FCC/IC Test Report

APPLICANT	:	Gemalto M2M GMbH
EQUIPMENT	:	CDMA 1XRTT Module
BRAND NAME	:	Cinterion
MODEL NAME	:	PCS3
FCC ID	:	QIPPCS3
IC	:	7830A-PCS3
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B ICES-003 Issue 5
CLASSIFICATION	:	Declaration of Conformity

The product was received on Aug. 26, 2013 and testing was completed on Sep. 30, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Louis Wu

Reviewed by: Louis Wu / Manager

Jones Tsai

Approved by: Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC382628	Rev. 01	Initial issue of report	Nov. 01, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.109	ICES003 Section 6.2	Radiated Emission	< 15.109 limits < ICES003 6.2 limits	PASS	Under limit 21.75 dB at 30.000 MHz

1. General Description

1.1. Applicant

Gemalto M2M GMbH
Siemensdamm 50 Berlin 13629 Germany

1.2. Manufacturer

HON HAI PRECISION IND. CO., LTD.
5F-1,5 Hsin-An road, Hsinchu, Science-Bases Industrial Park 300, Taiwan, R.O.C

1.3. Feature of Equipment Under Test

Product Feature	
Equipment	CDMA 1XRTT Module
Brand Name	Cinterion
Model Name	PCS3
FCC ID	QIPPCS3
IC	7830A-PCS3
EUT supports Radios application	CDMA
HW Version	S2
SW Version	Revision 00.400.04
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx Frequency	CDMA2000 BC0 : 824.70 MHz ~ 848.31 MHz CDMA2000 BC1 : 1851.25 MHz ~ 1908.75 MHz CDMA2000 BC10 : 817.9 MHz ~ 823.1 MHz
Rx Frequency	CDMA2000 BC0 : 869.70 MHz ~ 893.31 MHz CDMA2000 BC1 : 1931.25 MHz ~ 1988.75 MHz CDMA2000 BC10 : 862.9 MHz ~ 868.1 MHz
Type of Modulation	CDMA2000 : QPSK

1.5. Modification of EUT

No modifications are made to the EUT during all test items.

1.6. Test Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	**FCC/IC Registration No.**
	03CH06-HY	TW1022/4086B-1

1.7. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003
- IC ICES-003 Issue 5
- IC RSS-Gen Issue 3
- NOTICE 2012-DRS0126

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The test results for FCC compliance, indicating that these results are deemed satisfactory evidence of compliance with **Industry Canada Interference-Causing Equipment Standard ICES-003**.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been tasted which pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

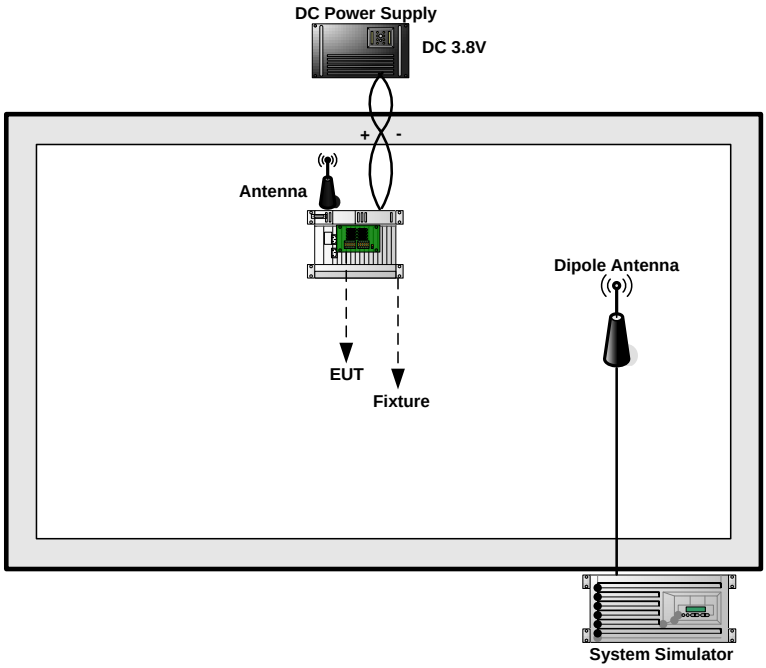
Item	EUT Configuration	Test Condition
		EMI RE
1.	Operating Mode (EUT with DC Power Supply)	☒

Abbreviations:

- EMI RE: EUT radiated emission

Test Items	EUT Configure Mode	Function Type
Radiated Emission	1	Mode 1：CDMA2000 BC0 Idle + DC 3.8V

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	Topward	3303D	N/A	N/A	Unshielded, 1.8 m
3.	Fixture	N/A	N/A	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in CDMA2000 idle mode during the testing. The EUT was synchronized to the BCCH, and was in continuous receiving mode by setting system simulator's paging reorganization.

The EUT is Operating via DC Power Supply.

3. Test Result

3.1. Test of Radiated Emission Measurement

3.1.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.1.2. Measuring Instruments

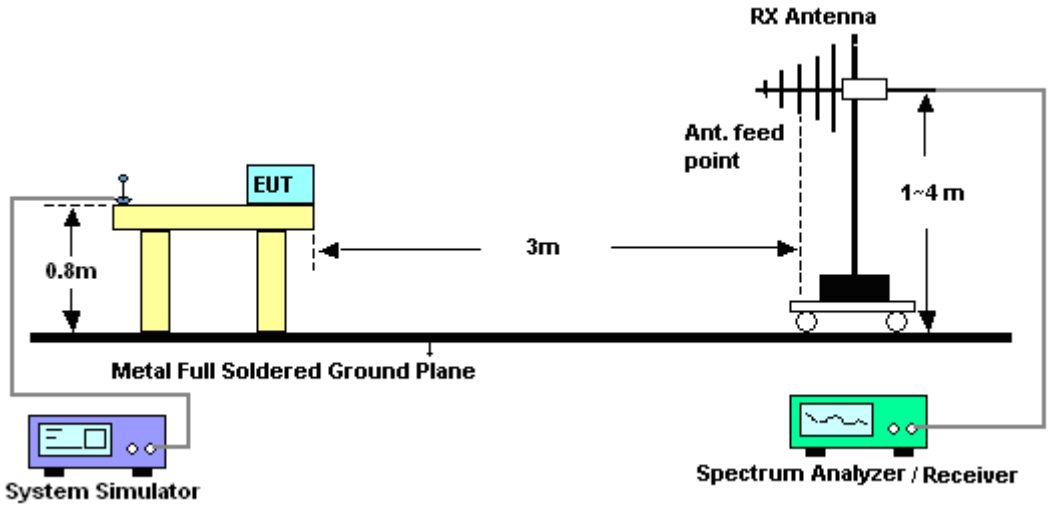
The measuring equipment is listed in the section 4 of this test report.

3.1.3. Test Procedures

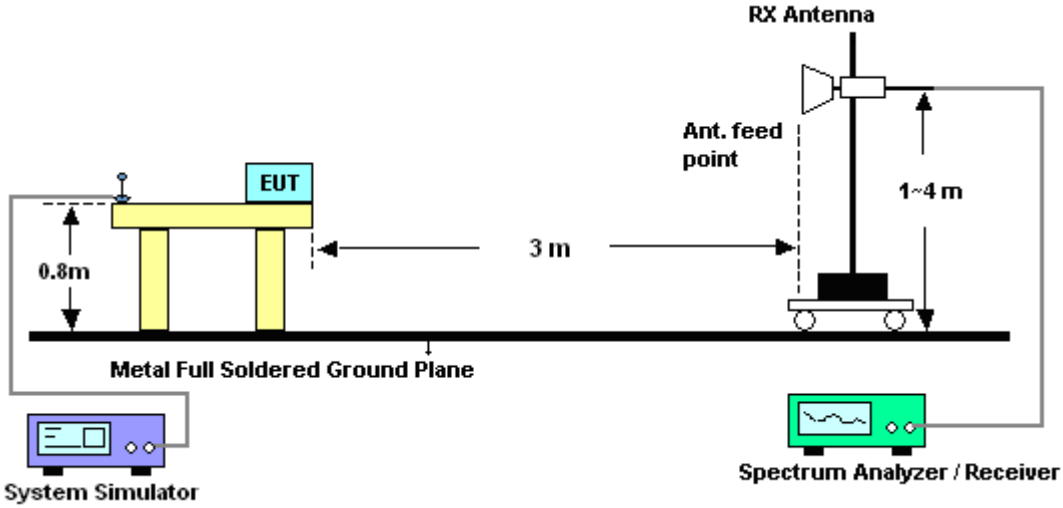
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.1.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

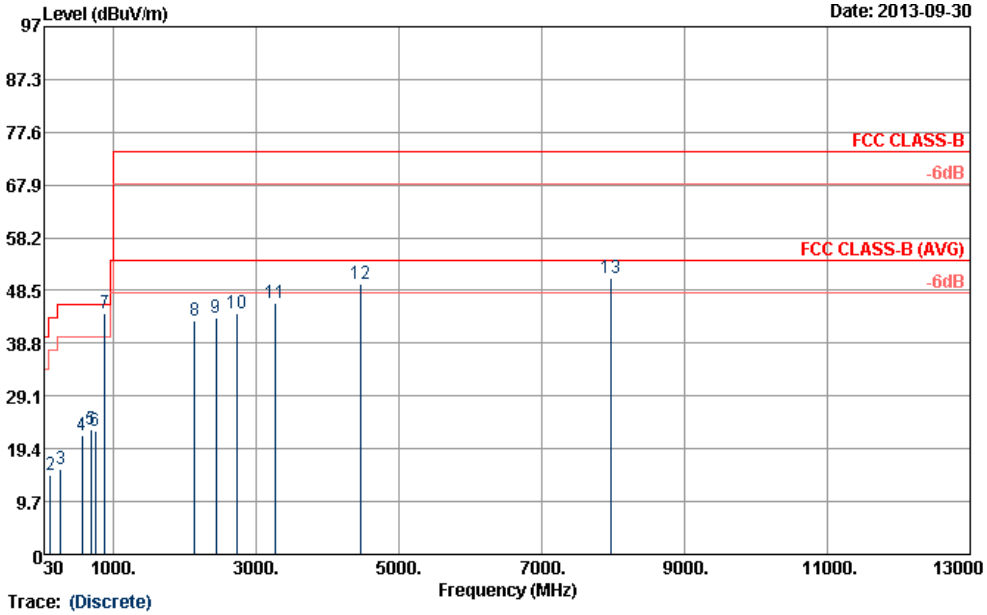


For radiated emissions above 1GHz



3.1.5. Test Result of Radiated Emission

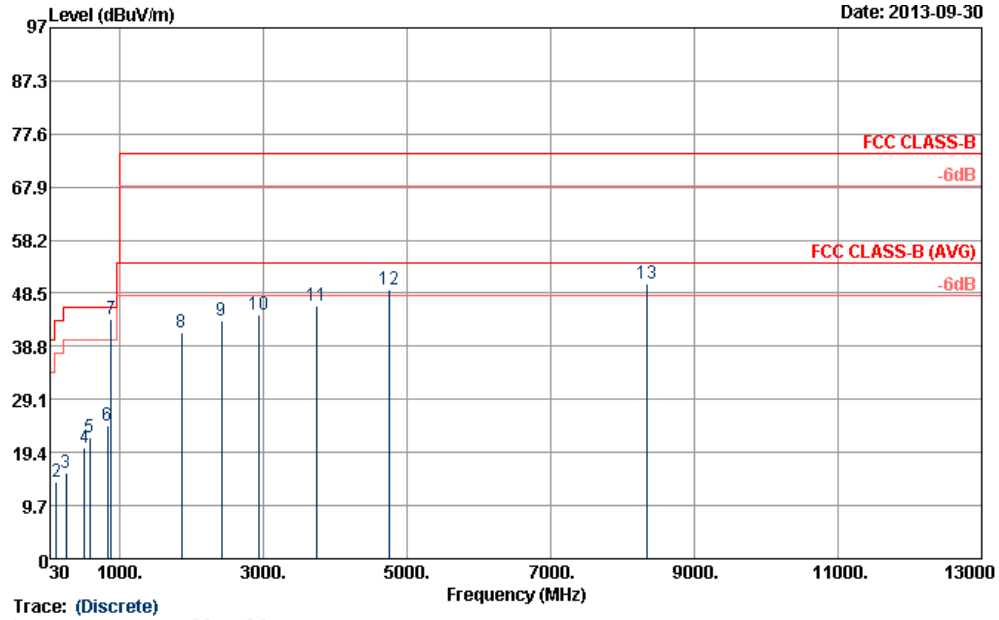
Test Mode :	Mode 1	Temperature :	22~24˚C
Test Engineer :	Marlboro Hsu	Relative Humidity :	47~49%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	CDMA2000 BC0 Idle + DC 3.8V		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
Project : 382628
Power : DC 3.8V
Mode : Mode 1

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		30.00	17.29	-22.71	40.00	29.55	18.90	0.64	31.80	100	27	Peak
2		121.26	14.64	-28.86	43.50	32.80	12.36	1.23	31.75	---	---	Peak
3		259.50	15.73	-30.27	46.00	31.97	13.70	1.79	31.73	---	---	Peak
4		559.00	21.97	-24.03	46.00	32.39	19.01	2.58	32.01	---	---	Peak
5		686.40	22.89	-23.11	46.00	33.12	18.93	2.87	32.03	---	---	Peak
6		749.40	22.62	-23.38	46.00	31.76	19.80	3.05	31.99	---	---	Peak
7	!	881.52	44.33			52.12	20.50	3.32	31.61	---	---	Peak
8		2142.00	42.84	-31.16	74.00	58.99	31.71	6.11	53.97	---	---	Peak
9		2436.00	43.44	-30.56	74.00	58.89	31.94	6.52	53.91	---	---	Peak
10		2726.00	44.40	-29.60	74.00	58.95	32.33	7.07	53.95	---	---	Peak
11		3276.00	46.20	-27.80	74.00	59.66	32.76	7.84	54.06	---	---	Peak
12		4464.00	49.83	-24.17	74.00	60.35	34.52	9.95	54.99	---	---	Peak
13		7960.00	50.75	-23.25	74.00	59.90	35.59	10.98	55.72	100	192	Peak

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Marlboro Hsu	Relative Humidity :	47~49%
Test Distance :	3m	Polarization :	Vertical
Function Type :	CDMA2000 BC0 Idle + DC 3.8V		
Remark :	#7 is system simulator signal which can be ignored.		



Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
Project : 382628
Power : DC 3.8V
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	18.25	-21.75	40.00	30.51	18.90	0.64	31.80	100	39	Peak
2	114.24	13.94	-29.56	43.50	32.09	12.42	1.18	31.75	---	---	Peak
3	256.80	15.62	-30.38	46.00	32.27	13.31	1.77	31.73	---	---	Peak
4	510.00	20.15	-25.85	46.00	31.89	17.70	2.50	31.94	---	---	Peak
5	585.60	22.16	-23.84	46.00	32.62	18.88	2.70	32.04	---	---	Peak
6	826.40	24.19	-21.81	46.00	32.82	20.06	3.15	31.84	---	---	Peak
7 !	881.52	43.67			51.46	20.50	3.32	31.61	---	---	Peak
8	1858.00	41.41	-32.59	74.00	59.35	30.46	5.57	53.97	---	---	Peak
9	2418.00	43.52	-30.48	74.00	59.02	31.93	6.49	53.92	---	---	Peak
10	2932.00	44.66	-29.34	74.00	58.59	32.61	7.45	53.99	---	---	Peak
11	3736.00	46.07	-27.93	74.00	59.01	33.09	8.46	54.49	---	---	Peak
12	4754.00	49.25	-24.75	74.00	60.14	34.44	10.14	55.47	---	---	Peak
13	8344.00	50.25	-23.75	74.00	59.90	35.60	10.79	56.04	100	264	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101352	9kHz~30GHz	Nov. 07, 2012	Sep. 30, 2013	Nov. 06, 2013	Radiation (03CH06-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9kHz ~ 26.5GHz	Nov. 26, 2012	Sep. 30, 2013	Nov. 25, 2013	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/0003	20MHz ~ 1000MHz	May 06, 2013	Sep. 30, 2013	May 05, 2014	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz ~ 2GHz	Oct. 06, 2012	Sep. 30, 2013	Oct. 05, 2013	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 02, 2013	Sep. 30, 2013	Aug. 01, 2014	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9kHz ~ 1GHz	Apr. 12, 2013	Sep. 30, 2013	Apr. 11, 2014	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2013	Sep. 30, 2013	Jul. 17, 2014	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 - 360 degree	N/A	Sep. 30, 2013	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1 m ~ 4 m	N/A	Sep. 30, 2013	N/A	Radiation (03CH06-HY)

5. Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**