver	R&S	ESCI	100082	Mar. 08, 2008

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

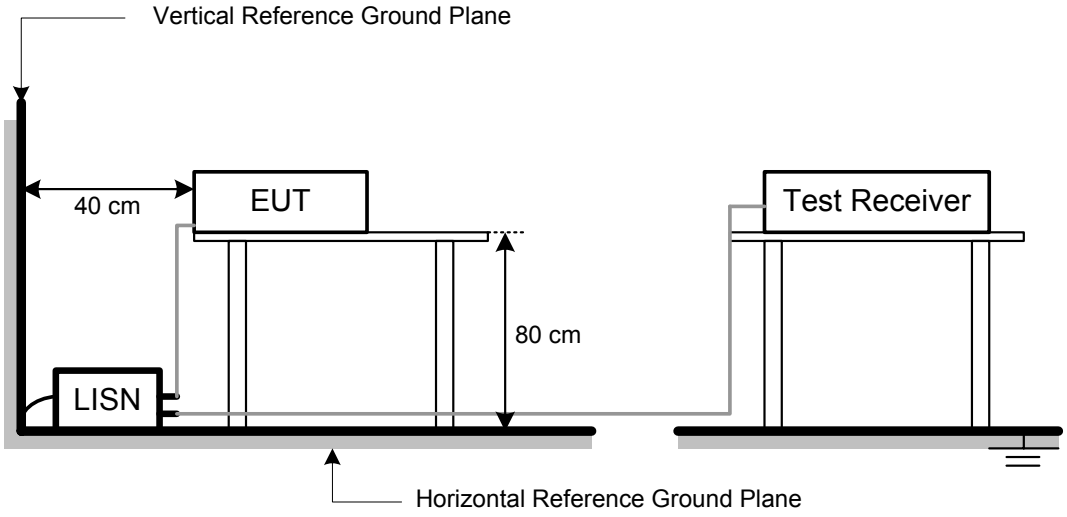
4.1.3 TEST PROCEDURE

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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The program contained on a PC hard disk and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is:

1. Read (write) from (to) mass storage device (Disk).
2. Send "H" pattern to video port device (Monitor).
3. Send " H " pattern to parallel port device (Printer).
4. Send " H " pattern to serial port device (Modem).
5. The EUT has been programmed to continuously transmit during test.
6. Repeated from 2 to 5 continuously.

As the keyboard and mouse are strictly input devices, no data is transmitted to (from) them during test. They are, however, continuously scanned for data input activity.

4.1.7 TEST RESULTS

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

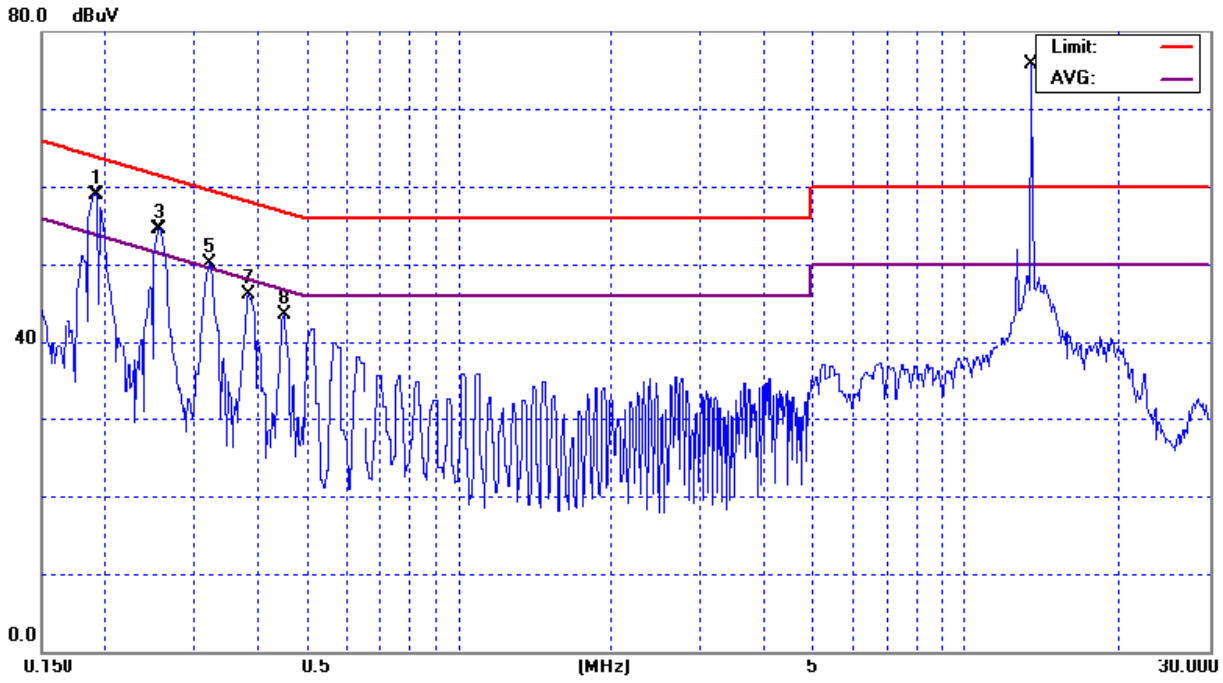
Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.19	Line	58.97	47.38	63.92	53.92	-4.95	(QP)
0.26	Line	54.51	43.77	61.55	51.55	-7.04	(QP)
0.32	Line	50.09	37.37	59.67	49.67	-9.58	(QP)
0.38	Line	46.04	*	58.18	48.18	-12.14	(QP)
0.45	Line	43.49	*	56.84	46.84	-13.35	(QP)
13.55	Line	75.80	38.05	60.00	50.00	15.80	Note (3)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Tx Fundamental, For reference only. Please refer to the next page.



E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
13.55	Line	48.85	43.85	60.00	50.00	-6.15	(AV)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

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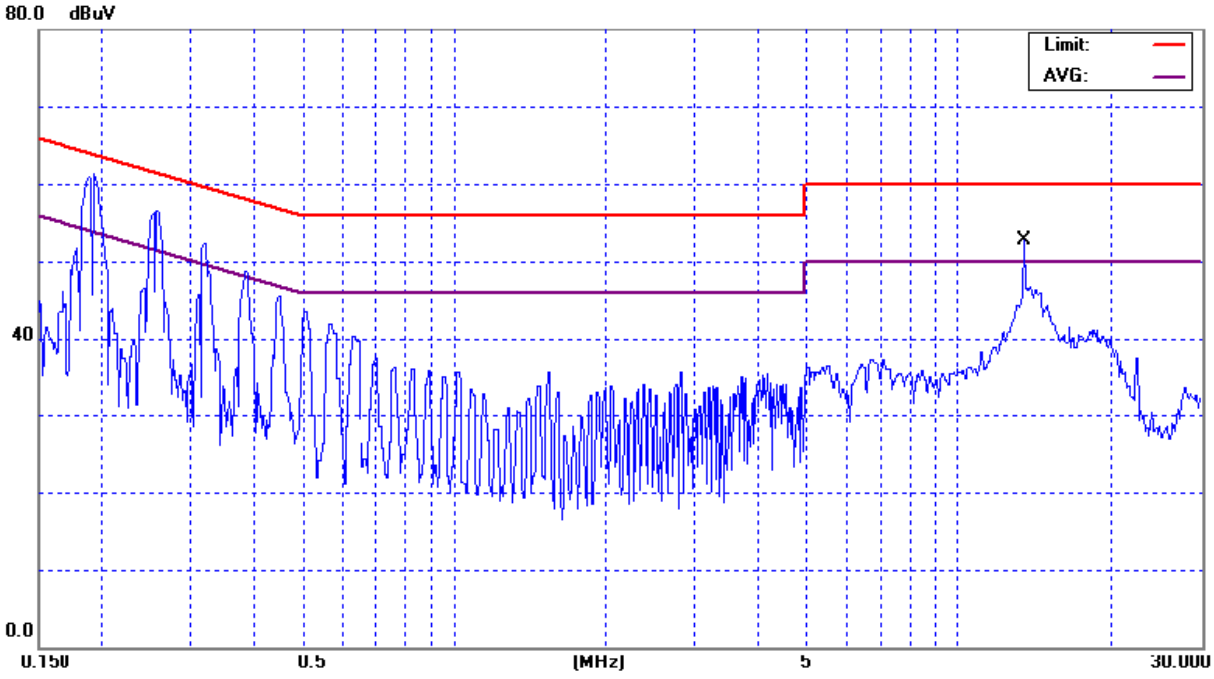
(3) a) First, perform the AC line conducted tests with the antenna attached to make sure the device complies with the conducted limits outside the transmitter's fundamental emission band.
b) Second, retest with a dummy load to make sure the device complies with the conducted limits inside the transmitter's fundamental emission band. Only the fundamental TX emission band needs to be retested.



E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.19	Neutral	59.97	45.97	63.92	53.92	-3.95	(QP)
0.26	Neutral	55.58	42.76	61.52	51.52	-5.94	(QP)
0.32	Neutral	50.91	37.46	59.67	49.67	-8.76	(QP)
0.39	Neutral	47.91	34.67	58.15	48.15	-10.24	(QP)
0.45	Neutral	43.15	*	56.92	46.92	-13.77	(QP)
13.55	Neutral	71.42	34.57	60.00	50.00	11.42	Note (3)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

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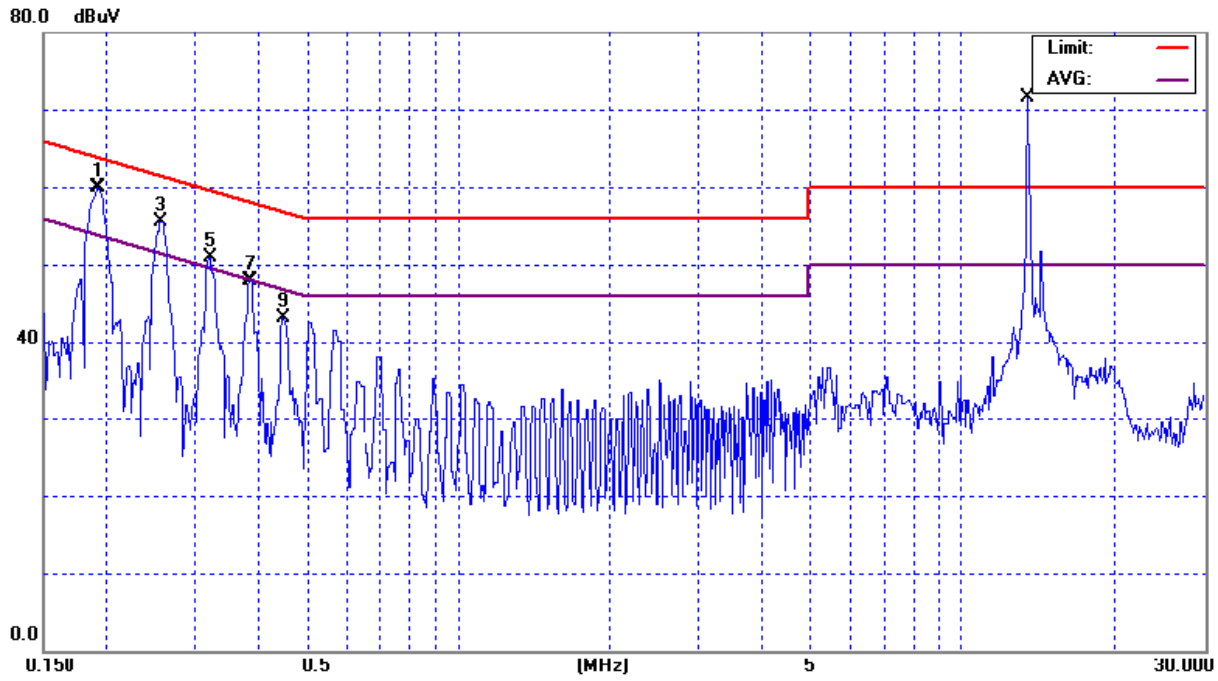

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
13.55	Neutral	50.17	28.27	60.00	50.00	-9.83	(QP)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

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(3) a) First, perform the AC line conducted tests with the antenna attached to make sure the device complies with the conducted limits outside the transmitter's fundamental emission band.
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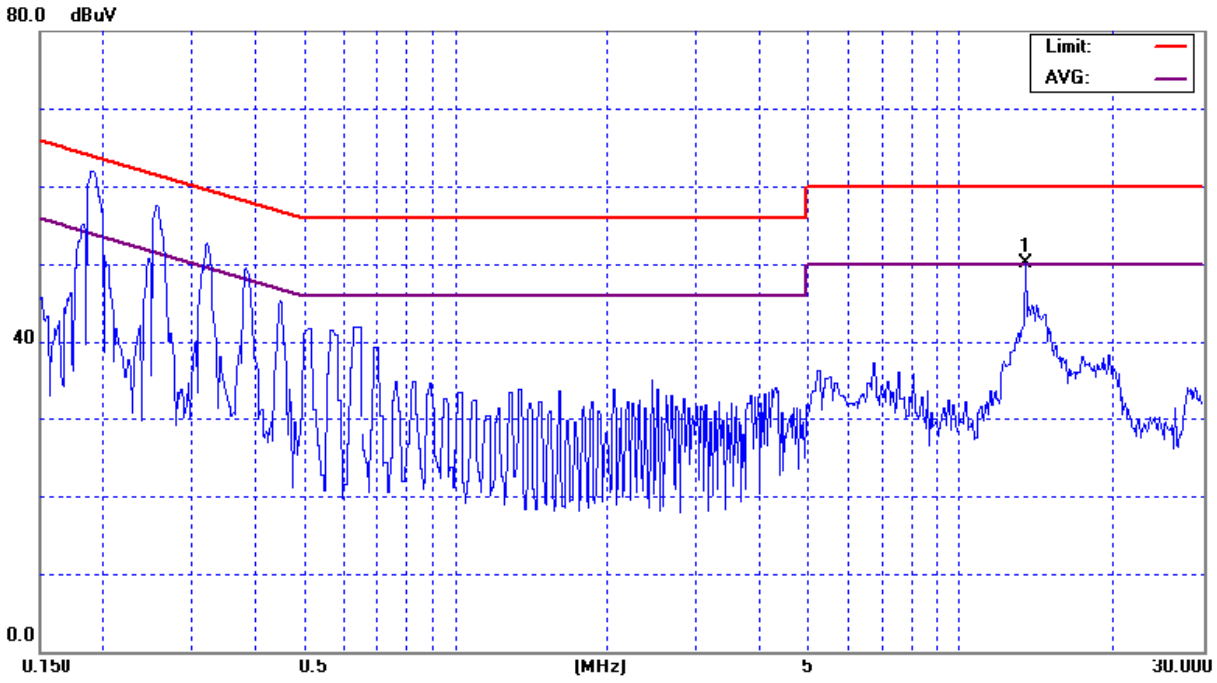

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Temperature :	26°C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.16	Line	56.20	39.88	65.26	55.26	-9.06	(QP)
0.22	Line	52.00	42.88	62.69	52.69	-9.81	(AV)
0.32	Line	48.82	42.87	59.74	49.74	-6.87	(AV)
0.45	Line	43.19	*	56.93	46.93	-13.74	(QP)
6.60	Line	39.99	*	60.00	50.00	-20.01	(QP)
13.55	Line	66.61	34.95	60.00	50.00	6.61	Note (3)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

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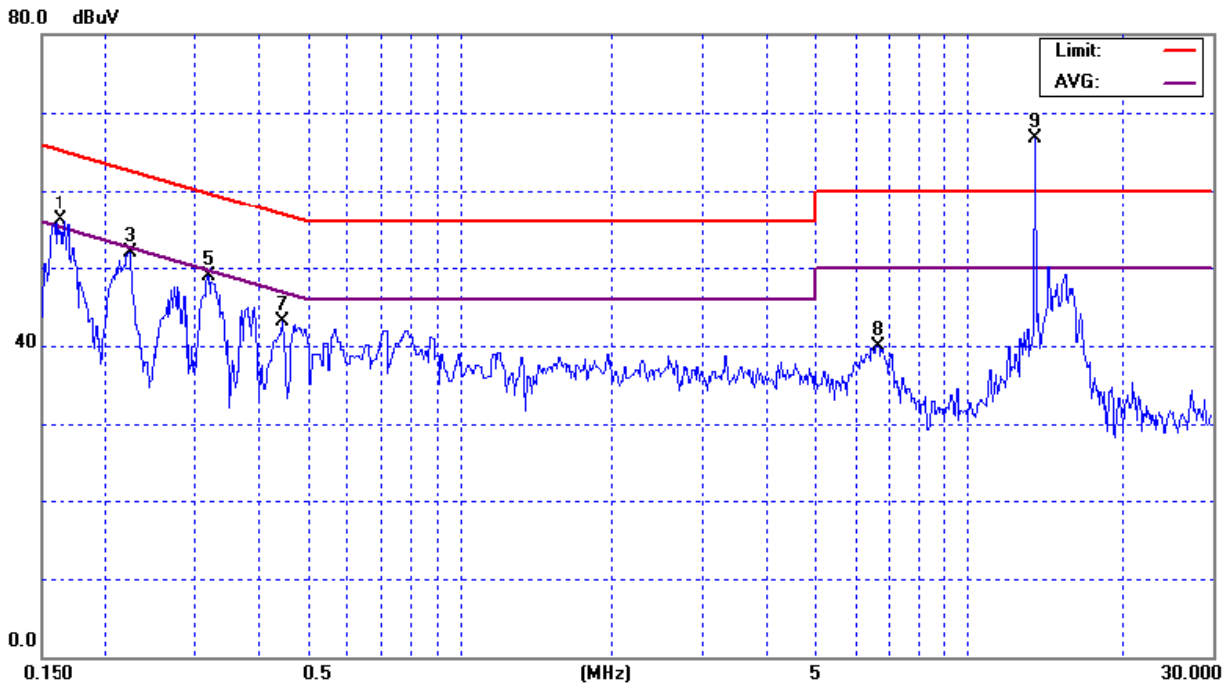

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
13.55	Line	49.45	31.65	60.00	50.00	-10.55	(AV)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

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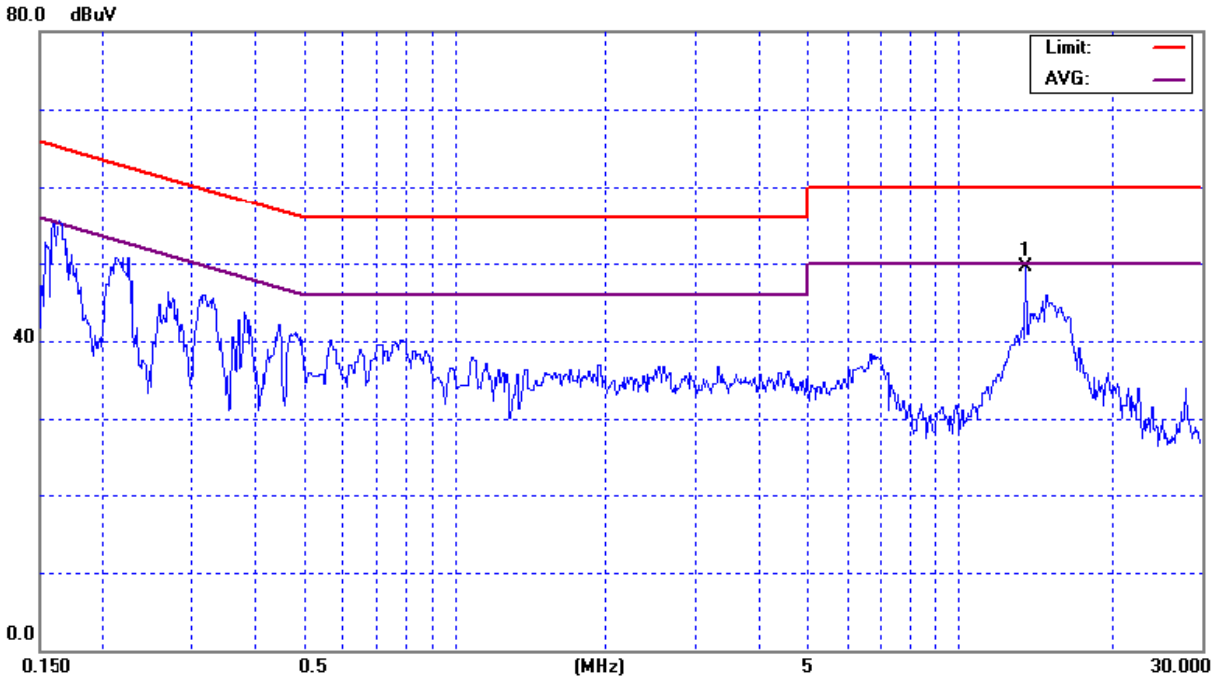

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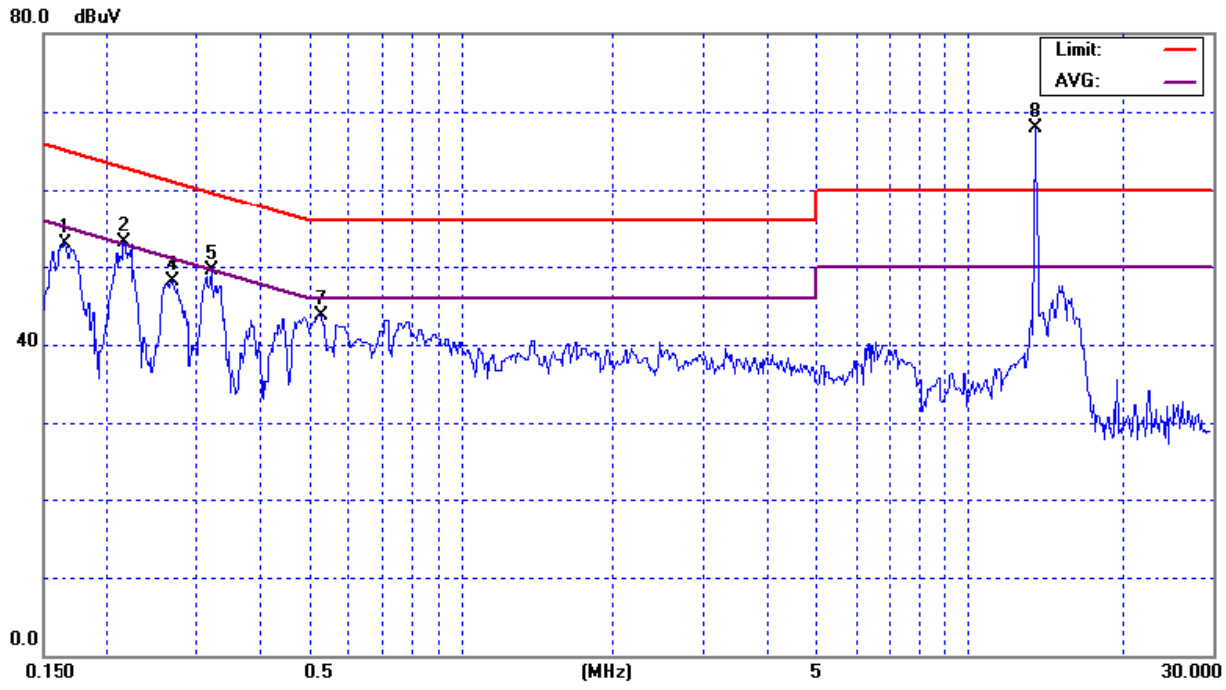
Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.17	Neutral	52.91	*	65.19	55.19	-12.28	(QP)
0.22	Neutral	53.11	42.47	62.95	52.95	-9.84	(QP)
0.27	Neutral	48.04	*	61.15	51.15	-13.11	(QP)
0.32	Neutral	49.55	37.56	59.69	49.69	-10.14	(QP)
0.53	Neutral	43.68	*	56.00	46.00	-12.32	(QP)
13.55	Neutral	67.86	36.47	60.00	50.00	7.86	Note (3)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Tx Fundamental, For reference only. Please refer to the next page.



E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26 °C	Relative Humidity :	57%
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

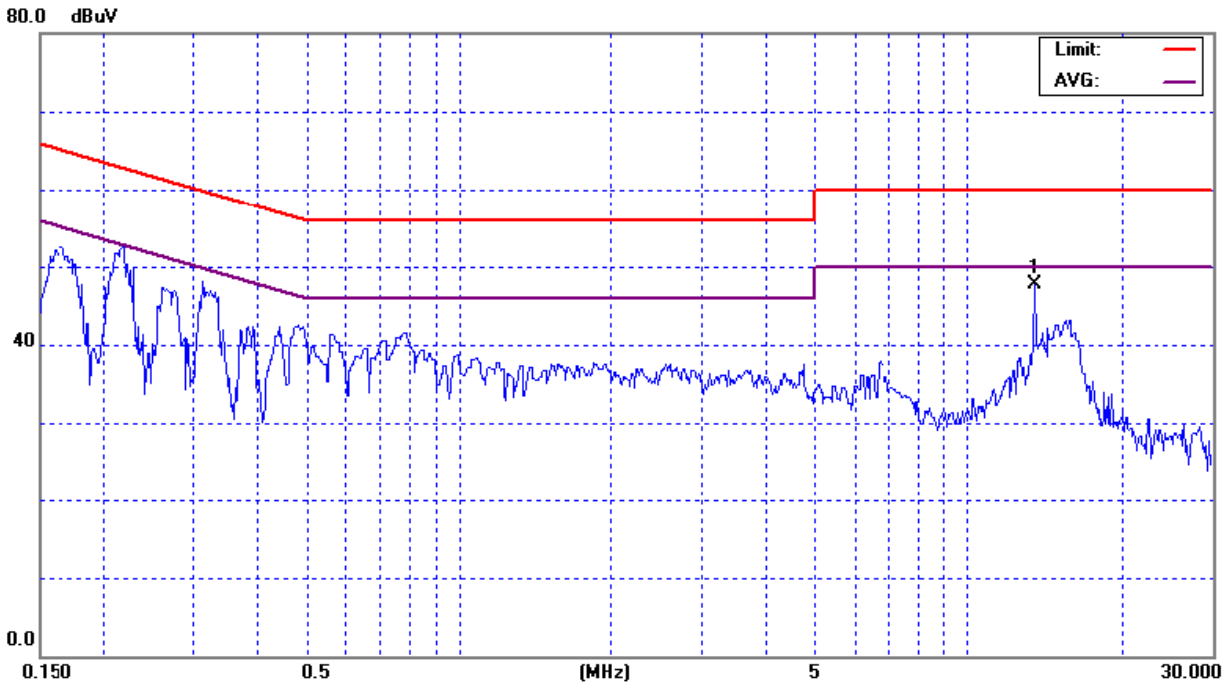
Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
13.55	Neutral	47.75	30.67	60.00	50.00	-12.25	(QP)

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz 。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured 。

(3) a) First, perform the AC line conducted tests with the antenna attached to make sure the device complies with the conducted limits outside the transmitter's fundamental emission band.
b) Second, retest with a dummy load to make sure the device complies with the conducted limits inside the transmitter's fundamental emission band. Only the fundamental TX emission band needs to be retested.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (Frequency Range 30MHz-1000MHz)

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500
FCC Part 15.225(a)/(b)/(c)				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
13.553 – 13.567	15,848	30 m	15,848*100	124
13.567 – 13.710	334	30 m	334*100	90.5
13.110 – 13.410 13.710 – 14.010	106	30 m	106*100	80.5

Notes:

(1) The tighter limit shall apply at the boundary between two frequency range.

(2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).

(3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d_2/d_1)^2$.
Example:
F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as $L_{d1} = L_1 = 30uV/m * (10)^2 = 100 * 30$ uV/m

4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan, 23, 2009
2	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3176	Feb. 05, 2008
3	Loop Ant	EMCO	6502	00042960	Jan. 13, 2008
4	Test Cable	N/A	10M_OS01	N/A	Nov. 28, 2007
5	Test Cable	N/A	OS01-1/-2	N/A	Nov. 28, 2007
6	EMI Test Receiver	R&S	ESCI	100080	Mar. 08, 2008

Remark: ” N/A” denotes No Model Name / Serial No. and No Calibration specified.

4.2.3 TEST PROCEDURE

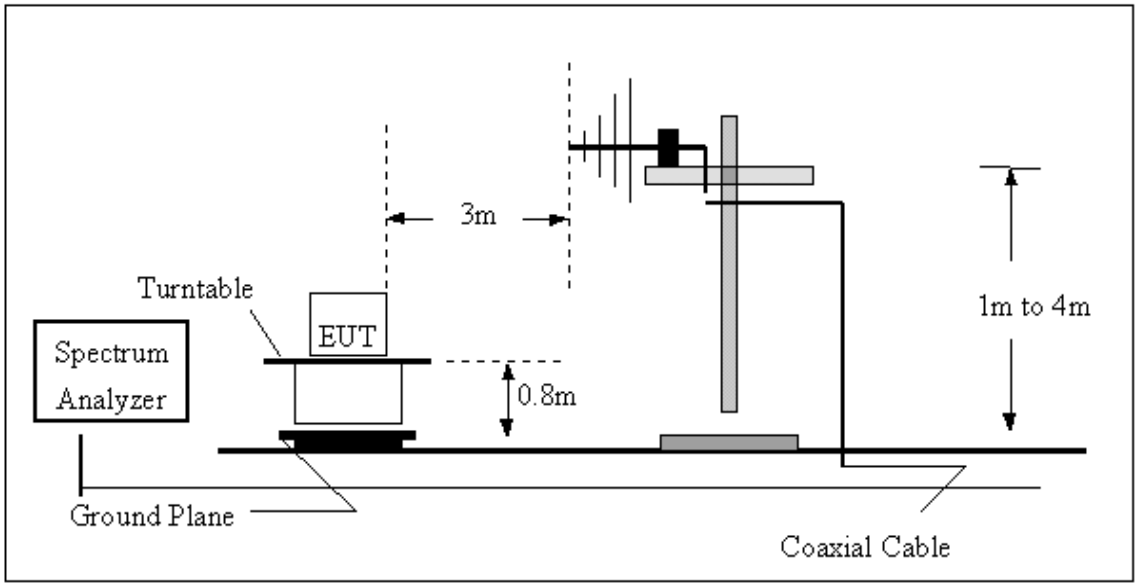
a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was 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 radiated 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.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

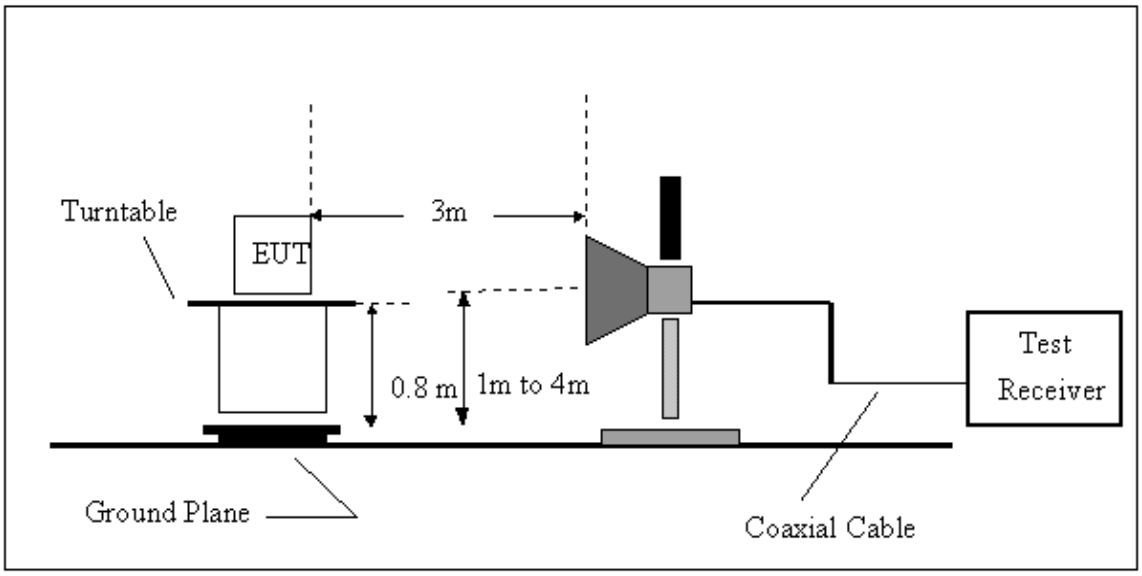
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS- FCC PART 15.209

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit-3m (dBuV/m)	Safe Margins (dBuV/m)	Note
70.74	V	Peak	43.22	- 19.07	24.15	40.00	- 15.85	
80.44	V	Peak	44.88	- 19.30	25.58	40.00	- 14.42	
134.76	V	Peak	42.09	- 15.61	26.48	43.50	- 17.02	
161.92	V	Peak	33.70	- 6.63	27.07	43.50	- 16.43	
189.08	V	Peak	33.77	- 8.26	25.51	43.50	- 17.99	
365.62	V	Peak	44.66	- 13.95	30.71	46.00	- 15.29	

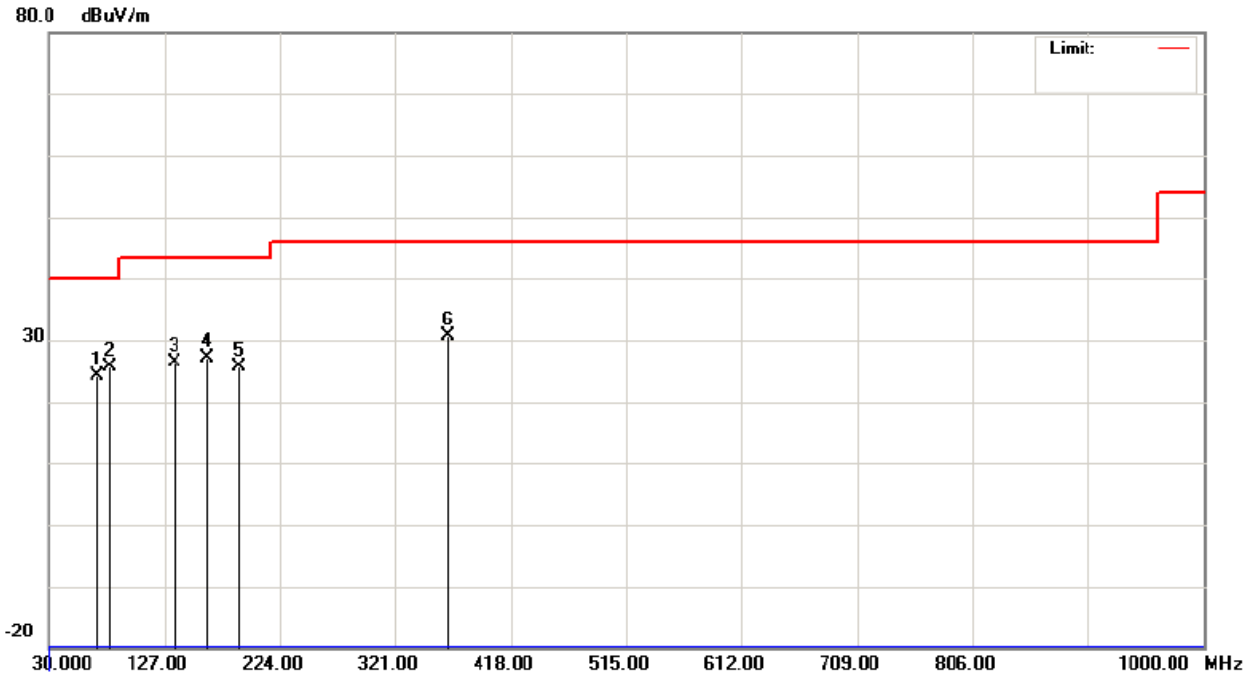
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit-3m (dBuV/m)	Safe Margins (dBuV/m)	Note
30.00	H	Peak	38.52	- 16.83	21.69	40.00	- 18.31	
161.92	H	Peak	39.30	- 13.53	25.77	43.50	- 17.73	
365.62	H	Peak	44.52	- 15.01	29.51	46.00	- 16.49	
419.94	H	Peak	41.85	- 12.02	29.83	46.00	- 16.17	
528.58	H	Peak	32.21	- 4.34	27.87	46.00	- 18.13	
610.06	H	Peak	29.26	- 1.40	27.86	46.00	- 18.14	

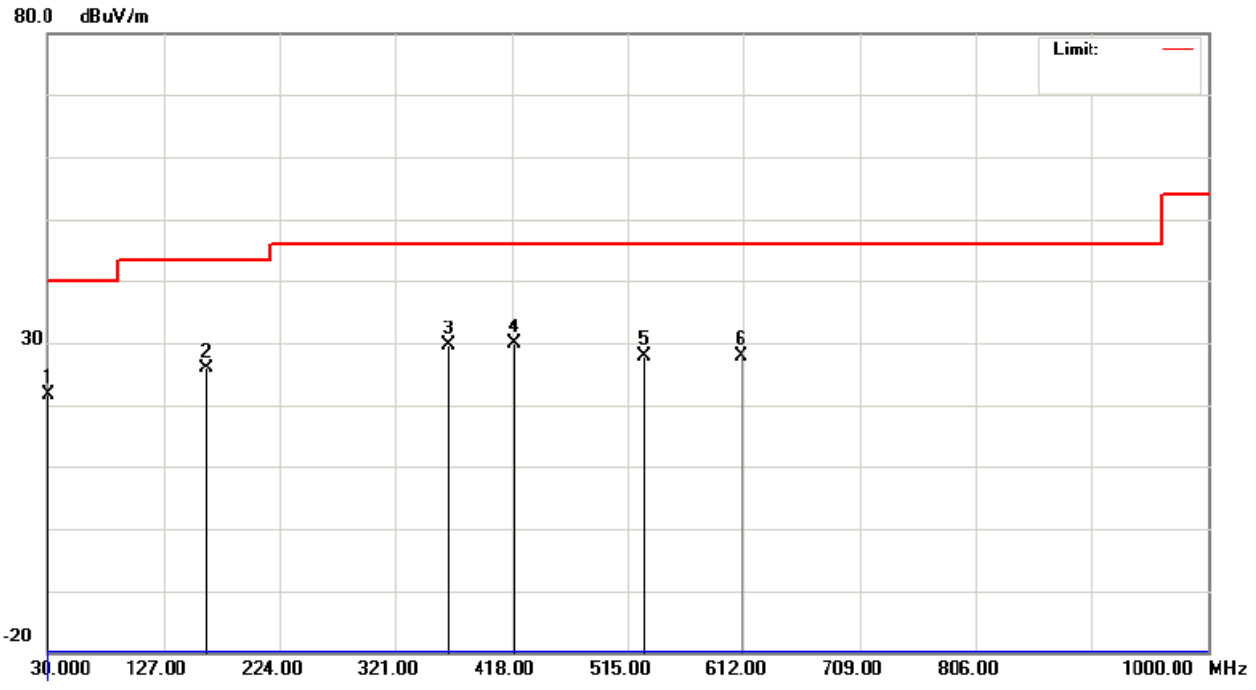
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit-3m (dBuV/m)	Safe Margins (dBuV/m)	Note
107.60	V	Peak	47.23	- 20.42	26.81	43.50	- 16.69	
134.76	V	Peak	43.74	- 15.61	28.13	43.50	- 15.37	
161.92	V	Peak	35.10	- 6.63	28.47	43.50	- 15.03	
179.38	V	Peak	46.73	- 12.40	34.33	43.50	- 9.17	
189.08	V	Peak	37.91	- 8.26	29.65	43.50	- 13.85	
365.62	V	Peak	42.80	- 13.95	28.85	46.00	- 17.15	

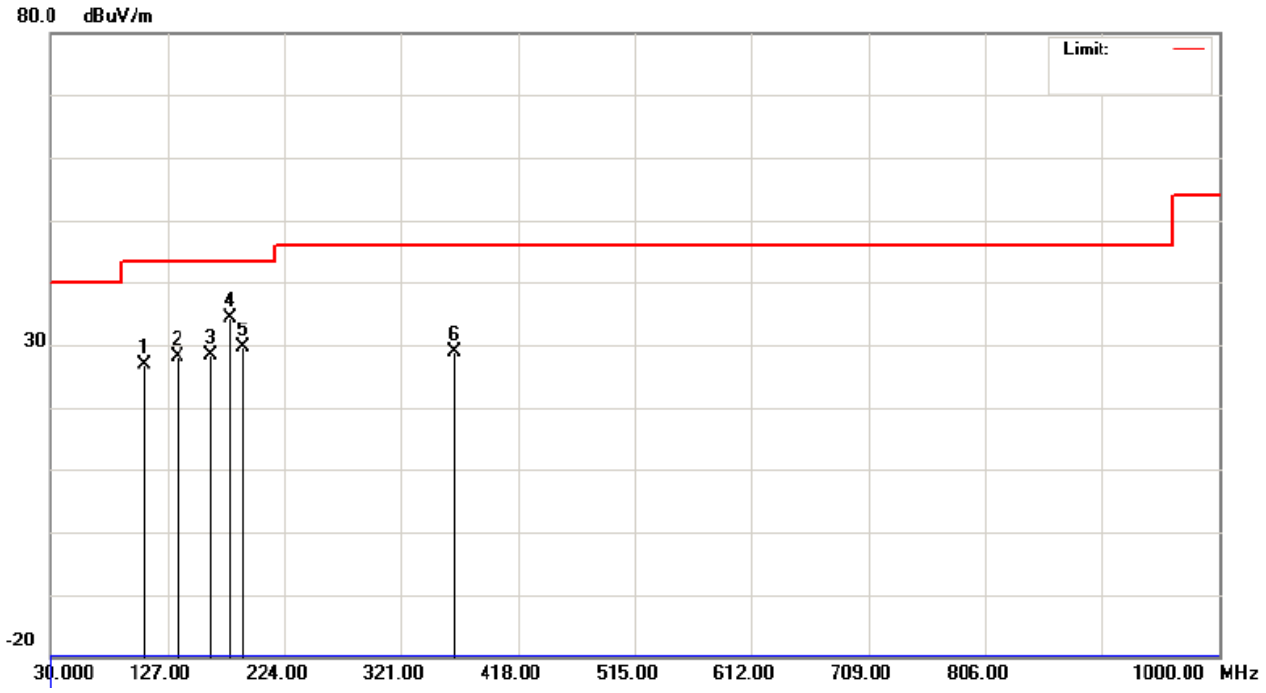
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit-3m (dBuV/m)	Safe Margins (dBuV/m)	Note
365.62	H	Peak	42.64	- 15.01	27.63	46.00	- 18.37	
419.94	H	Peak	40.10	- 12.02	28.08	46.00	- 17.92	
447.10	H	Peak	37.81	- 10.00	27.81	46.00	- 18.19	
528.58	H	Peak	33.85	- 4.34	29.51	46.00	- 16.49	
740.00	H	Peak	30.74	- 2.90	27.84	46.00	- 18.16	
732.28	H	Peak	30.22	- 3.09	27.13	46.00	- 18.87	

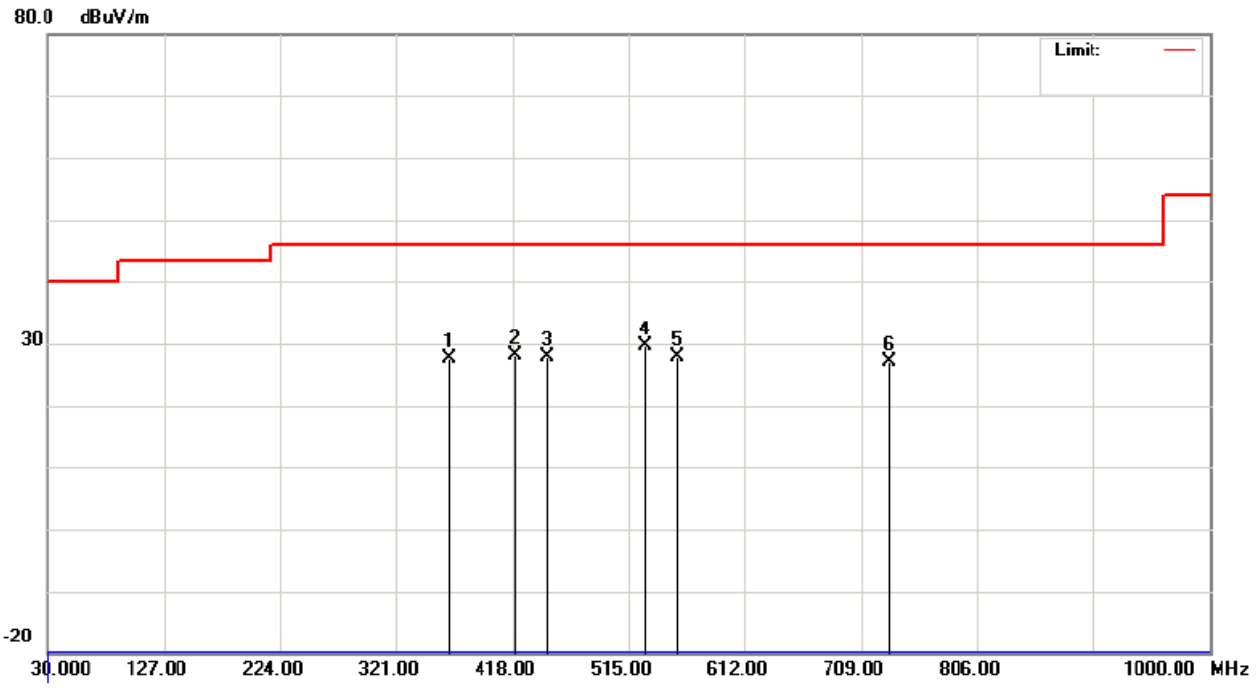
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



4.2.8 TEST RESULTS- FCC PART 15.225

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Freq. (MHz)	Detector Mode	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit-3m (dBuV/m)	Safe Margins (dBuV/m)	Note
13.56	QP	87.36	10.62	97.98	124.00	- 26.02	
27.12	QP	45.16	8.78	53.94	69.00	- 15.06	

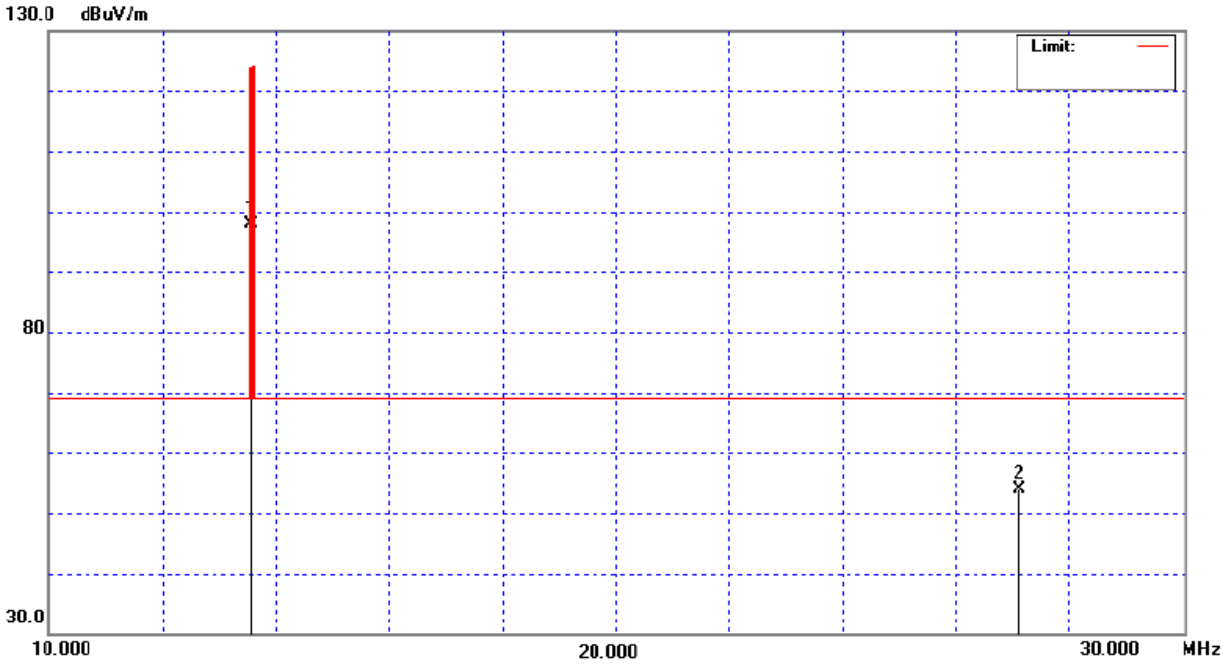
Remark：

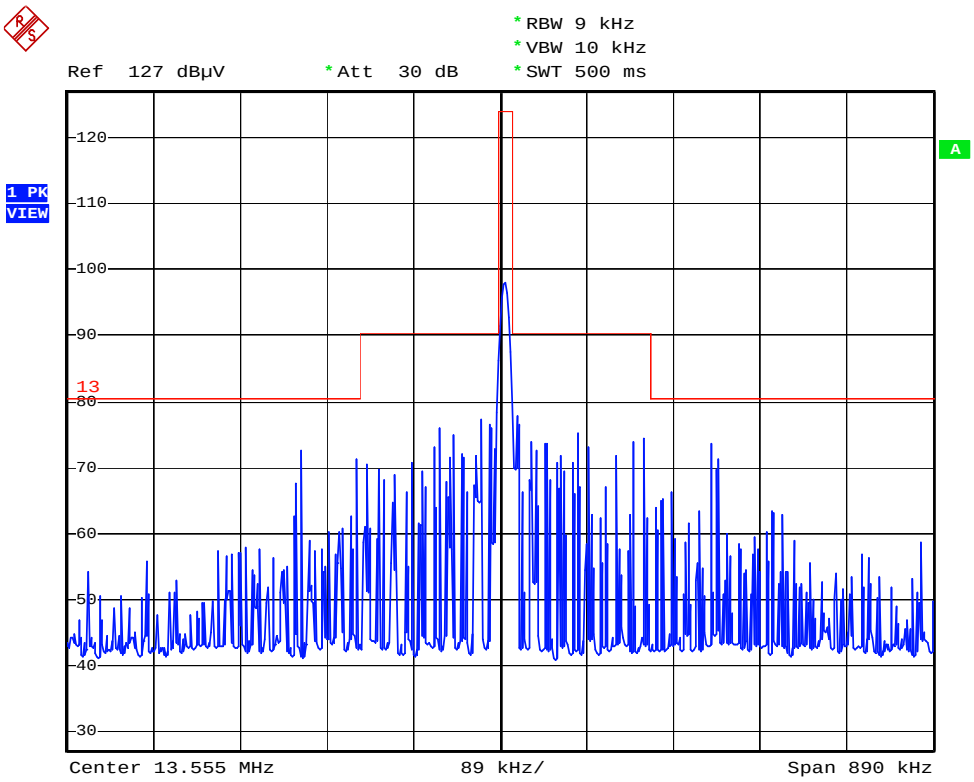
(1) Spectrum Setting:
9 KHz – 150 KHz, RBW= 1 KHz, VBW=1 KHz, Sweep time = 200 ms.
150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, Sweep time = 200 ms.
30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。





Date: 1.AUG.2007 08:30:21

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

Freq. (MHz)	Detector Mode	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit-3m (dBuV/m)	Safe Margins (dBuV/m)	Note
13.56	QP	87.71	10.62	98.33	124.00	- 25.67	
27.12	QP	46.16	8.78	54.94	69.00	- 14.06	

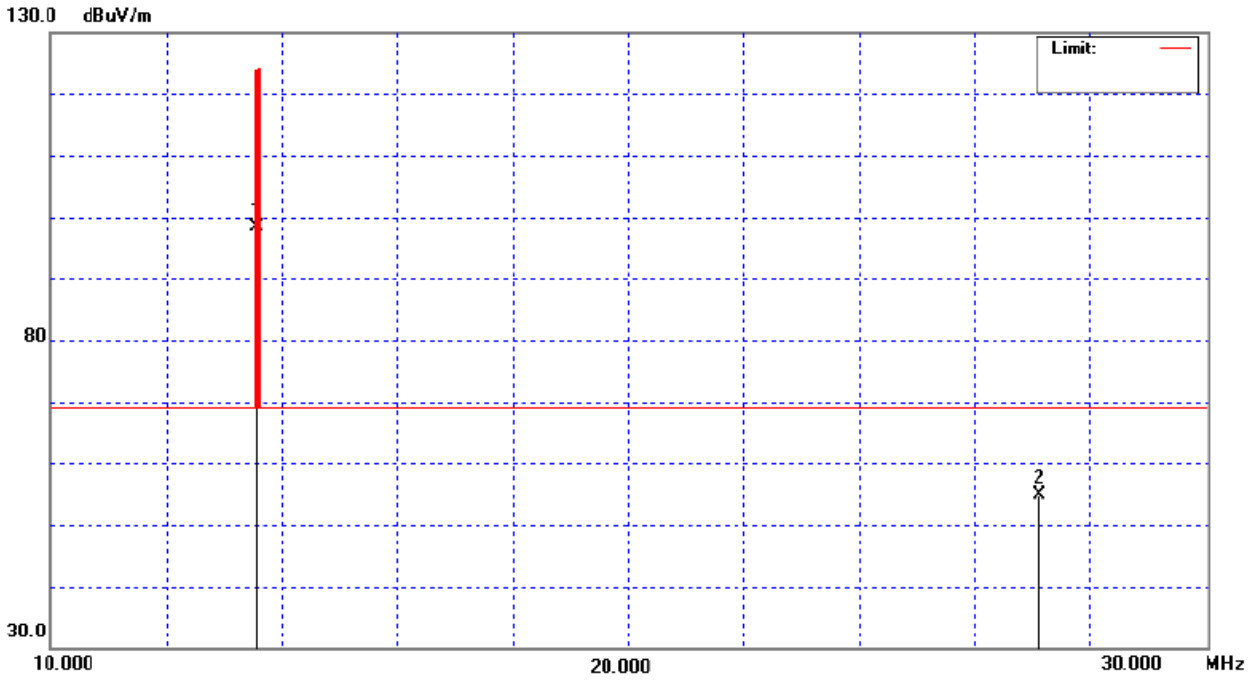
Remark：

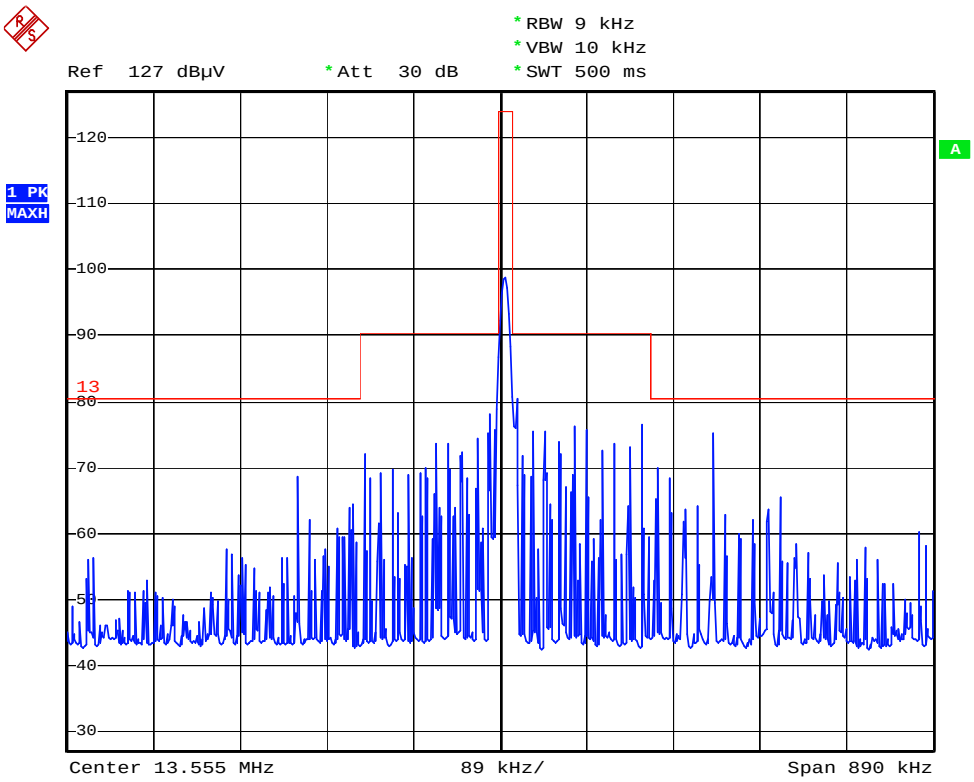
(1) Spectrum Setting:
9 KHz – 150 KHz, RBW= 1 KHz, VBW=1 KHz, Sweep time = 200 ms.
150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, Sweep time = 200 ms.
30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。





Date: 1.AUG.2007 08:33:01

4.3 FREQUENCY STABILITY MEASUREMENT

4.3.1 FREQUENCY STABILITY LIMITS

FCC Part 15.225(e)
the frequency tolerance of the carrier signal shall be maintained within +/-0.01% of the operating frequency over a temperature variation of –20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.3.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan, 23, 2009

Remark: ” N/A” denotes No Model No. / Serial No. and No Calibration specified.

4.3.3 TEST PROCEDURE

a. The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber.
After the temperature stabilized for approximately 20 minutes, the frequency of the output signal was recorded from the counter.
b. At room temperature (25±5°C), an external variable DC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage.
c. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.3.6 TEST RESULTS

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:M6-7USO5R-A)		

Frequency Stability Versus Environmental Temperature						
	Temperature (℃)	**Voltage (Vac)**	**Frequency (MHz)**	**Freq Error (KHz)**	**Limit (KHz)**	**Results**
	20	120V	13.56040			
0 min	50	120V	13.56042	0.020	+/- 1.356	**PASS**
	-20	120V	13.56042	0.020	+/- 1.356	**PASS**
2 min	50	120V	13.56043	0.030	+/- 1.356	**PASS**
	-20	120V	13.56043	0.030	+/- 1.356	**PASS**
5 min	50	120V	13.56043	0.030	+/- 1.356	**PASS**
	-20	120V	13.56039	-0.010	+/- 1.356	**PASS**
10 min	50	120V	13.56044	0.040	+/- 1.356	**PASS**
	-20	120V	13.56042	0.020	+/- 1.356	**PASS**

Frequency Stability Versus Input Voltage						
Temperature(℃)	**Voltage (Vac)**		**Frequency (MHz)**	**Freq Error (KHz)**	**Limit (KHz)**	**Results**
20	**V-nom**	120	13.5604			
20	**V-min**	102	13.56048	0.08	+/- 1.356	**PASS**
20	**V-max**	138	13.56041	0.01	+/- 1.356	**PASS**

E.U.T :	Contactless Smart Card Reader Module	Model Name :	UIC6811-VM1FYDKS-XXX
Temperature :	26°C	Relative Humidity :	60%
Pressure :	1003 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	RS232 (Adapter:PA1008-1DU)		

Frequency Stability Versus Environmental Temperature

	Temperature (℃)	Voltage (Vac)	Frequency (MHz)	Freq Error (KHz)	Limit (KHz)	Results
	20	120V	13.56040			
0 min	50	120V	13.56046	0.060	+/- 1.356	**PASS**
	-20	120V	13.56042	0.020	+/- 1.356	**PASS**
2 min	50	120V	13.56044	0.040	+/- 1.356	**PASS**
	-20	120V	13.56043	0.030	+/- 1.356	**PASS**
5 min	50	120V	13.56045	0.050	+/- 1.356	**PASS**
	-20	120V	13.56039	-0.010	+/- 1.356	**PASS**
10 min	50	120V	13.56048	0.080	+/- 1.356	**PASS**
	-20	120V	13.56042	0.020	+/- 1.356	**PASS**

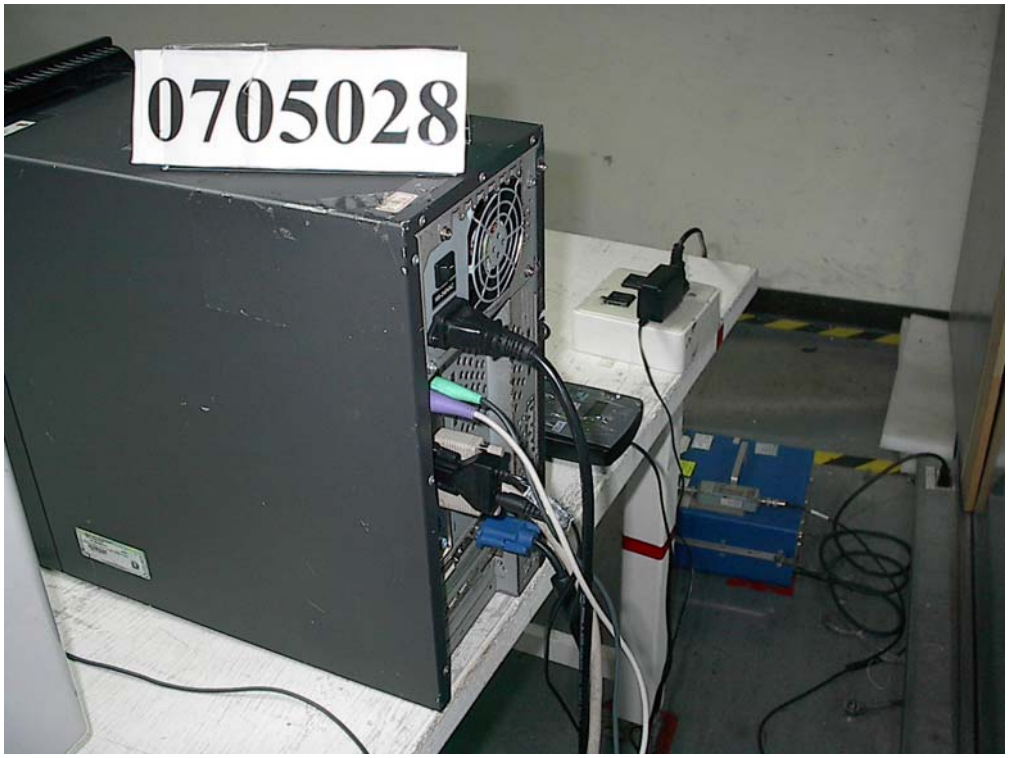
Frequency Stability Versus Input Voltage

Temperature(℃)	Voltage (Vac)		Frequency (MHz)	Freq Error (KHz)	Limit (KHz)	Results
20	**V-nom**	120	13.5604			
20	**V-min**	102	13.56046	0.06	+/- 1.356	**PASS**
20	**V-max**	138	13.56043	0.03	+/- 1.356	**PASS**

5. EUT TEST PHOTO

Conducted Measurement Photos

Adapter:M6-7USO5R-A



Conducted Measurement Photos

Adapter:PA1008-1DU

Radiated Measurement Photos

Adapter:M6-7USO5R-A

Radiated Measurement Photos

Adapter:PA1008-1DU