Variant FCC Test Report

APPLICANT	:	Foxconn International Holdings Ltd.
EQUIPMENT	:	Data Card
BRAND NAME	:	AMBIT
MODEL NAME	:	NF2
MARKETING NAME	:	M.2 module
FCC ID	:	RYQ-NF2
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

This is a variant report which is only valid together with the original test report. The product was received on Aug. 07, 2013 and completely tested on Oct. 24, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2009 and shown the compliance 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
FC352141-01	Rev. 01	This is a variant report which can be referred Product Equality Declaration. All the test cases were performed on original report which can be referred to Sporton Report FC352141 as Appendix B. Base on original report, only the worst case was verified.	Oct. 30, 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 14.05 dB at 42.960 MHz

1. General Description

1.1. Applicant

Foxconn International Holdings Ltd.
No. 4, Mingsheng St.,Tu-Cheng Dist., New Taipei City 23679, Taiwan

1.2. Manufacturer

Foxconn International Holdings Ltd.
No. 4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan

1.3. Feature of Equipment Under Test

Product Feature	
Equipment	Data Card
Brand Name	AMBIT
Model Name	NF2
Marketing Name	M.2 module
FCC ID	RYQ-NF2
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE
HW Version	PR4.5
SW Version	FIH7160_MODEM_01.1338.03
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	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2506.5 MHz ~ 2534.5 MHz 2556 MHz ~ 2567.5 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz
Rx Frequency Range	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2626.5MHz ~ 2654.5 MHz 2676 MHz ~ 2687.5 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz GPS : 1.57542 GHz
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) LTE: QPSK / 16QAM (Uplink) GPS : BPSK

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 C63.4-2009

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2009 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.

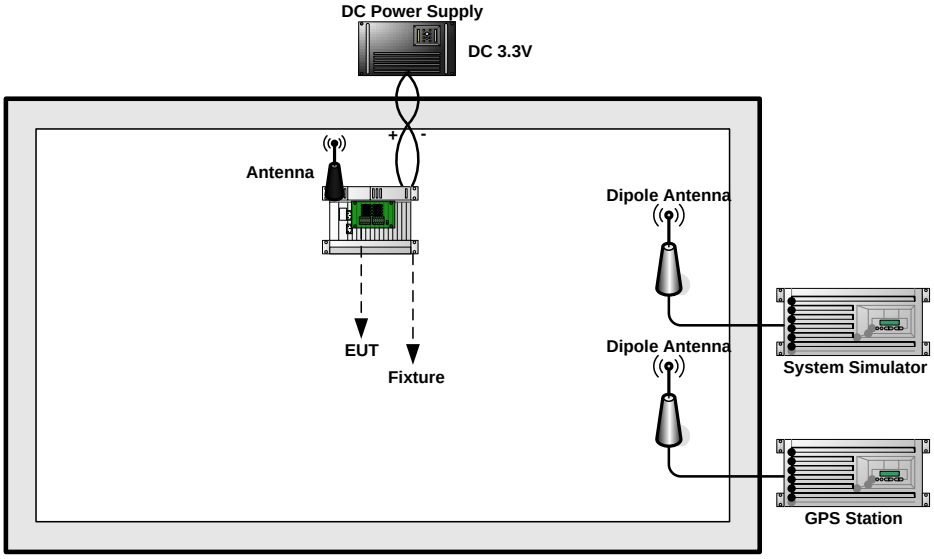
Item	EUT Configuration	Test Condition
		EMI RE
1.	Operating Mode (EUT with DC Power Supply)	☒

Abbreviations:

- EMI RE: EUT radiated emission

Test Items	EUT Configure Mode	Function Type
Radiated Emission	1	Mode 1：GSM850 Idle + GPS Rx + DC 3.3V

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.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
3.	DC Power Supply	Topward	3303D	N/A	N/A	Unshielded, 1.8 m
4.	Fixture	INTEL	NGFF Card Carrier	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM 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.

Execute "MiniGPS Lite" to make the EUT receive continuous signals from GPS station.

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

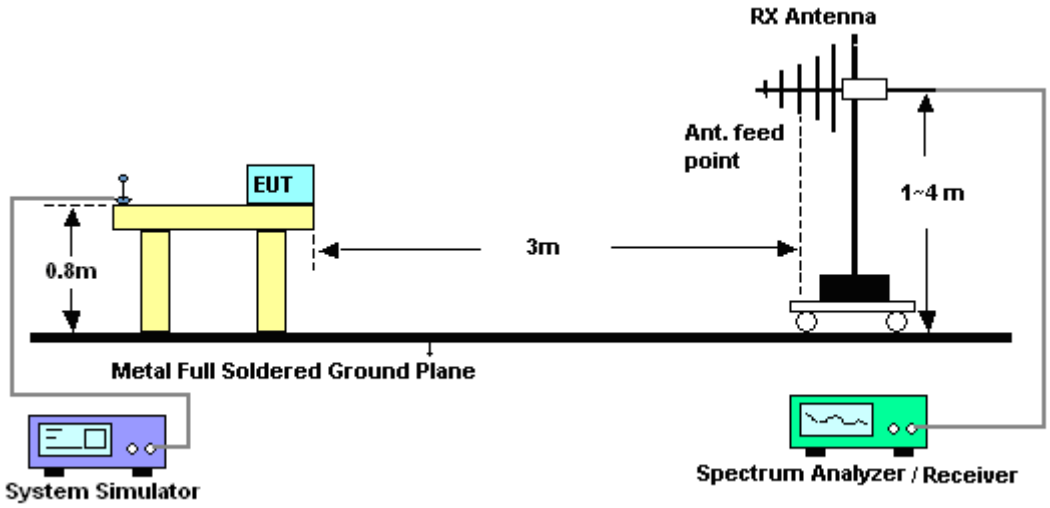
The measuring equipment is listed in the section 4 of this test report.

3.1.3. Test Procedures

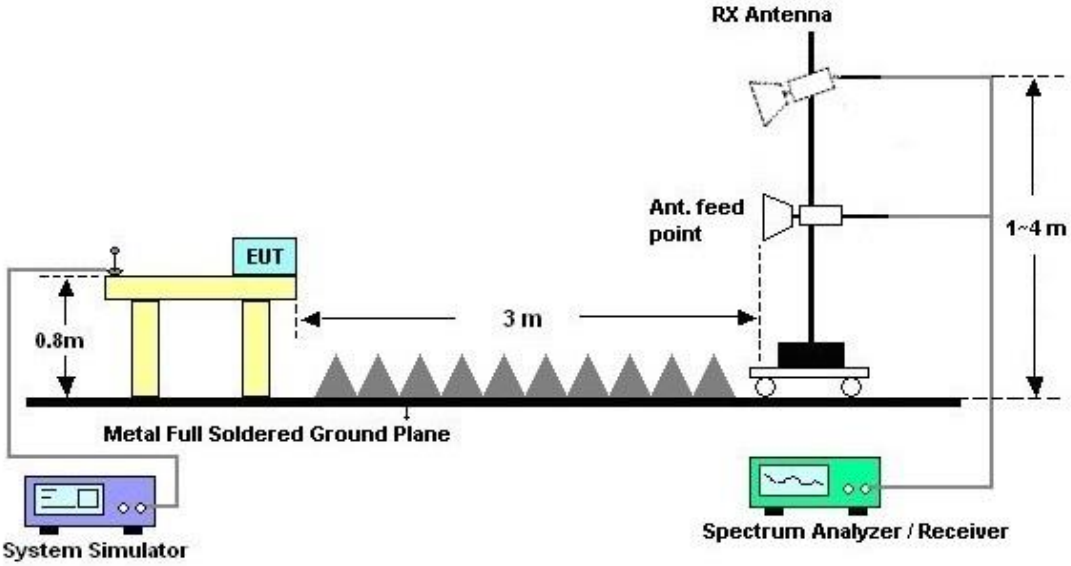
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (dBuV/m) = 20 log Emission level (uV/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

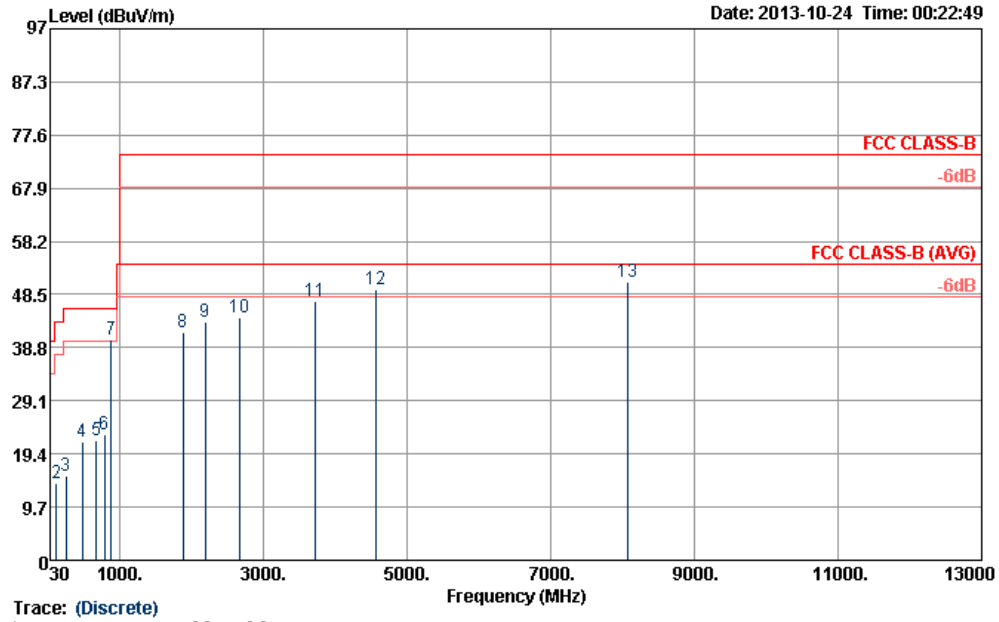


For radiated emissions above 1GHz



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 :	GSM850 Idle + GPS Rx + DC 3.3V		
Remark:	#7 is system simulator signal which can be ignored.		

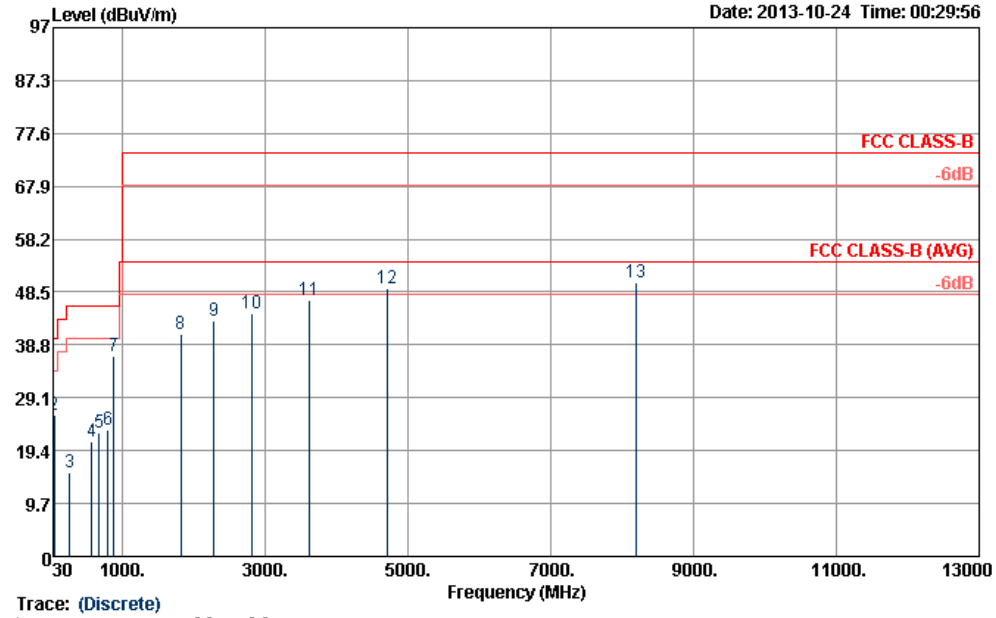


Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
Project : 352141-01
Power : DC 3.3V
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	17.66	-22.34	40.00	29.92	18.90	0.64	31.80	100	57	Peak
2		115.05	13.98	-29.52	43.50	32.04	12.50	1.19	31.75	---	---	Peak
3		256.80	15.30	-30.70	46.00	31.95	13.31	1.77	31.73	---	---	Peak
4		473.60	21.48	-24.52	46.00	33.81	17.26	2.31	31.90	---	---	Peak
5		679.40	21.92	-24.08	46.00	32.09	19.01	2.85	32.03	---	---	Peak
6		791.40	22.85	-23.15	46.00	31.95	19.80	3.06	31.96	---	---	Peak
7	!	881.40	40.13			47.92	20.50	3.32	31.61	---	---	Peak
8		1880.00	41.54	-32.46	74.00	59.19	30.71	5.62	53.98	---	---	Peak
9		2192.00	43.55	-30.45	74.00	59.58	31.75	6.18	53.96	---	---	Peak
10		2676.00	44.38	-29.62	74.00	59.09	32.26	6.97	53.94	---	---	Peak
11		3714.00	47.23	-26.77	74.00	60.20	33.07	8.42	54.46	---	---	Peak
12		4564.00	49.44	-24.56	74.00	59.92	34.56	10.08	55.12	---	---	Peak
13		8078.00	50.67	-23.33	74.00	59.89	35.60	10.95	55.77	100	156	Peak

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Marlboro Hsu	Relative Humidity :	47~49%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM850 Idle + GPS Rx + DC 3.3V		
Remark:	#7 is system simulator signal which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
Project : 352141-01
Power : DC 3.3V
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	17.68	-22.32	40.00	29.94	18.90	0.64	31.80	---	---	Peak
2	42.96	25.95	-14.05	40.00	45.29	11.70	0.75	31.79	100	164	Peak
3	262.20	15.37	-30.63	46.00	31.77	13.54	1.79	31.73	---	---	Peak
4	567.40	21.17	-24.83	46.00	31.64	18.93	2.62	32.02	---	---	Peak
5	678.00	22.66	-23.34	46.00	32.82	19.02	2.85	32.03	---	---	Peak
6	795.60	23.22	-22.78	46.00	32.31	19.80	3.06	31.95	---	---	Peak
7	881.40	36.77			44.56	20.50	3.32	31.61	---	---	Peak
8	1818.00	40.88	-33.12	74.00	59.18	30.21	5.45	53.96	---	---	Peak
9	2282.00	43.25	-30.75	74.00	59.09	31.82	6.28	53.94	---	---	Peak
10	2804.00	44.56	-29.44	74.00	58.89	32.42	7.21	53.96	---	---	Peak
11	3620.00	47.09	-26.91	74.00	60.20	32.94	8.24	54.29	---	---	Peak
12	4702.00	49.21	-24.79	74.00	59.98	34.48	10.12	55.37	---	---	Peak
13	8190.00	50.22	-23.78	74.00	59.63	35.60	10.88	55.89	100	291	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	Oct. 24, 2013	Nov. 06, 2013	Radiation (03CH06-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9kHz ~ 26.5GHz	Nov. 26, 2012	Oct. 24, 2013	Nov. 25, 2013	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/0003	20MHz ~ 1000MHz	May 06, 2013	Oct. 24, 2013	May 05, 2014	Radiation (03CH06-HY)
Bilog Antenna	Schaffner	CBL6112B	2885	30MHz -2GHz	Oct. 10, 2013	Oct. 24, 2013	Oct. 09, 2014	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 02, 2013	Oct. 24, 2013	Aug. 01, 2014	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9kHz ~ 1GHz	Apr. 12, 2013	Oct. 24, 2013	Apr. 11, 2014	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2013	Oct. 24, 2013	Jul. 17, 2014	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 - 360 degree	N/A	Oct. 24, 2013	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1 m ~ 4 m	N/A	Oct. 24, 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**

Appendix B. Original Report

Please refer to Sporton report number FC352141 as below.