

## EMC Test Report for FCC No. 130800216SHA-001

Applicant : TCT Mobile Limited  
5F, C building, No. 232, Liang Jing Road  
ZhangJiang High-Tech Park, Pudong Area Shanghai,  
P.R.China. 201203

Manufacturer : TCL COMMUNICATION TECHNOLOGY  
HOLDINGS LIMITED  
70 Huifeng 4rd, ZhongKai Hi-tech Development  
District, Huizhou,Guangdong 516006 P.R.China

Product Name : one touch H200Y

Type/Model : H200Y-3ATLMX1

### SUMMARY

The equipment complies with the requirements according to the following standard(s):

**47CFR Part 15 (2012):** Radio Frequency Device: Subpart B; Unintentional radiators class B

**ANSI C63.4 (2003):** Interim Standard for Methods of Measurement of Radio-Noise  
Emissions from Low-Voltage Electrical and Electronic Equipment in the  
Range of 9 kHz to 40GHz.

Date of issue: November 08, 2013

Prepared by:



Nemo Li (Project Engineer)

Reviewed by:



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## 1. GENERAL INFORMATION

### 1.1 Description of equipment under Test (EUT)

Product Name	:	one touch H200Y
Description of EUT	:	This product is a 3G home gateway with high performance, which supports WLAN IEEE 802.11b/g/n, voice call, HSPA (7.2Mbps uplink / 5.76Mbps downlink), 2 RJ45 interfaces, 1RJ11 interface, and the internal 3G module is used for Internet access. It has only one model.
Model number	:	H200Y-3ATLMX1
FCC ID	:	RAD440
Category of EUT	:	Class B
Rating	:	DC 12V powered by AC/DC adapter input AC 100-240V, 50/60Hz, 500mA; Output DC 12V, 1000mA
EUT type	:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Sample received date	:	August 2, 2013
Date of test	:	August 2, 2013 ~ October 15, 2013

### 1.2 Description of Client

Applicant: TCT Mobile Limited  
5F, C building, No. 232, Liang Jing Road  
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Manufacturer: TCL COMMUNICATION TECHNOLOGY  
HOLDINGS LIMITED  
70 Huifeng 4rd, ZhongKai Hi-tech Development  
District, Huizhou,Guangdong 516006 P.R.China



**FCC ID: RAD440**

### **1.3 Description of Test Facility**

Name: Intertek Testing Services Limited Shanghai  
Address: Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, P.R. China

FCC Registration Number: 236597  
IC Assigned Code: 2042B-1

Name of contact: Steve Li  
Tel: +86 21 64956565 ext. 214  
Fax: +86 21 54262335 ext. 214

## 2. TEST SPECIFICATIONS

### 2.1 Standards

**47CFR Part 15 (2012):** Radio Frequency Device: Subpart B; Unintentional radiators class B

**ANSI C63.4 (2003):** Interim Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz.

### 2.2 Mode of operation during the test / Test peripherals used

#### 2.2.1 Description of operation

Within this test report, EUT was tested under its rating voltage and frequency.

The EUT was set up as typically used.

EUT was tested as GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA mode and communicated with the PC via WIFI or RJ45, and listed the worst data in the report.

**2.3 Instrument list**

Equipment	Type	Manu.	Cal. Date	Due date
Test Receiver	ESIB 26	R&S	2012-10-21	2013-10-20
Semi-anechoic chamber	-	Albatross project	2013-5-21	2014-5-20
Bilog Antenna	CBL 6112D	TESEQ	2013-5-16	2015-5-15
Horn antenna	HF 906	R&S	2013-5-13	2015-5-12
Pre-amplifier	Pre-amp 18	R&S	2013-4-12	2014-4-11
Test Receiver	ESCS 30	R&S	2012-10-21	2013-10-20
A.M.N.	ESH2-Z5	R&S	2013-1-9	2014-1-8
A.M.N.	ESH3-Z5	R&S	2013-1-10	2014-1-9
High Pass Filter	WHKX 1.0/15G-10SS	Wainwright	2013-2-8	2014-2-7
High Pass Filter	WHKX 2.8/18G-12SS	Wainwright	2013-2-8	2014-2-7
High Pass Filter	WHKX 7.0/1.8G-8SS	Wainwright	2013-2-8	2014-2-7
Band Reject Filter	WRCGV 2400/2483-2390/2493-35/10SS	Wainwright	2013-2-8	2014-2-7
Test Receiver	FSV40	R&S	2012-10-21	2013-10-20
Power Splitter/Combiner	ZN2PD2-63	Mini-Circuits	2012-12-3	2013-12-2
Test Receiver	ESCI	R&S	2013.5.24	2014.5.23
Spectrum Analyzer	FSP	R&S	2012.11.8	2013.11.7
Bi-Log Antenna	HL562	R&S	2013.4.28	2014.4.27
Horn Antenna	HF906	R&S	2013.4.28	2014.4.27
LISN	ENV216	R&S	2012.11.10	2013.11.9
LISN	NSLK 8127	R&S	2013.4.5	2014.4.4
Communication Unit	CMU200	R&S	2013.4.5	2014.4.4



#### 2.4. Test Summary

**This report applies to tested sample only. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai.**

TEST ITEM	RESULT	NOTE
Disturbance voltage at a.c. mains terminal	Pass	
Radiated emission	Pass	

Notes: 1: NA =Not Applicable

### 3. Conducted disturbance voltage at mains terminals

Test result: Pass

#### 3.1 Limits

3.1.1 Limits for conducted disturbance voltage at the mains ports of class A device

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60

Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

3.1.2 Limits for conducted disturbance voltage at the mains ports of class B device

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

Note: 1. \* Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz  
 2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.



### **3.3 Test Setup and Test Procedure**

Measurement was performed in shielded room, and instruments used were following clause 4 and clause 5 of ANSI 63.4.

Detailed test procedure was following clause 7.2 of ANSI 63.4.

EUT arrangement and operation conditions were according to clause 6 and clause 7 of ANSI 63.4.

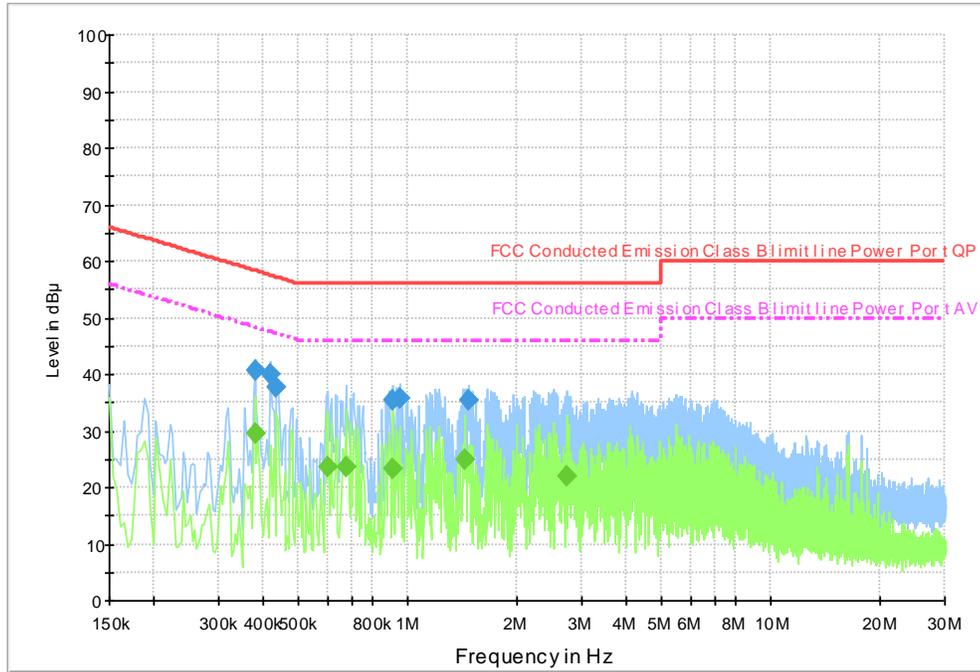
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

### 3.4 Test Protocol

Temperature : 25 °C      Relative Humidity : 55 %

#### Phase L

EMI\_ENV216 Auto Test-L CISPR22

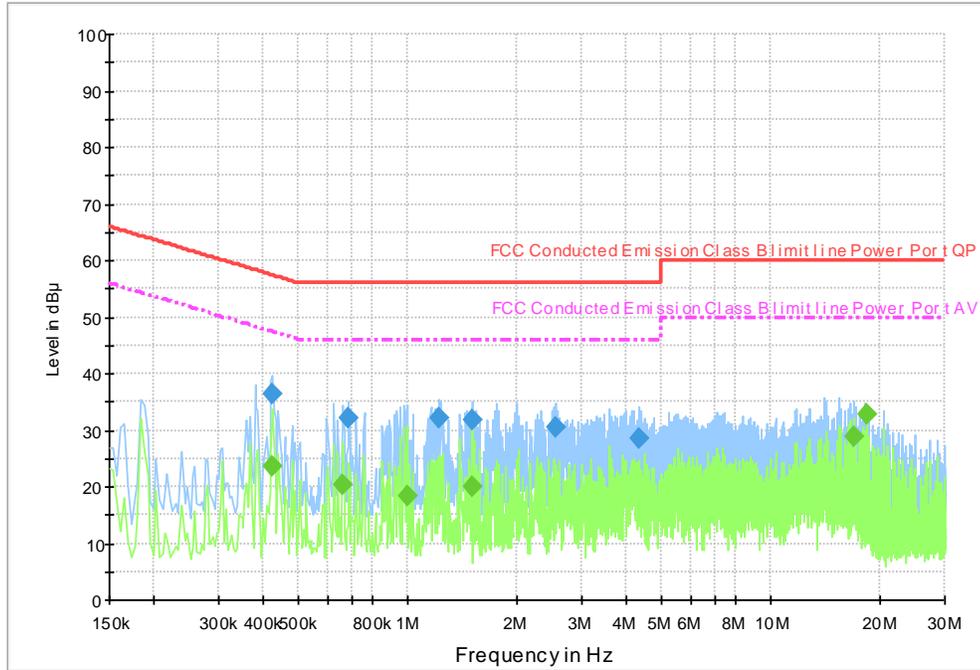


Frequency (MHz)	level dB(µV)	Correction Factor (dB)	Limit dB(µV)	Margin (dB)	Detector
0.38	40.8	9.7	58.3	17.5	QP
0.41	40.0	9.7	57.5	17.5	QP
0.43	37.8	9.7	57.2	19.4	QP
0.90	35.5	9.7	56.0	20.5	QP
0.94	35.8	9.7	56.0	20.2	QP
1.47	35.4	9.8	56.0	20.6	QP
0.38	29.4	9.7	48.3	18.9	AV
0.60	23.6	9.7	46.0	22.4	AV
0.67	23.6	9.7	46.0	22.4	AV
0.90	23.2	9.7	46.0	22.8	AV
1.43	24.8	9.8	46.0	21.2	AV
2.74	21.8	9.8	46.0	24.2	AV

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).  
 2. Margin (dB) = Limit - Corrected Reading

Phase N

EML\_ENV216 Auto Test-NC1SP R22



Frequency (MHz)	level dB(µV)	Correction Factor (dB)	Limit dB(µV)	Margin (dB)	Detector
0.42	36.3	9.7	57.4	21.1	QP
0.68	32.0	9.7	56.0	24.0	QP
1.21	32.3	9.7	56.0	23.7	QP
1.49	31.7	9.7	56.0	24.3	QP
2.55	30.6	9.8	56.0	25.4	QP
4.31	28.6	9.9	56.0	27.4	QP
0.42	23.6	9.7	23.8	47.4	AV
0.66	20.3	9.7	25.7	46.0	AV
0.99	18.2	9.7	27.8	46.0	AV
1.49	20.0	9.7	26.0	46.0	AV
16.84	28.8	10.3	21.2	50.0	AV
18.24	32.9	10.3	17.1	50.0	AV

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).  
 2. Margin (dB) = Limit - Corrected Reading

## 4. Radiated emission

Test result: Pass

### 4.1 Radiated emission limits

#### 4.1.1 Limits for radiated disturbance of class A device

Frequency (MHz)	Permitted limit in dB $\mu$ V/m (Quasi-peak) of Measurement Distance 10m
30 – 88	39
88 – 216	43.5
216 – 960	46.4
Above 960	49.5

Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

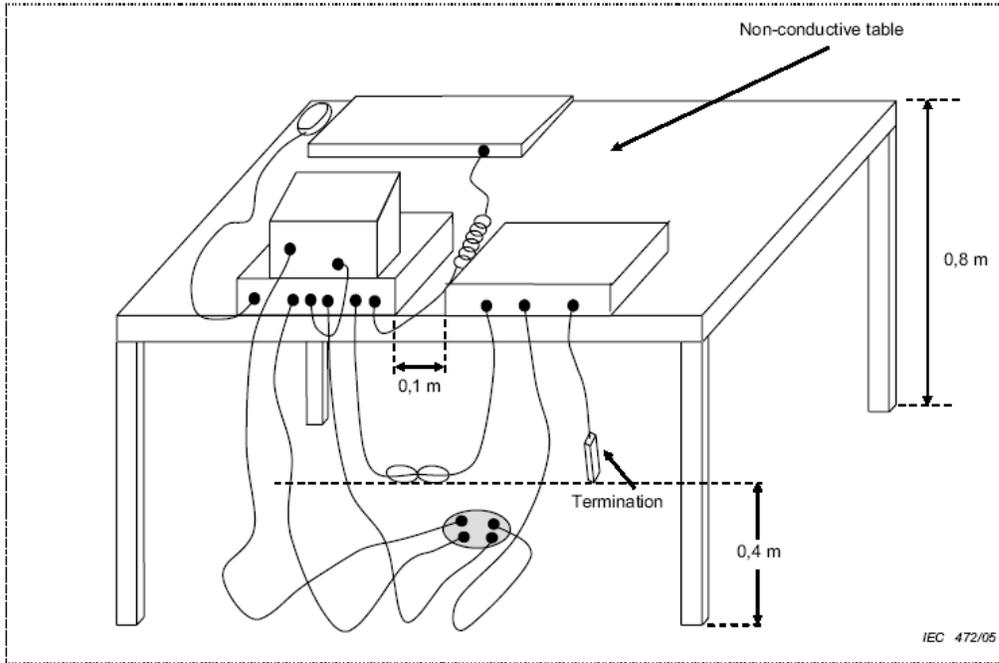
#### 4.1.1 Limits for radiated disturbance of class B device

Frequency (MHz)	Permitted limit in dB $\mu$ V/m (Quasi-peak) of Measurement Distance 3m
30 – 88	40.0
88 – 216	43.5
216 – 960	46.0
Above 960	54.0

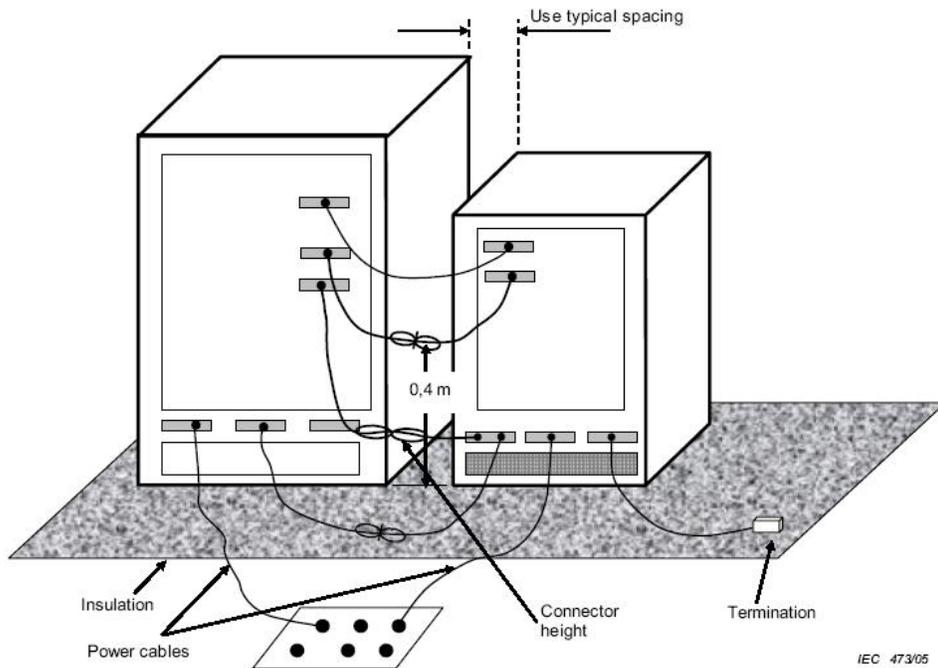
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

**4.2 Block diagram and test set up**

For table top equipment



For floor standing equipment



### 4.3 Test Setup and Test Procedure

The measurement was performed in a semi-anechoic chamber.

The distance from EUT to receiving antenna is 3 meter.

Measurement was performed according to clause 4 and clause 5 of ANSI 63.4.

Test procedure was according to clause 8.3 of ANSI 63.4.

EUT arrangement and operate condition were according to clause 6 and clause 8 of ANSI 63.4.

The radiated emission was measured using the Spectrum Analyzer with the resolutions bandwidth set as:

RBW = 100kHz, VBW = 300kHz (30MHz~1GHz)

RBW = 1MHz, VBW = 3MHz (>1GHz for PK);

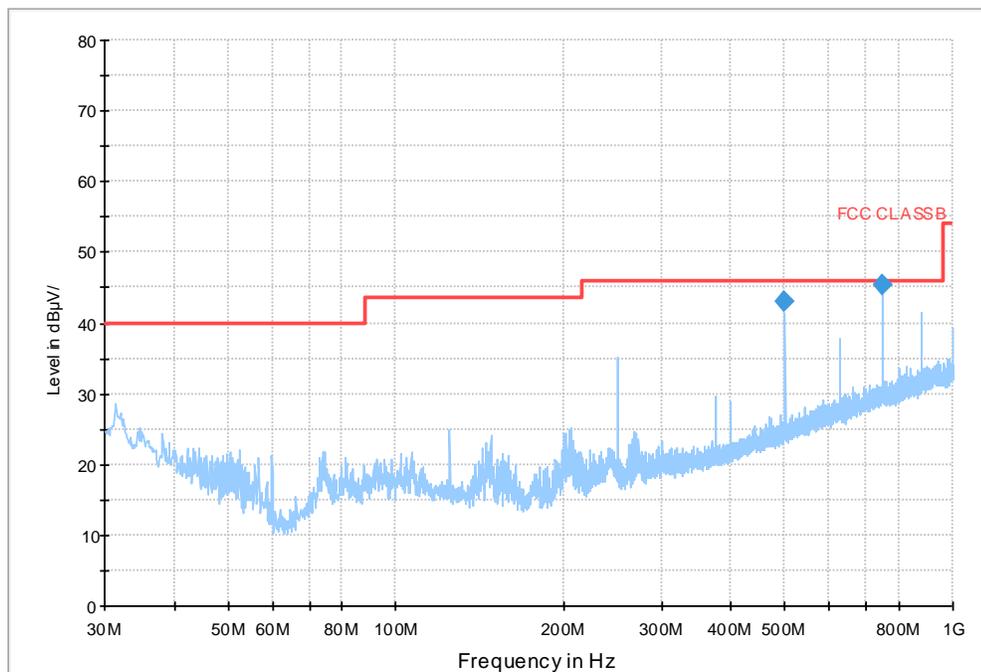
### 4.4 Test Protocol

Temperature : 25 °C  
Relative Humidity : 55 %

#### Test data:

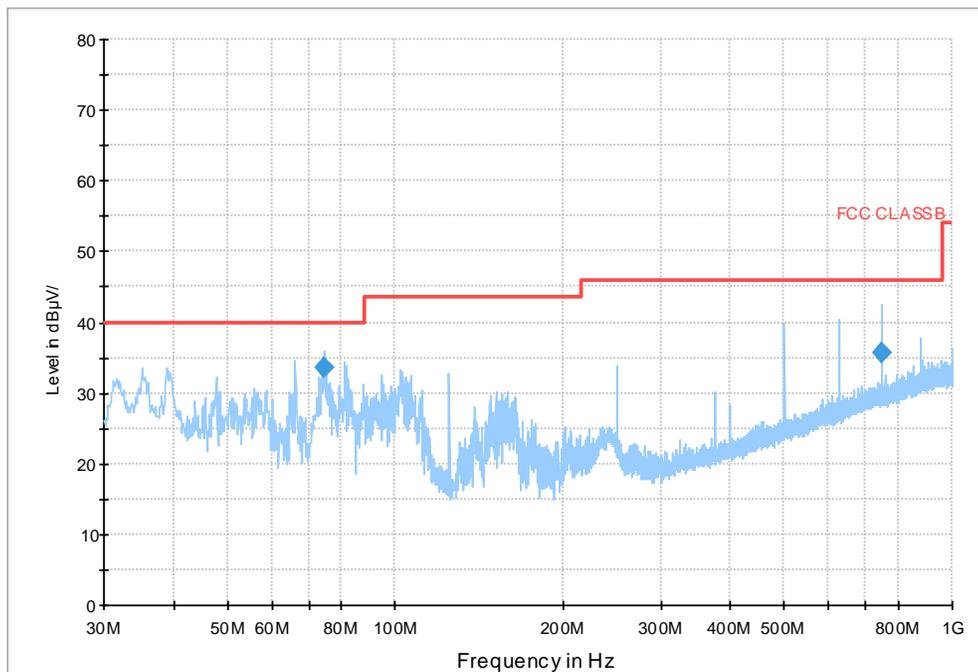
#### Horizontal Polarization

EMI\_HL562 AutoTest-H-FCC



**Vertical Polarization**

EMI\_HL562 AutoTest-V-FCC



Polarization (H/V)	Frequency (GHz)	Corrected Reading (dBµV/m)	Correct Factor	Limits (dBµV/m)	Margin (dBµV/m)	Detector
H	500.02	42.9	20.2	46.0	3.1	QP
H	750.02	45.4	25.0	46.0	0.6	QP
H	3705.25	40.0	0.3	54.0	14.0	PK
H	8412.88	35.2	10.1	54.0	18.8	PK
H	10.43275	40.4	14.5	54.0	13.6	PK
H	12.90275	45.7	21.1	54.0	8.3	PK
H	14.40425	55.1	25.2	74.0	18.9	PK
H	14.40425	43.0	25.2	54.0	11.0	AV
H	15.00875	52.4	24.8	54.0	1.6	PK
V	75.55	33.7	9.1	40.0	6.3	QP
V	750.00	35.5	25.0	46.0	10.5	QP
V	7956.25	35.0	9.5	54.0	19.0	PK
V	10.33525	39.3	14.0	54.0	14.7	PK
V	12.87675	44.6	20.9	54.0	9.4	PK
V	14.98275	54.7	24.9	74.0	19.3	PK



FCC ID: RAD440

V	14.98275	44.7	24.9	54.0	9.3	AV
V	15.90250	54.9	24.9	74.0	19.1	PK
V	15.90250	42.5	24.9	54.0	11.5	AV

- Remark: 1. Transducer = Antenna Factor + Cable Loss (-Amplifier, is employed)  
2. Corrected Reading = Original Receiver Reading + Transducer  
3. Margin = limit – Corrected Reading  
4. The test is performed from 30MHz to 18GHz.  
5. For the frequency points assessed with QP detector, it has been confirmed the pulse-repetition frequency of their emission is higher than 20 Hz.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,  
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10dBuV.  
Then Transducer = 30.20 + 2.00 – 32.00 = 0.20dB/m; Corrected Reading =  
10dBuV + 0.20dB/m = 10.20dBuV/m  
Assuming limit = 54dBuV/m, Corrected Reading = 10.20dBuV/m, then Margin =  
54 -10.20 = 43.80dBuV/m