

FCC PART 15B

MEASUREMENT AND TEST REPORT
For

weeECONOMY ASIA LIMITED.

Unit B, 11 Floor, Silvercorp International Tower, 707-713 Nathan Road, KowLoon HongKong

FCC ID: 2AFSQWP11

Aug. 28, 2015

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: weePHONE
Report Number:	MTI150410001RF-5
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Test Date:	May 05, 2015 – Aug 26, 2015
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen Microtest Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: weeCONOMY ASIA LIMITED.
Address of applicant: Unit B, 11 Floor, Silvercorp International Tower, 707-713 Nathan Road, KowLoon HongKong
Manufacturer: weeCONOMY ASIA LIMITED.
Address of manufacturer: Unit B, 11 Floor, Silvercorp International Tower, 707-713 Nathan Road, KowLoon HongKong

General Description of E.U.T

EUT Description: weePHONE
Model : WP11
Serial Model: N/A
Standards: FCC Part 15 B
Test procedure ANSI C63.4-2009

1.2 Test Summary

Table 1: Tests Carried Out Under FCC PART 15B

Standard	Test Items	Status
FCC PART 15B	Disturbance Voltage at The Mains Terminals (150KHz To 30MHz)	✓
	Radiated Disturbances (30MHz To 1000MHz)	✓

✓ Indicates that the test is applicable
✗ Indicates that the test is not applicable

1.3 Test Facility

Shenzhen Toby Technology Co., Ltd.
Add.: 10/F.,A Block,Jiada R&D Bldg.,No.5 Songpingshan, Road, Science&Technology Park, Shenzhen, 518057

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

FCC – Registration No.: 811562

1.4 Test Equipment List and Details

Table 1: Test Equipment for Radiated emission

Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Cal.Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSP30	DE25181	Aug. 10, 2014	Aug. 09, 2015
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101165	Aug. 10, 2014	Aug. 09, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2015	Mar. 06, 2016
Hom Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2015	Mar. 06, 2016
Pre-amplifier	HP	11909A	185903	Mar. 07, 2015	Mar. 06, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2015	Mar. 06, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 07, 2015	Mar. 06, 2016

Table 2: Test Equipment for Radiated emission

Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Cal.Due Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	1000321	2014-08-10	2015-08-09
50Ω Coaxial Switch	Anntsu	MP59B	X10321	2014-08-10	2015-08-09
LISN	ROHDE&SCHWARZ	ENV216	101131	2014-08-10	2015-08-09
LISN	SCHWARZBECK	NNBL 8226-2	8226-2/164	2014-08-10	2015-08-09

2. SYSTEM TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion.

Test Mode	Description
Mode 1	Downloading(link with PC)

2.2 EUT Exercise Software

winthrax.exe

2.3 TEST PERIPHERAL AND EUT PERIPHERAL

Item	Equipment	Brand	Model/Type No.	Series No.
E-1	PC	DELL	750	/
E-2	Display	DELL	E1715S	/

Item	Shielded Type	Ferrite Core	Length	Note
C-1	Yes	Yes	0.8m	USB cable
-	-	-	-	-

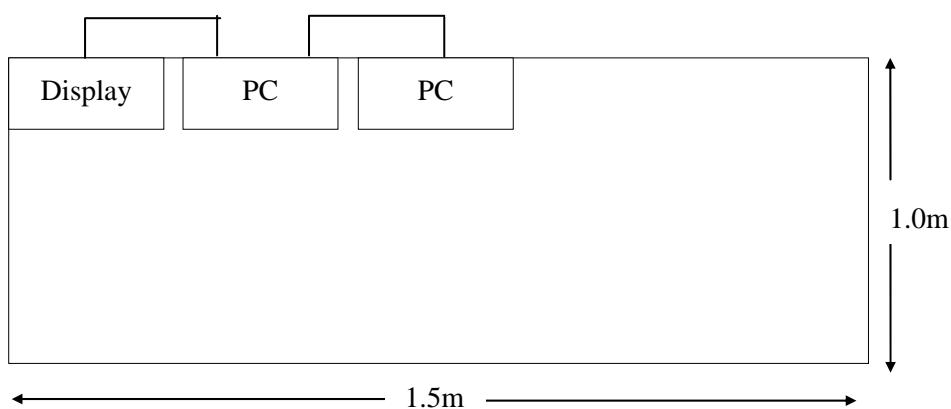
2.4 Equipment Modifications

The EUT tested was not modified.

2.5 Configuration of Test System



2.6 Test Setup Diagram



3. RADIATED DISTURBANCES

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ± 4.0 dB.

3.2 Limit of Radiated Disturbances (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB μ V/m)
30-88	3	40
88~216	3	43.5
216 ~ 960	3	46
Above 960	3	54

Note: (1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

3.3 EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup accordance with the CISPR 16-1, CISPR16-2. The specification used was FCC PART 15B Class B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

3.4 Test Receiver Setup

According to FCC PART 15B rules, the frequency was investigated from 30MHz to 7GHz(the maximum operation frequency is 1.3GHz). During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....30MHz to 1000MHz
Detector.....Quasi-Peak
IF Band Width.....120 KHz
Turntable Rotated.....0 to 360 degrees

Frequency Range.....Above 1GHz
Detector.....Peak & AV
RBW/VBW1MHz/3MHz for Peak
1MHz/10Hz for AV
Turntable Rotated.....0 to 360 degrees

Antenna Position:

Height.....1m to 4m
Polarity.....Horizontal and Vertical

3.5 Test Procedure

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

3.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

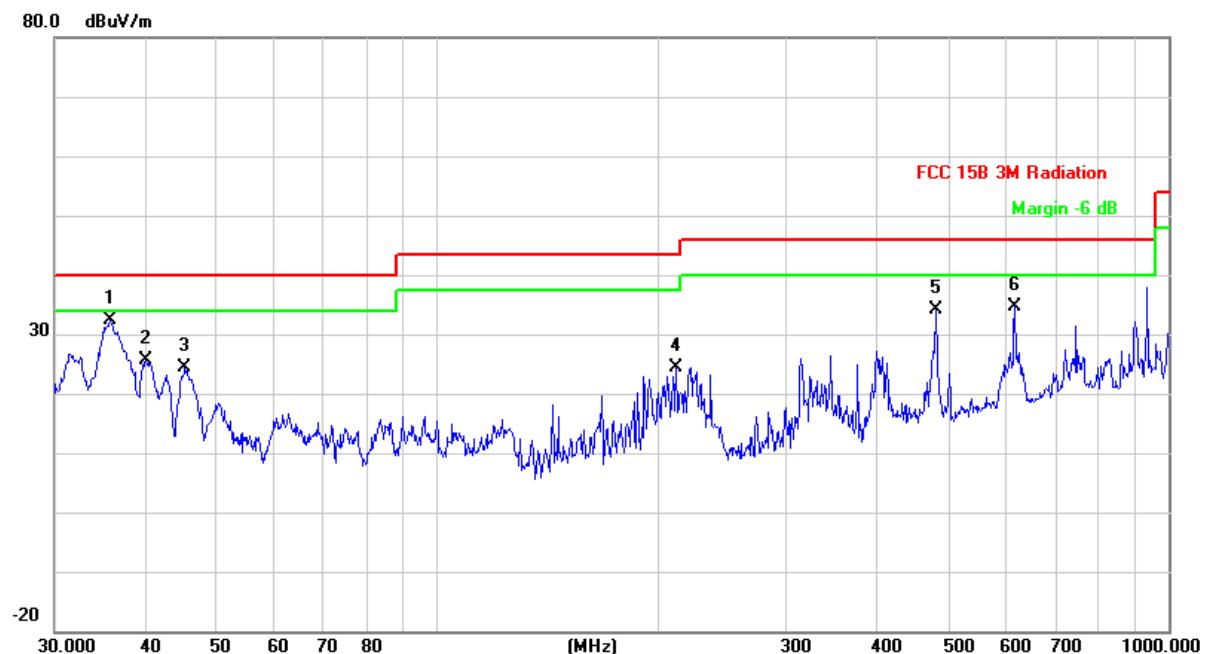
$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB μ V means the emission is 7dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Class B Limit} - \text{Corr. Ampl.}$$

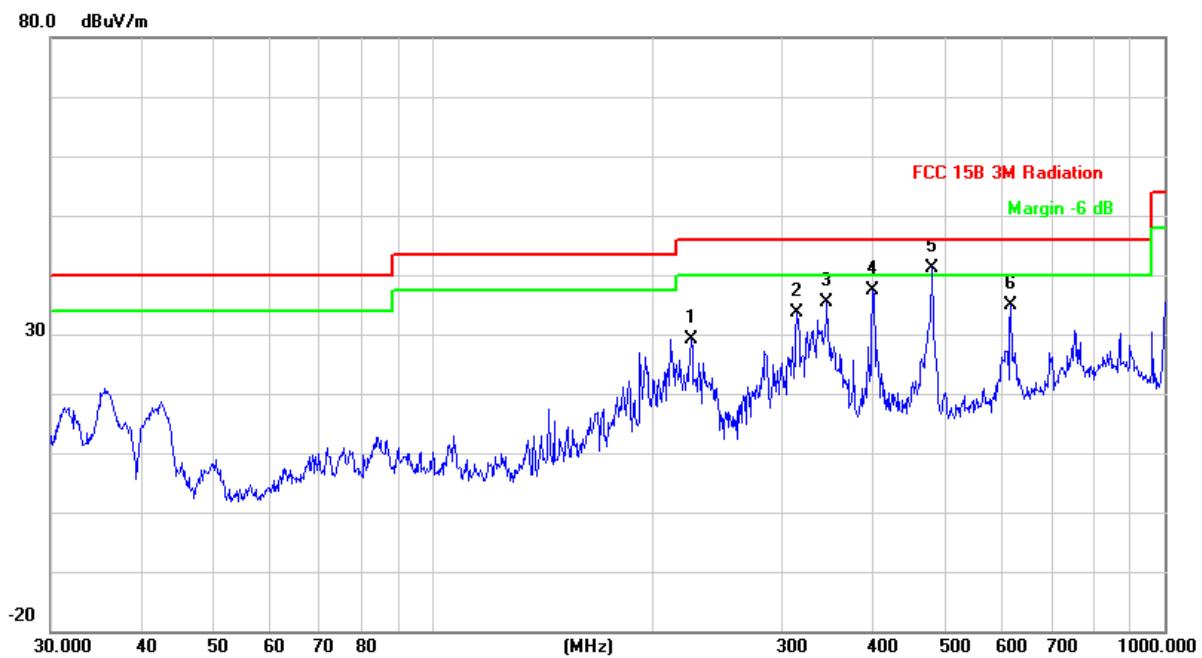
3.7 Test Result

Radiated Emission Test Data: 30MHz~1GHz (Vertical)



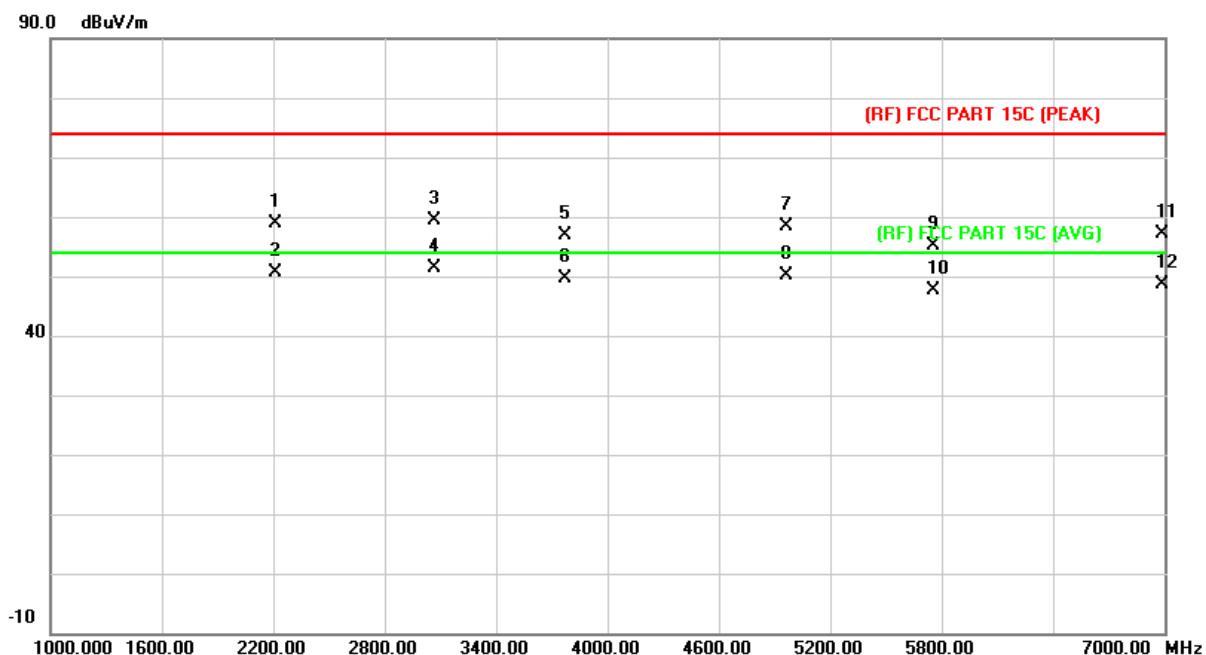
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment						
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	35.7490	49.94	-17.53	32.41	40.00	-7.59	peak			
2		39.9942	45.68	-20.16	25.52	40.00	-14.48	peak			
3		45.2166	46.78	-22.37	24.41	40.00	-15.59	peak			
4		212.2695	44.35	-19.86	24.49	43.50	-19.01	peak			
5		480.5276	45.69	-11.62	34.07	46.00	-11.93	peak			
6		616.3718	43.59	-8.84	34.75	46.00	-11.25	peak			

Radiated Emission Test Data: 30MHz~1GHz (Horizontal)



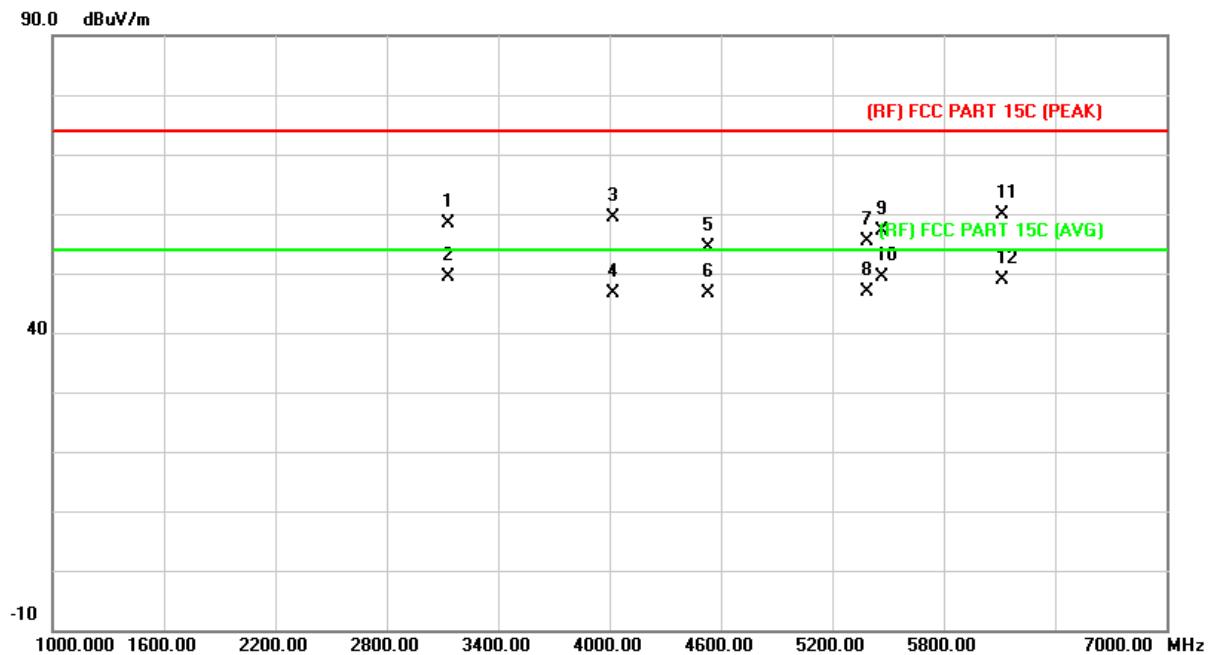
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
			Level	Factor	ment					
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		225.3080	48.35	-19.30	29.05	46.00	-16.95	peak		
2		314.3765	50.13	-16.54	33.59	46.00	-12.41	peak		
3		345.5952	50.34	-14.88	35.46	46.00	-10.54	peak		
4		399.0302	50.29	-12.87	37.42	46.00	-8.58	peak		
5	*	480.5276	52.80	-11.62	41.18	46.00	-4.82	peak		
6		616.3718	43.66	-8.84	34.82	46.00	-11.18	peak		

Radiated Emission Test Data: above 1GHz (Vertical)



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment						
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2212.000	55.94	3.05	58.99	74.00	-15.01	peak	100	0	
2		2212.000	47.63	3.05	50.68	54.00	-3.32	AVG			
3		3064.000	54.20	5.17	59.37	74.00	-14.63	peak	100	0	
4	*	3064.000	46.17	5.17	51.34	54.00	-2.66	AVG			
5		3772.000	50.48	6.41	56.89	74.00	-17.11	peak	100	0	
6		3772.000	43.24	6.41	49.65	54.00	-4.35	AVG			
7		4960.000	50.11	8.23	58.34	74.00	-15.66	peak	100	0	
8		4960.000	41.98	8.23	50.21	54.00	-3.79	AVG			
9		5752.000	45.36	9.85	55.21	74.00	-18.79	peak	100	0	
10		5752.000	37.83	9.85	47.68	54.00	-6.32	AVG			
11		6988.000	45.80	11.43	57.23	74.00	-16.77	peak	100	0	
12		6988.000	37.22	11.43	48.65	54.00	-5.35	AVG			

Radiated Emission Test Data: above 1GHz (Horizontal)



No.	Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height cm	Table Degree	Comment
			dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	
1		3130.000	53.16	5.20	58.36	74.00	-15.64	peak	100	0
2		3130.000	44.06	5.20	49.26	54.00	-4.74	AVG		
3		4018.000	52.42	6.89	59.31	74.00	-14.69	peak	100	0
4		4018.000	39.69	6.89	46.58	54.00	-7.42	AVG		
5		4534.000	46.56	7.80	54.36	74.00	-19.64	peak	100	0
6		4534.000	38.78	7.80	46.58	54.00	-7.42	AVG		
7		5386.000	46.33	9.12	55.45	74.00	-18.55	peak	100	0
8		5386.000	37.75	9.12	46.87	54.00	-7.13	AVG		
9		5470.000	48.03	9.21	57.24	74.00	-16.76	peak	100	0
10	*	5470.000	40.16	9.21	49.37	54.00	-4.63	AVG		
11		6118.000	49.33	10.65	59.98	74.00	-14.02	peak	100	0
12		6118.000	38.33	10.65	48.98	54.00	-5.02	AVG		

4. CONDUCTED DISTURBANCES

4.1. Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is +2.4 dB.

4.2. Limit of Conducted Disturbances (Class B)

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.00	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

4.3. EUT Setup

The setup of EUT is according with CISPR 16-1, CISPR16-2 measurement procedure.

The EUT was placed center and the back edge of the test table.

The cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

4.4. Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz

Detector.....Peak & Quasi-Peak & Average

Sweep Speed.....Auto

IF Band Width.....9 KHz

4.5. Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB μ V of specification limits).

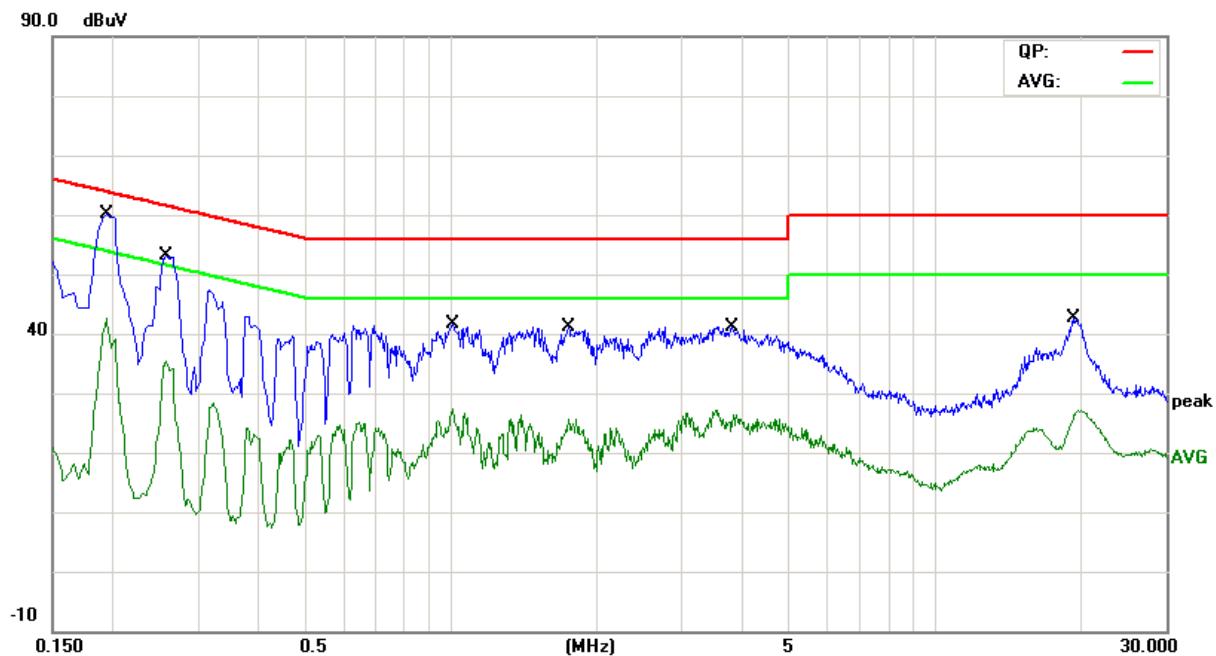
Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with an "AV".

4.6. Summary of Test Results

According to the data in section 3.6, the worst margin reading of:

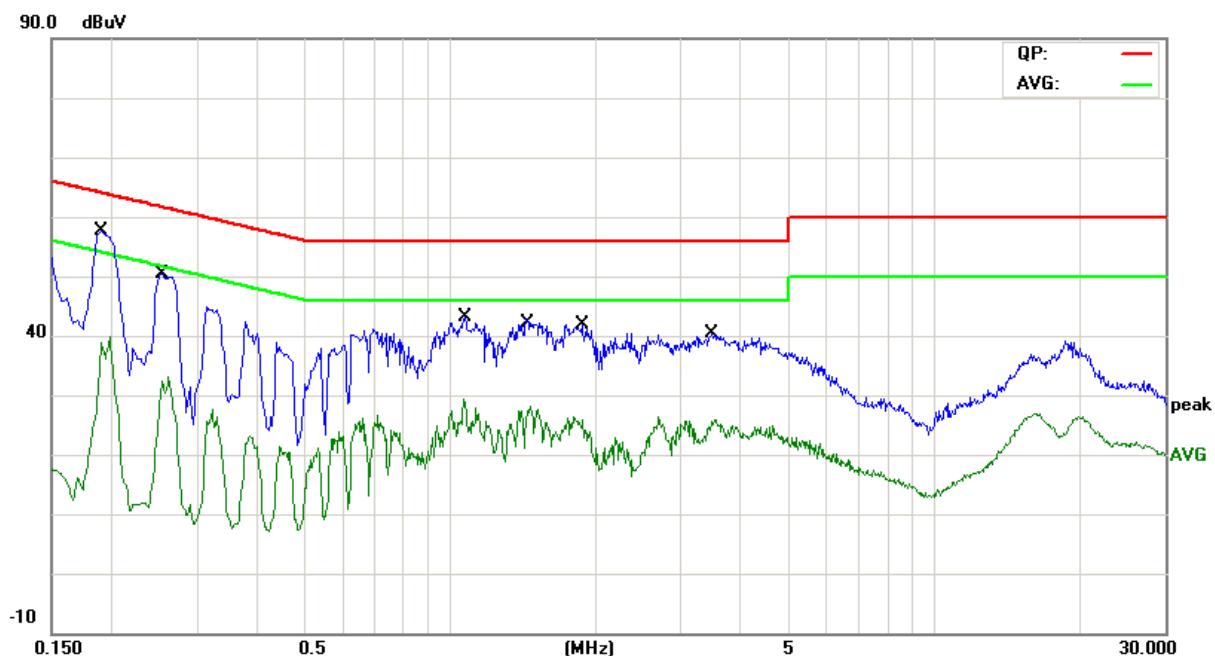
4.7. Test Result

CONDUCTED EMISSION TEST DATA: LINE



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
			Level	Factor	ment		dB	Detector
		MHz	dBuV	dB	dBuV	dBuV	dB	
1	*	0.1940	46.10	10.01	56.11	63.86	-7.75	QP
2		0.1940	29.42	10.01	39.43	53.86	-14.43	AVG
3		0.2580	38.76	10.02	48.78	61.49	-12.71	QP
4		0.2580	22.17	10.02	32.19	51.49	-19.30	AVG
5		1.0060	28.97	10.06	39.03	56.00	-16.97	QP
6		1.0060	17.18	10.06	27.24	46.00	-18.76	AVG
7		1.7500	28.01	10.06	38.07	56.00	-17.93	QP
8		1.7500	14.05	10.06	24.11	46.00	-21.89	AVG
9		3.8140	26.89	10.00	36.89	56.00	-19.11	QP
10		3.8140	14.01	10.00	24.01	46.00	-21.99	AVG
11		19.2540	24.53	10.17	34.70	60.00	-25.30	QP
12		19.2540	14.39	10.17	24.56	50.00	-25.44	AVG

CONDUCTED EMISSION TEST DATA: NEUTRAL



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1900	43.36	10.12	53.48	64.03	-10.55	QP	
2		0.1900	24.94	10.12	35.06	54.03	-18.97	AVG	
3		0.2540	35.99	10.10	46.09	61.62	-15.53	QP	
4		0.2540	19.69	10.10	29.79	51.62	-21.83	AVG	
5		1.0740	30.00	10.15	40.15	56.00	-15.85	QP	
6		1.0740	18.67	10.15	28.82	46.00	-17.18	AVG	
7		1.4660	28.67	10.11	38.78	56.00	-17.22	QP	
8		1.4660	17.98	10.11	28.09	46.00	-17.91	AVG	
9		1.8700	27.92	10.07	37.99	56.00	-18.01	QP	
10		1.8700	14.99	10.07	25.06	46.00	-20.94	AVG	
11		3.4780	25.27	10.06	35.33	56.00	-20.67	QP	
12		3.4780	14.70	10.06	24.76	46.00	-21.24	AVG	

-----END-----