Report No: CCIS12020001201

FCC REPORT

Applicant:	NATIONAL ELECTRONICS & WATCH CO. LTD
Address of Applicant:	15/F., SHING DAO IND. BLDG., 232 ABERDEEN MAIN ROAD, ABERDEEN, HONG KONG.

Equipment Under Test (EUT)

Product Name:	GPS Watch with 2.4G HRM;
Model No.:	M11-1656D
Product Name:	GPS Watch;
Model No.:	M11-1533D
FCC ID:	UH5M11-1656GPS

Applicable standards:	FCC CFR Title 47 Part 15 Subpart B: 2010
Date of sample receipt:	Feb. 16, 2012
Date of Test:	Feb. 17, 2012
Date of report issued:	Feb. 17, 2012
Test Result :	Pass *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Stephen Guo
Laboratory Manager

2 Version

Version No.	Date	Description
00	Feb. 17, 2012	*Original*

Prepared by: Collin.He ***Date:*** Feb. 17, 2012

Project Engineer

Reviewed by: Hans.Hu ***Date:*** Feb. 17, 2012

Reviewer

3 Contents

4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	Pass
Readiated Emissions	Part15.109	Pass

Remark:

Pass: The EUT complies with the essential requirements in the standard.

EUT: In this whole report EUT means Equipment Under Test.

* Remark: Model No.: M11-1656D; M11-1533D

According to the confirmation from the applicant, the internal circuit design, PCB layout and internal wiring for above 2 models are identical. The only differences are the model name, software function and appearance color for commercial purpos. Here are relevant software functions for above models:

- M11-1533D RUN
- M11-1656D RUN+2.4G HRM +Timer.

Model M11-1656D has an additional function for HRM mode which will receive the heart rate signal from a 2.4GHz transmiter paired HRM belt. The circuit of receiving modular is independent unit for the modle M11-11656D.

Model M11-1533D doesn't have HRM mode since this model doesn't have receiving modular.

Therefore only one **M11-1656D** was tested in this report.

This report only showed the test date for PC link mode for data download function.

Other modes, please refer the test report: CCIS12020001202.

5 General Information

5.1 Client Information

Applicant:	NATIONAL ELECTRONICS & WATCH CO. LTD.
Address of Applicant:	15/F., SHING DAO IND. BLDG., 232 ABERDEEN MAIN ROAD, ABERDEEN, HONG KONG.

5.2 General Description of E.U.T.

Product Name: Model No.:	GPS Watch with 2.4G HRM; M11-1656D
Product Name: Model No.:	GPS Watch; M11-1533D
Power Supply:	Li-ion 3.7VDC 300mAh (Internal rechargeable battery) for single unit; Charging mode is supplied by USB port.
Other accessories	Charging cable (model no.: M10-635S): 2 lines, 0.5m length; Charging & PC link cable (model no.: M09-381): 4 lines, 0.5m length.

5.3 Operating Modes

Operating mode	Detail description
PC Link mode	Keep the EUT in PC link mode which is connected PC the cable (model no.: M09-381).

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	SL510	N/A
HP	Printer	CB495A	05257893

5.5 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

5.6 Abnormalities from Standard Conditions

None.

5.7 Other Information Requested by the Customer

None.

5.8 Test Facility

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

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, July 20, 2010.

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

5.9 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China Tel: 0755-27798480 Fax: 0755-27798960

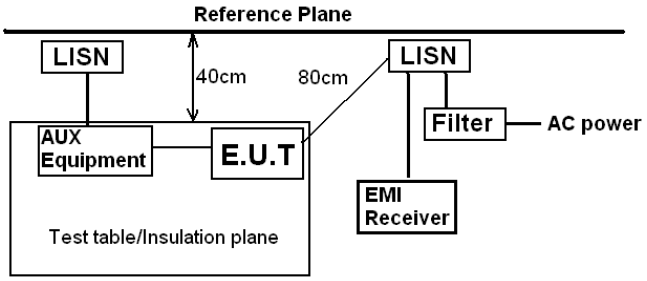
6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2012
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 04 2011	Jul. 03 2012
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 26 2011	Feb. 25 2012
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 30 2011	June 29 2012
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Coaxial Cable	GTS	N/A	GTS213	Apr. 01 2011	Mar. 31 2012
8	Coaxial Cable	GTS	N/A	GTS211	Apr. 01 2011	Mar. 31 2012
9	Coaxial cable	GTS	N/A	GTS210	Apr. 01 2011	Mar. 31 2012
9	Coaxial Cable	GTS	N/A	GTS212	Apr. 01 2011	Mar. 31 2012
10	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 04 2011	Jul. 03 2012
11	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 04 2011	Jul. 03 2012
12	Band filter	Amindeon	82346	GTS219	Apr. 01 2011	Mar. 31 2012
13	Temp. Humidity/ Barometer	Oregon Scientific	BA-888	GTS248	May 11 2011	May 10 2012

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS252	Jul. 04 2011	Jul. 03 2012
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 04 2011	Jul. 03 2012
3	10dB Pulse Limit	Rohde & Schwarz	N/A	GTS224	Jul. 04 2011	Jul. 03 2012
4	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 04 2011	Jul. 03 2012
5	LISN	ETS-LINDGREN	3816/2	GTS232	Jul. 04 2011	Jul. 03 2012
6	Coaxial Cable	GTS	N/A	GTS227	Apr. 01 2011	Mar. 31 2012
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

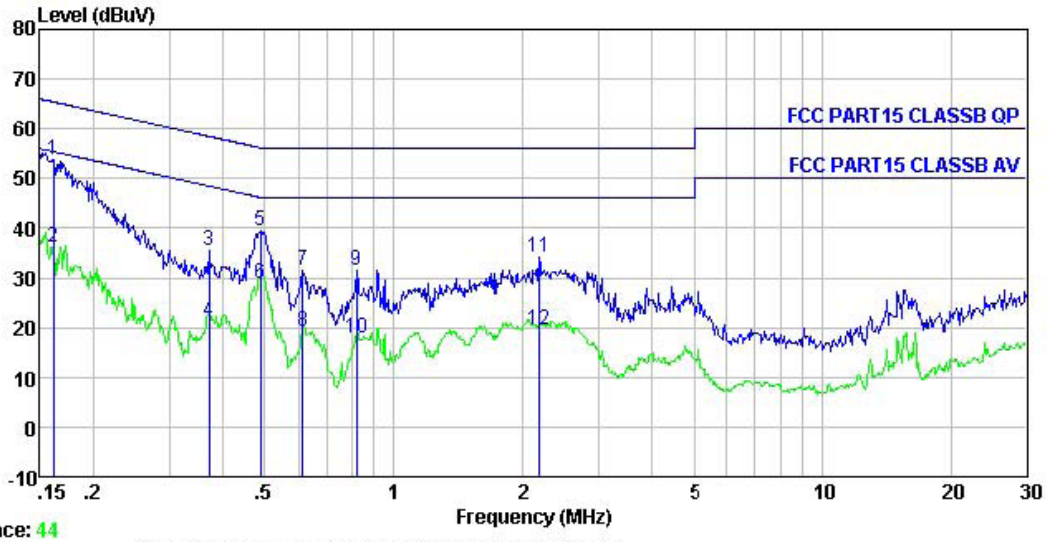
7 Test results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107
Test Method:	ANSI C63.4:2003
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	Frequency range (MHz) / Limit (dBμV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 0.5-30: 60 / 50
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 3.45dB
Test Instruments:	Refer to section 6 for details
Test mode:	Keep the EUT in PC link mode which is conneted PC the cable (model no.: M09-381).
Test results:	Pass

Measurement data:

Line:

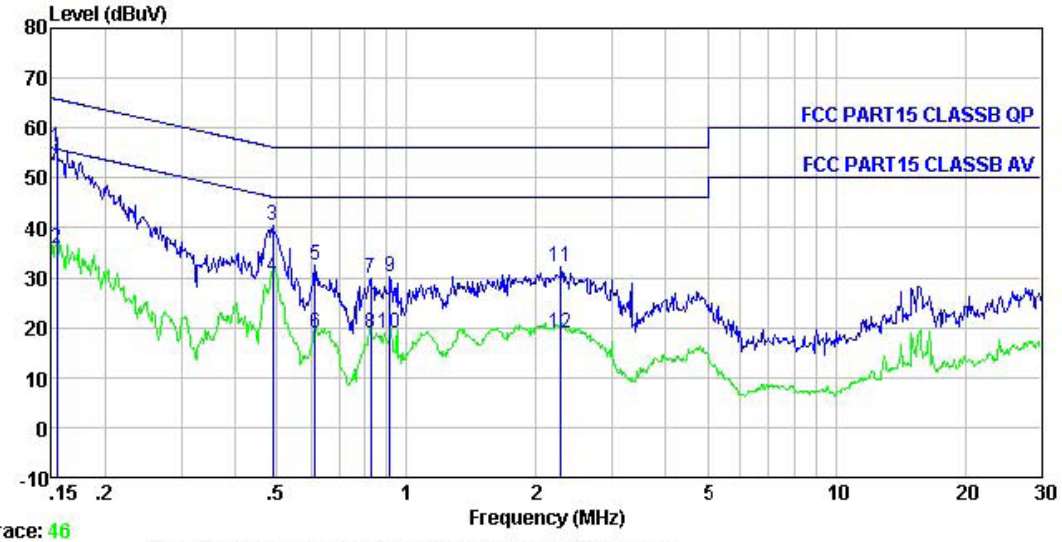


Trace: 44

Condition : FCC PART15 CLASSB QP LISN(2011) LINE
Job No. : 012RF
Test Mode : PC Download mode
Test Engineer: Gavin
Remark : M09-381

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.162	53.03	0.68	0.10	53.81	65.38	-11.57	QP
2	0.162	35.26	0.68	0.10	36.04	55.38	-19.34	Average
3	0.371	34.69	0.59	0.10	35.38	58.47	-23.09	QP
4	0.371	20.47	0.59	0.10	21.16	48.47	-27.31	Average
5	0.489	38.88	0.56	0.10	39.54	56.19	-16.65	QP
6	0.489	28.19	0.56	0.10	28.85	46.19	-17.34	Average
7	0.614	30.97	0.53	0.10	31.60	56.00	-24.40	QP
8	0.614	18.59	0.53	0.10	19.22	46.00	-26.78	Average
9	0.817	30.84	0.50	0.10	31.44	56.00	-24.56	QP
10	0.817	17.24	0.50	0.10	17.84	46.00	-28.16	Average
11	2.178	33.73	0.39	0.10	34.22	56.00	-21.78	QP
12	2.178	19.06	0.39	0.10	19.55	46.00	-26.45	Average

Neutral:



Trace: 46

Condition : FCC PART15 CLASSB QP LISN(2011) NEUTRAL
Job No. : 012RF
Test Mode : PC Download mode
Test Engineer: Gavin
Remark : M09-381

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	55.18	0.69	0.10	55.97	65.78	-9.81	QP
2	0.154	35.06	0.69	0.10	35.85	55.78	-19.93	Average
3	0.489	39.80	0.56	0.10	40.46	56.19	-15.73	QP
4	0.489	29.42	0.56	0.10	30.08	46.19	-16.11	Average
5	0.614	31.83	0.53	0.10	32.46	56.00	-23.54	QP
6	0.614	18.34	0.53	0.10	18.97	46.00	-27.03	Average
7	0.826	29.09	0.50	0.10	29.69	56.00	-26.31	QP
8	0.826	18.26	0.50	0.10	18.86	46.00	-27.14	Average
9	0.914	29.50	0.49	0.10	30.09	56.00	-25.91	QP
10	0.914	18.30	0.49	0.10	18.89	46.00	-27.11	Average
11	2.285	31.78	0.39	0.10	32.27	56.00	-23.73	QP
12	2.285	18.36	0.39	0.10	18.85	46.00	-27.15	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

7.2 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 1000MHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Receiver setup:	

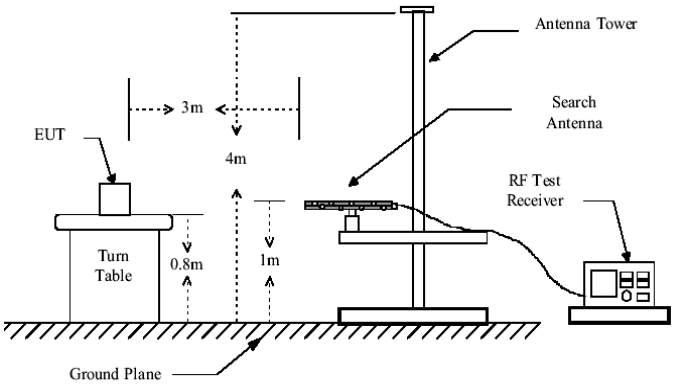
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value

Limit:

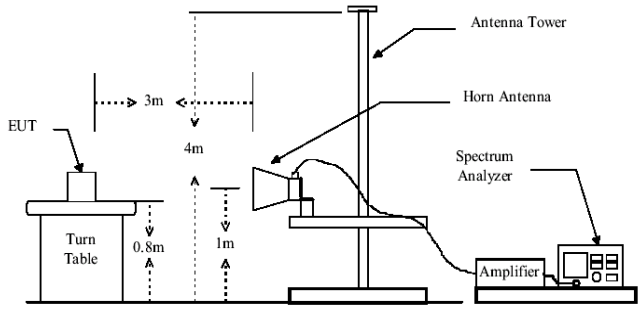
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value

Test setup:

Below 1GHz



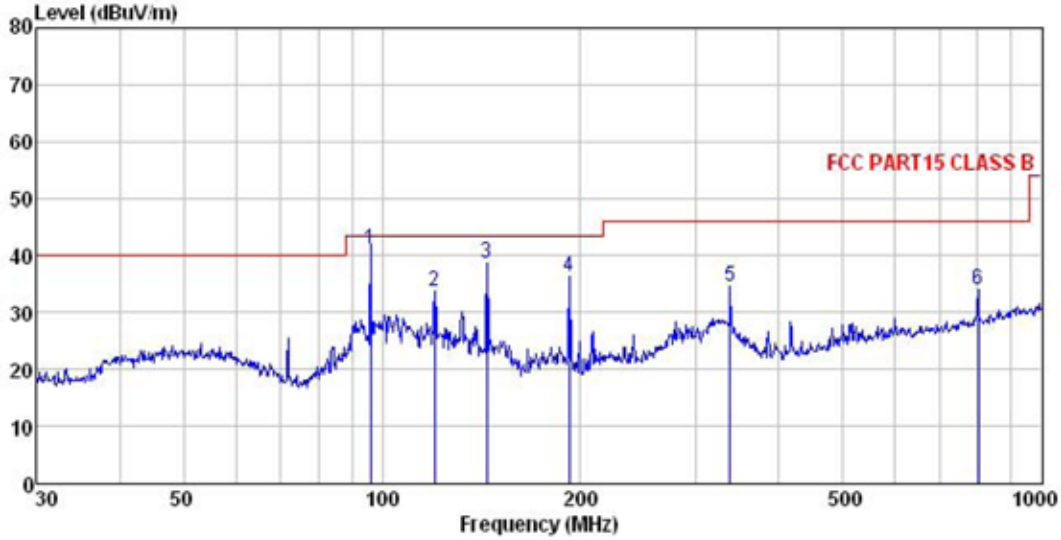
Above 1GHz



Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB
Test Instruments:	Refer to section 6 for details
Test mode:	Keep the EUT in PC link mode which is conneted PC the cable (model no.: M09-381).
Test results:	Passed

Measurement Data

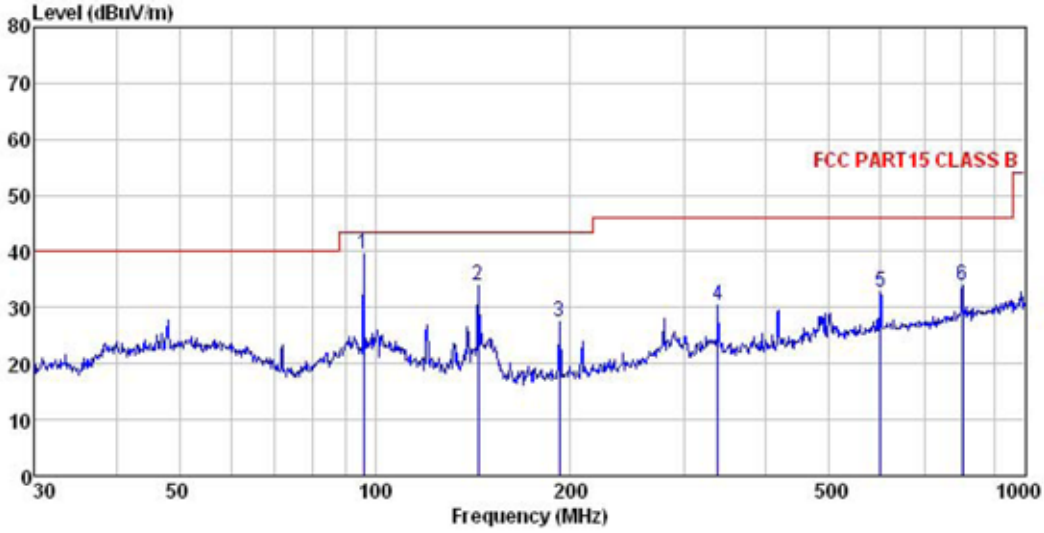
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 (2011-11) HORIZONTAL
Job NO. : 012RF
Test Mode : PC Download mode
Test Engineer: Joe

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	96.0986	58.85	13.29	0.47	31.71	40.90	43.50	-2.60	QP
2	120.2766	54.50	10.39	0.54	31.81	33.62	43.50	-9.88	QP
3	144.3348	61.90	8.25	0.60	31.95	38.80	43.50	-4.70	QP
4	192.4186	57.46	10.46	0.69	32.22	36.39	43.50	-7.11	QP
5	337.2155	51.74	14.00	1.14	32.31	34.57	46.00	-11.43	QP
6	801.7863	43.19	20.06	2.05	31.49	33.81	46.00	-12.19	QP

Vertical:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 (2011-11) VERTICAL
Job NO. : 012RF
Test Mode : PC Download mode
Test Engineer: Joe

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	96.0986	57.38	13.29	0.47	31.71	39.43	43.50	-4.07	QP
2	144.3348	56.96	8.25	0.60	31.95	33.86	43.50	-9.64	QP
3	192.4186	48.67	10.46	0.69	32.22	27.60	43.50	-15.90	QP
4	337.2155	47.68	14.00	1.14	32.31	30.51	46.00	-15.49	QP
5	599.3213	43.88	18.38	1.68	31.29	32.65	46.00	-13.35	QP
6	801.7863	43.45	20.06	2.05	31.49	34.07	46.00	-11.93	QP

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor