



FCC Test Report

Report No: FCS202007037W01

Issued for

Applicant:	PROFORA INTERNATIONAL CORPORATION
Address:	719 LAMBS CREEK ROAD, P.O.BOX 99 MANSFIELD Pennsylvania 16933 United States
Product Name:	Wireless Handheld Transmitter
Brand Name:	Kingdom, Pendomax and/or AVTronics
Model Name:	HH500
Series Model:	N/A
FCC ID:	2AAQC-HH500
Issued By: Flux Compliance Service Laboratory Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan Tel: 769-27280901 Fax:769-27280901 http://www.fcs-lab.com	

TEST RESULT CERTIFICATION

Applicant's Name: PROFORA INTERNATIONAL CORPORATION

Address: 719 LAMBS CREEK ROAD, P.O.BOX 99 MANSFIELD
Pennsylvania 16933 United States

Manufacture's Name: Xinyingke Electroacoustic Technology Co., Ltd.

Address: C3-2, Enping Area, Jiangmen Industrial Park, Enping City,
Guangdong Province, China

Product Description

Product Name: Wireless Handheld Transmitter

Brand Name: Kingdom, Pendomax and/or AVTronics

Model Name: HH500

Series Model: N/A

Test Standards: FCC Rules and Regulations Part 15 Subpart C section 15.236

Test Procedure: ANSI C63.10:2013

This device described above has been tested FCS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....:

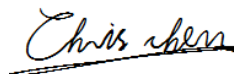
Date (s) of performance of tests.: 05 Aug. 2020 ~ 25 Aug. 2020

Date of Issue: 25 Aug. 2020

Test Result: Pass

Tested by

:



(Chris Chen)

Reviewed by

:



(Jack Chen)

Approved by

:



(Andy yue)

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Revision History

Rev.	Issue Date	Effect Page	Contents
00	25 Aug. 2020	All	Initial Issue

1. SUMMARY OF TEST RESULTS

FCC Part 15 Subpart C section 15.236			
Standard Section	Test Item	Judgment	Remark
FCC Part 15.236(d)	Maximum Radiated Power	PASS	--
FCC Part 15.236(f)(2)	Occupied Bandwidth	PASS	--
FCC Part 15.236(g)	Necessary bandwidth	PASS	--
FCC Part 15.236(f)(3)	Frequency stability	PASS	--
FCC Part 15.236(g)	Emission within the band and outside this band	PASS	--
FCC Part 207(a)	Conducted Emission	NA	--

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) All tests are according to ANSI C63.10:2013

1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
FCC Test Firm Registration Number: 514908 Designation number: CN0127 A2LA accreditation number: 5545.01	

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.71\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.98\text{ dB}$
3	Conducted Emission (9KHz-150KHz)	$\pm 4.13\text{ dB}$
4	Conducted Emission (150KHz-30MHz)	$\pm 4.74\text{ dB}$
5	All emissions,radiated(<1G) 30MHz-1000MHz	$\pm 3.2\text{ dB}$
6	All emissions,radiated (1GHz -18GHz)	$\pm 3.66\text{ dB}$
7	All emissions,radiated (18GHz -40GHz)	$\pm 4.31\text{ dB}$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Wireless Bodypack Transmitter
Model Name	Kingdom, Pendomax and/or AVTronics
Series Model	HH500
Channel List	Please refer to the Note 2.
Operation frequency	Channel: 516MHz- 541MHz
Modulation Type	FM
Antenna Type	Integration Antenna
Antenna Gain (dBi)	0
Power Supply	Input: DC 3V (2 X 1.5AA)
Hardware version number	V1.1
Software version number	V1.1
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. Channel List

Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	516.0	19	529.4		
02	517.3	20	530.7		
03	518.6	21	532.0		
04	519.9	22	533.3		
05	521.2	23	534.6		
06	522.5	24	535.9		
07	523.8	25	537.2		
08	525.1	26	538.5		
09	526.4	27	539.8		
10	527.7	28	541.0		
11	519.0				
12	520.3				
13	521.6				
14	522.9				
15	524.2				
16	525.5				
17	526.8				
18	528.1				

Ant.	Antenna Brand	Antenna Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	Enping	Ysis	Integration Antenna	N/A	1.0	Antenna

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test software:FCC tools

The test software was used to control EUT work in continuous TX mode, and select test channel, Wireless mode as below table, the following operating modes were applied for the related test items. All test modes were tested, only the result of the worst case was recorded in the report.

Tested mode, channel , information		
Mode	Channel	Frequency (MHz)
Channel	CH 01	516.0
	CH 14	522.9
	CH 28	541.0

2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.4 EQUIPMENTS LIST

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2019.10.10	2020.10.09
Signal Analyzer	R&S	FSV40-N	FCS-E012	2019.10.10	2020.10.09
Active loop Antenna	ZHINAN	ZN30900C	FCS-E013	2019.10.11	2020.10.10
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2019.10.26	2020.10.25
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2019.10.10	2020.10.09
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2019.10.10	2020.10.09
Pre-Amplifier(0.1M-3G Hz)	EMCI	EM330N	FCS-E004	2019.10.10	2020.10.09
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2019.10.03	2020.10.02
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2019.10.08	2020.10.07
Temperature & Humidity	HTC-1	victor	FCS-E005	2019.10.10	2020.10.09

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2019.10.10	2020.10.09
LISN	R&S	ENV216	FCS-E007	2019.10.10	2020.10.09
LISN	ETS	3810/2NM	FCS-E009	2019.10.15	2020.10.14
Temperature & Humidity	HTC-1	victor	FCS-E008	2019.10.10	2020.10.09

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2019.10.02	2020.10.01
Spectrum Analyzer	Agilent	E4447A	MY50180039	2019.11.08	2020.11.07
Spectrum Analyzer	R&S	FSV-40	101499	2019.10.10	2020.10.09

3 MAXIMUM OUTPUT POWER

3.1 LIMIT

Refer to FCC 15.236(d)

In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP; In the 600 MHz guard bands including the duplex gap: 20 mW EIRP

3.2 TEST PROCEDURE

A · Connect each EUT's antenna output to power sensor by RF cable and attenuator

3.3 TEST SETUP



3.4 TEST RESULTS

Test mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit(dBm)	Verdict
Channel	01	516.0	6.220	13dBm	PASS
	14	522.9	6.319		
	28	541.0	6.259		

4. OCCUPIED BANDWIDTH

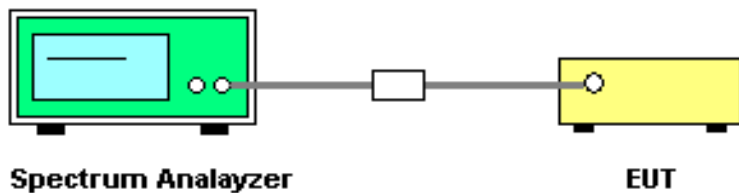
4.1 LIMIT

One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz

4.2 TEST PROCEDURE

Parameter	Setting
Detector	Peak/AV
Sweep time	Auto
Resolution bandwidth	1 % to 5 % of the occupied bandwidth
Video bandwidth:	3 x resolution bandwidth
Span:	2 x emission bandwidth
Trace mode:	Max. hold
Analyzer function:	99% power occupied bandwidth function
EUT:	Modulated signal with max. frequency deviation

4.3 TEST SETUP

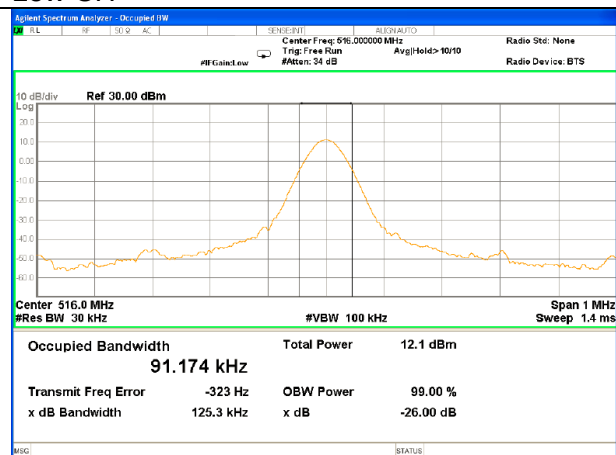


4.4 TEST RESULTS

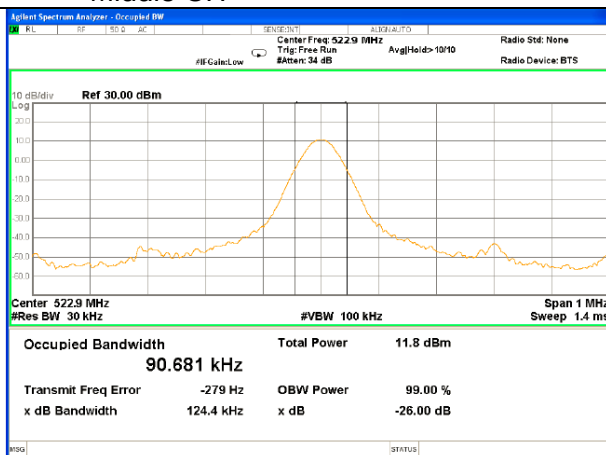
Test mode	Channel	Frequency (MHz)	99% Bandwidth (KHz)	Limit(KHz)	Verdict
Channel	Low CH	516.0	91.174KHz	200	PASS
	Middle CH	522.9	90.681KHz		
	High CH	541.0	90.681KHz		

Channel

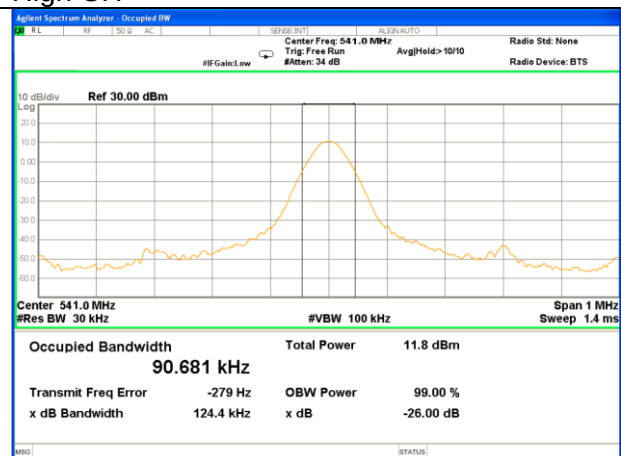
Low CH



Middle CH



High CH



5 NECESSARY BANDWIDTH

5.1 LIMIT

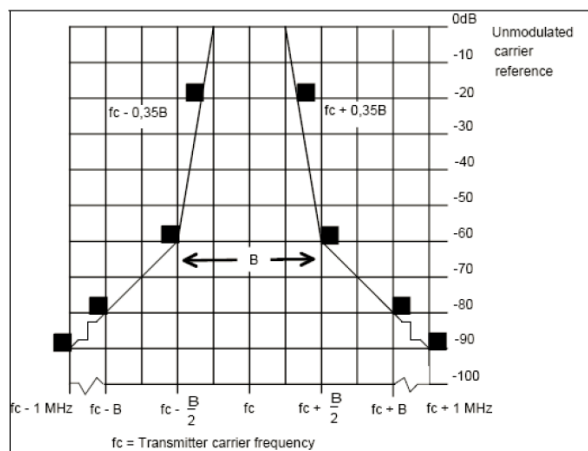
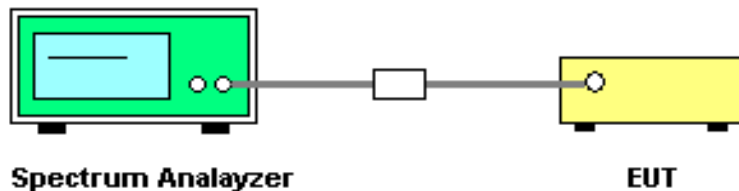


Figure 1: Spectrum mask for analogue systems in all bands

5.2 TEST PROCEDURE

EN300422-1 V1.4.2 Clause 8.3.

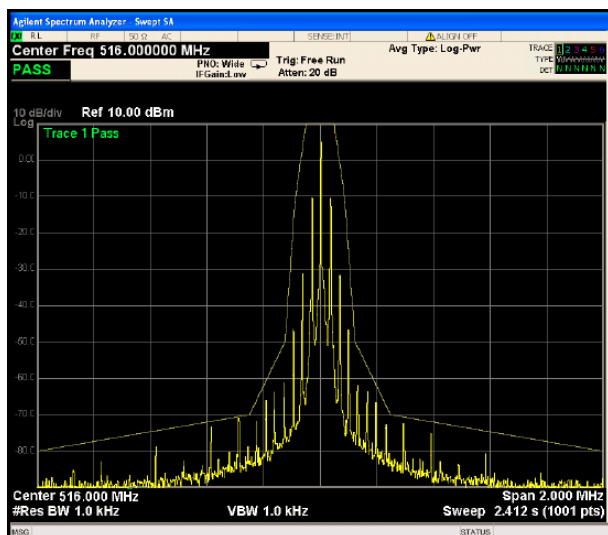
5.3 TEST SETUP



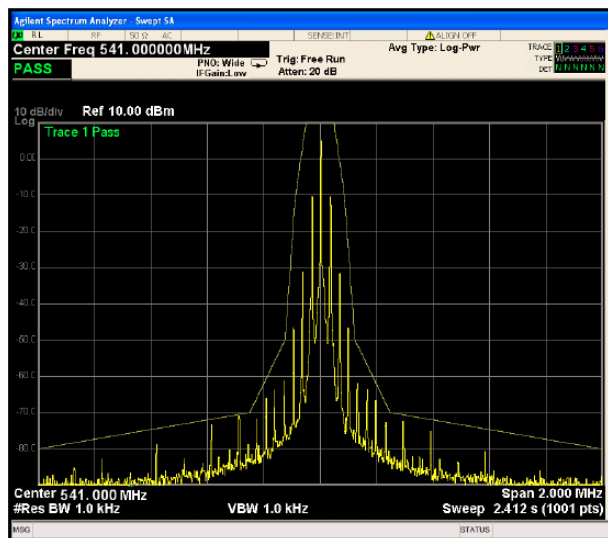
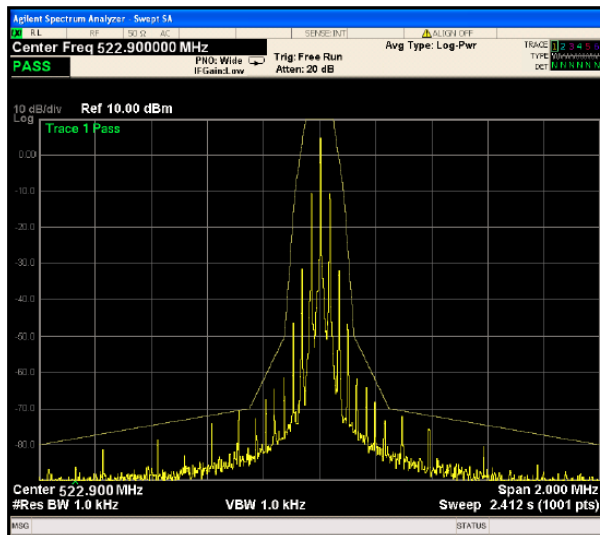
5.4 TEST RESULT

Emission Mask
Channel
Low CH

Middle CH



High CH



6. TRANSMITTER UNWANTED EMISSIONS

6.1 LIMIT

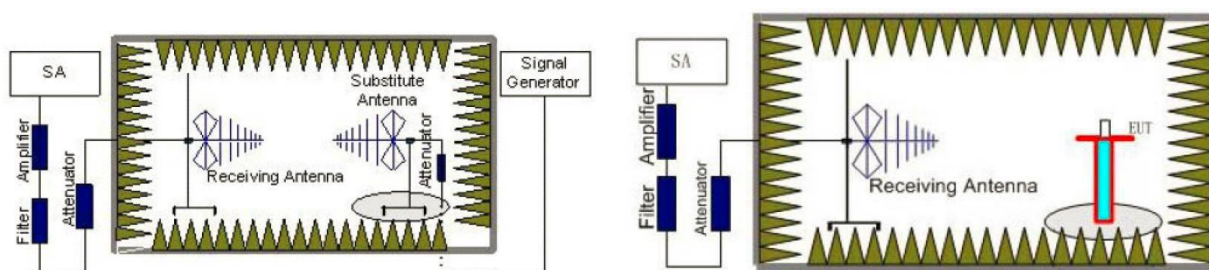
Spurious emissions are emissions outside the frequency range(s) of the equipment. The power of the spurious emissions shall not exceed the limits of table as below:

State	Frequency		
	47MHz to 74MHz, 87.5MHz to 137MHz 174MHz to 230MHz, 470MHz to 862MHz	Other Frequencies below 1000MHz	Frequencies above 1000MHz
Operation	4nW	250nW	1uW
Standby	2nW	2nW	20nW

5.2 TEST PROCEDURE

- The transmitter output was connected to the spectrum analyzer through an attenuator. Set spectrum analyzer start 2400MHz to 2483.5MHz with 100 KHz RBW and 300 KHz VBW
- Please refer to ETSI EN 300 422-1 V1.4.2 (2011-08) clause 6.1 for the test conditions.
- Please refer to ETSI EN 300 422-1 V1.4.2 (2011-08) clause 8.4.2 for the measurement method.

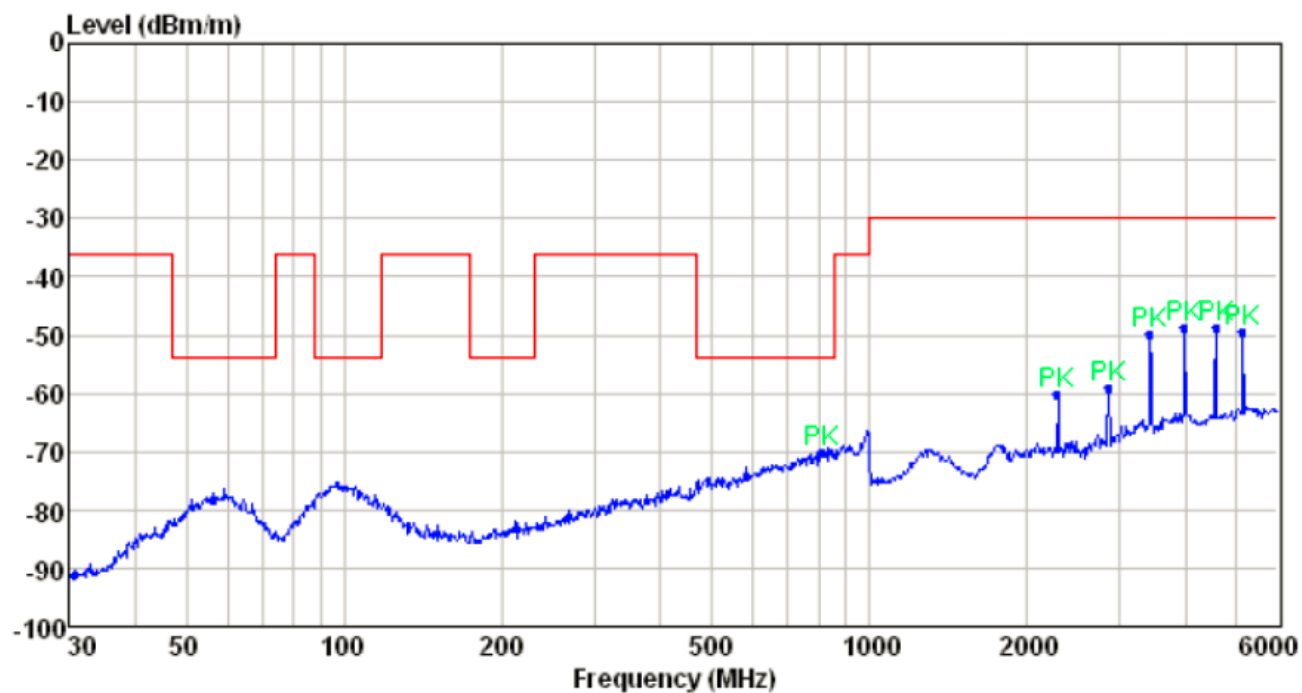
5.3 TEST SETUP



6.4 TEST RESULTS

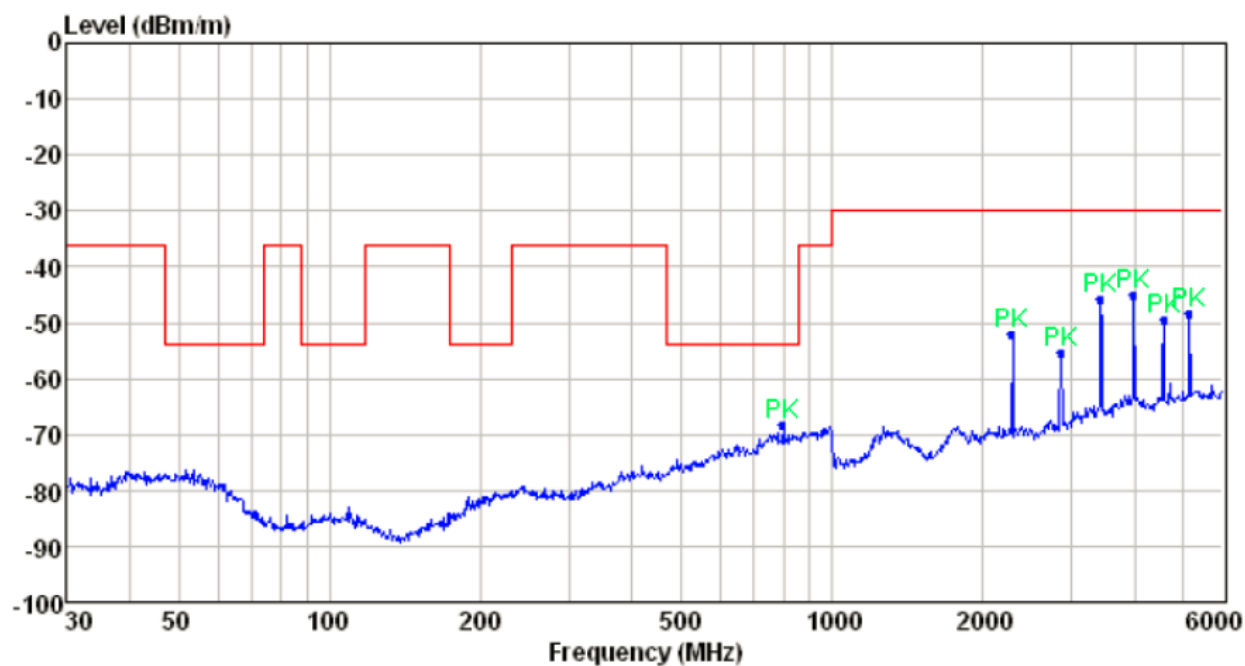
CHNNEL -LOW CH-30MHZ-6000MHZ

Vertical



Frequency MHz	Level dBm	Factor dB	Reading dBm	Limit dB	Margin dB	Det.	Polarization
2278.00	-60.17	-3.76	-56.41	-30.00	30.17	Peak	VERTICAL
2851.65	-59.18	-1.52	-57.66	-30.00	29.18	Peak	VERTICAL
3419.07	-49.86	0.87	-50.73	-30.00	19.86	Peak	VERTICAL
3990.40	-48.83	3.38	-52.21	-30.00	18.83	Peak	VERTICAL
4566.06	-48.79	4.12	-52.91	-30.00	18.79	Peak	VERTICAL
5131.72	-49.30	5.80	-55.10	-30.00	19.30	Peak	VERTICAL

Horizontal



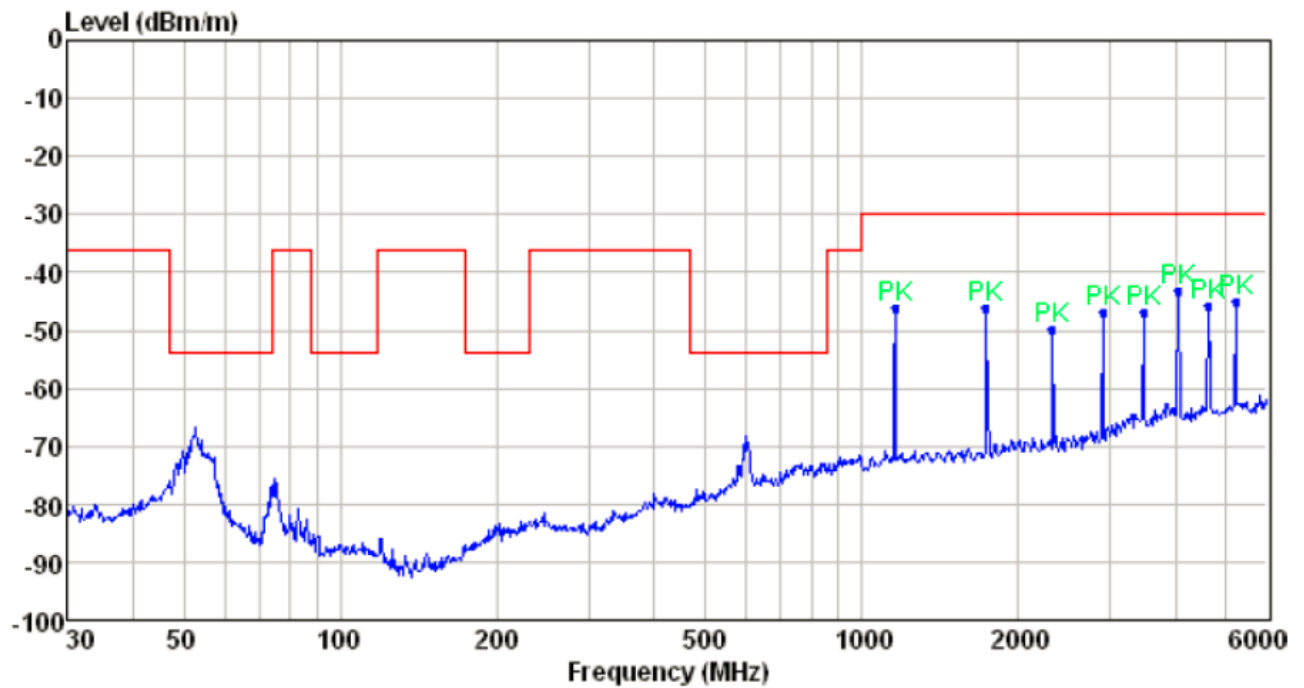
Frequency MHz	Level dBm	Factor dB	Reading dBm	Limit dB	Margin dB	Det.	Polarization
2278.00	-52.10	-3.76	-48.34	-30.00	22.10	Peak	HORIZONTAL
2851.65	-55.36	-1.52	-53.84	-30.00	25.36	Peak	HORIZONTAL
3419.07	-45.94	0.87	-46.81	-30.00	15.94	Peak	HORIZONTAL
3990.40	-44.92	3.38	-48.30	-30.00	14.92	Peak	HORIZONTAL
4566.06	-49.47	4.12	-53.59	-30.00	19.47	Peak	HORIZONTAL
5131.72	-48.34	5.80	-54.14	-30.00	18.34	Peak	HORIZONTAL

Note :

1. Result = Reading + Factor
2. The fundamental wave filtered out during the test.

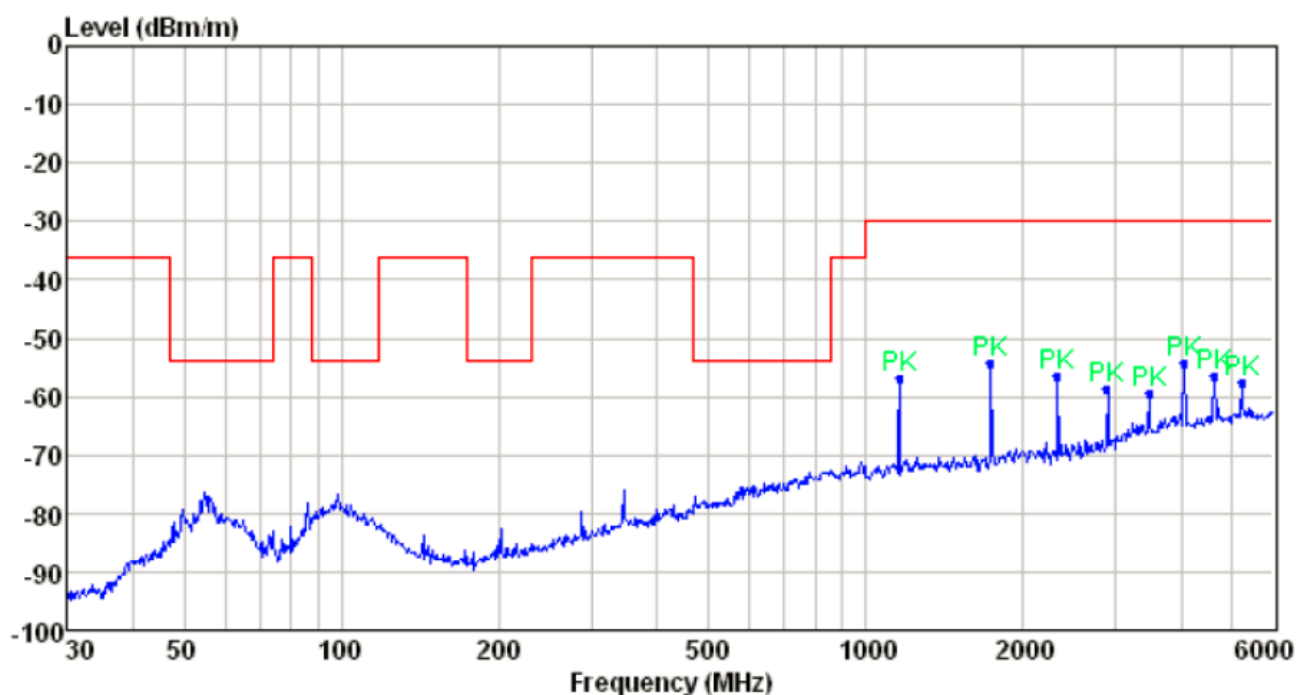
CHNNEL -MIDDLE CH-30MHZ-6000MHZ

Horizontal



Frequency MHz	Level dBm	Factor dB	Reading dBm	Limit dB	Margin dB	Det.	Polarization
1157.10	-46.24	-8.04	-38.20	-30.00	16.24	Peak	HORIZONTAL
1736.70	-46.01	-5.65	-40.36	-30.00	16.01	Peak	HORIZONTAL
2315.14	-50.00	-3.62	-46.38	-30.00	20.00	Peak	HORIZONTAL
2898.13	-46.74	-1.18	-45.56	-30.00	16.74	Peak	HORIZONTAL
3474.81	-47.03	1.21	-48.24	-30.00	17.03	Peak	HORIZONTAL
4632.17	-45.82	4.30	-50.12	-30.00	15.82	Peak	HORIZONTAL
5215.38	-44.88	5.91	-50.79	-30.00	14.88	Peak	HORIZONTAL

Vertical



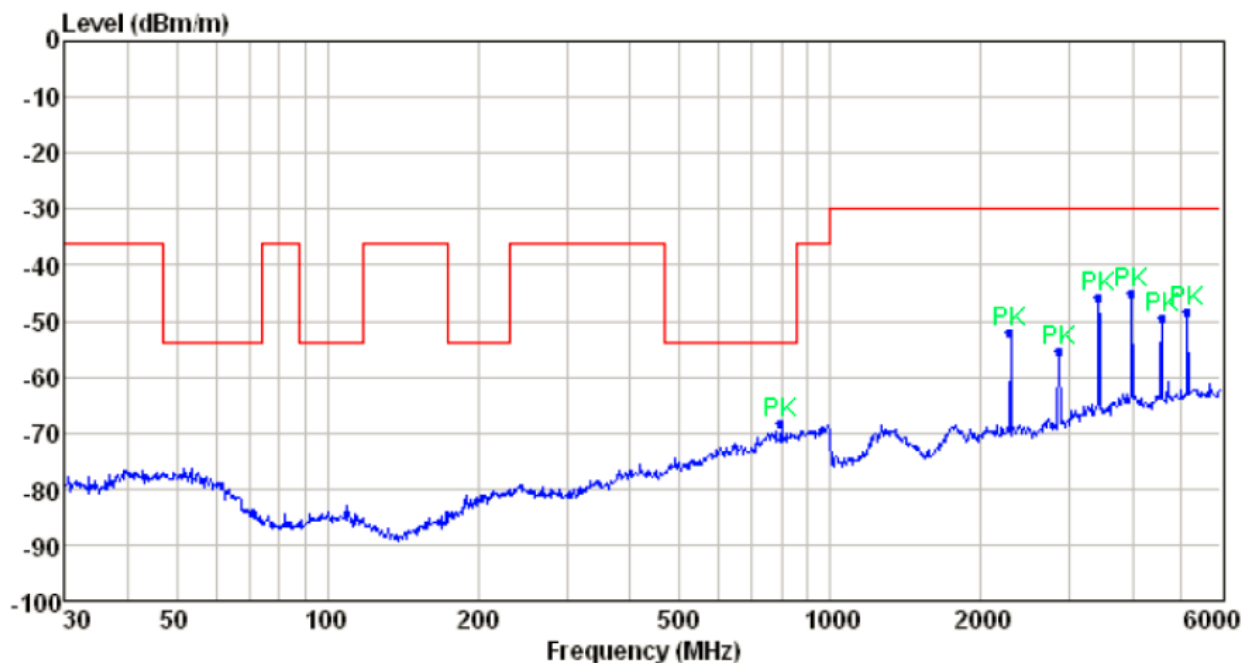
Frequency MHz	Level dBm	Factor dB	Reading dBm	Limit dB	Margin dB	Det.	Polarization
1157.10	-57.00	-8.04	-48.96	-30.00	27.00	Peak	VERTICAL
2315.14	-56.47	-3.62	-52.85	-30.00	26.47	Peak	VERTICAL
2892.93	-58.58	-1.28	-57.30	-30.00	28.58	Peak	VERTICAL
3474.81	-59.43	1.21	-60.64	-30.00	29.43	Peak	VERTICAL
4055.46	-54.41	3.28	-57.69	-30.00	24.41	Peak	VERTICAL
4632.17	-56.42	4.30	-60.72	-30.00	26.42	Peak	VERTICAL
5215.38	-57.39	5.91	-63.30	-30.00	27.39	Peak	VERTICAL

Note :

1. Result = Reading + Corrected Factor Note :
2. The fundamental wave filtered out during the test.

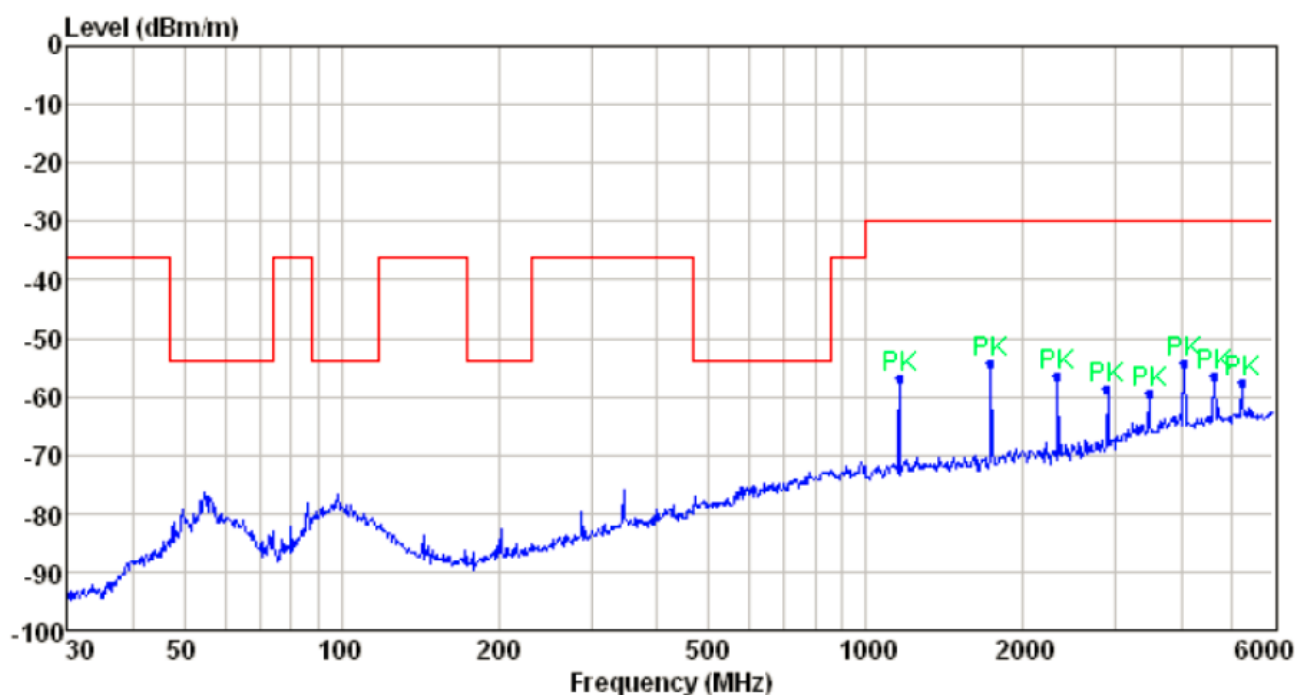
CHNNEL -HIGH CH-30MHZ-6000MHZ

Horizontal



Frequency MHz	Level dBm	Factor dB	Reading dBm	Limit dB	Margin dB	Det.	Polarization
2278.00	-52.10	-3.76	-48.34	-30.00	22.10	Peak	HORIZONTAL
2851.65	-55.36	-1.52	-53.84	-30.00	25.36	Peak	HORIZONTAL
3419.07	-45.94	0.87	-46.81	-30.00	15.94	Peak	HORIZONTAL
3990.40	-44.92	3.38	-48.30	-30.00	14.92	Peak	HORIZONTAL
4566.06	-49.47	4.12	-53.59	-30.00	19.47	Peak	HORIZONTAL
5131.72	-48.34	5.80	-54.14	-30.00	18.34	Peak	HORIZONTAL

Vertical



Frequency MHz	Level dBm	Factor dB	Reading dBm	Limit dB	Margin dB	Det.	Polarization
1157.10	-57.00	-8.04	-48.96	-30.00	27.00	Peak	VERTICAL
2315.14	-56.47	-3.62	-52.85	-30.00	26.47	Peak	VERTICAL
2892.93	-58.58	-1.28	-57.30	-30.00	28.58	Peak	VERTICAL
3474.81	-59.43	1.21	-60.64	-30.00	29.43	Peak	VERTICAL
4055.46	-54.41	3.28	-57.69	-30.00	24.41	Peak	VERTICAL
4632.17	-56.42	4.30	-60.72	-30.00	26.42	Peak	VERTICAL
5215.38	-57.39	5.91	-63.30	-30.00	27.39	Peak	VERTICAL

Note :

1. Result = Reading + Corrected Factor Note :
2. The fundamental wave filtered out during the test.

7. FREQUENCY STABILITY

7.1 LIMIT

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C

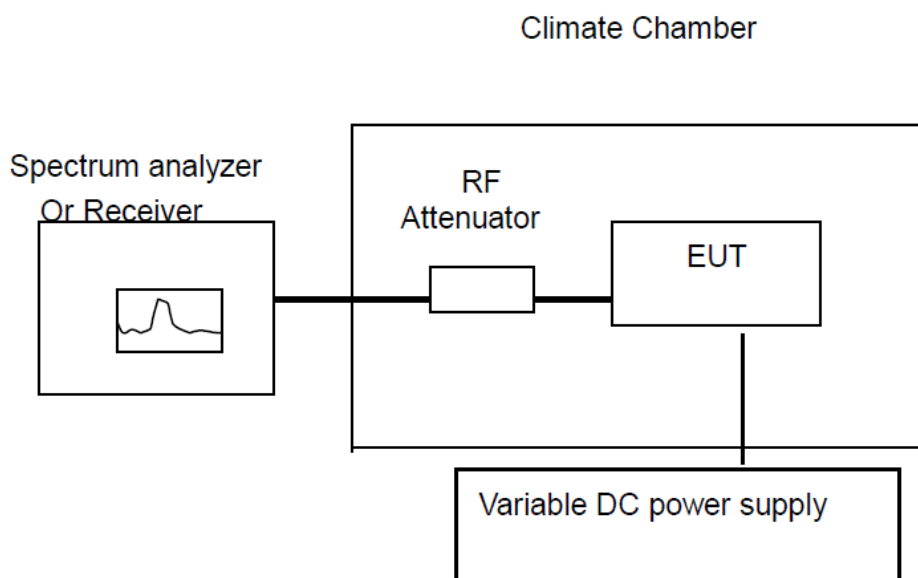
7.2 TEST PROCEDURE

a. The EUT was connected to an external DC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. The DC leads and the RF output cable, exited the chamber through an opening made for that purpose.

After the temperature stabilized the frequency output was recorded from the counter. An external variable DC power supply was connected to the battery terminals of the equipment under test.

b. For hand carried, battery powered equipment primary supply voltage was reduced to the battery operating end point as specified by the manufacturer. The output frequency was recorded for each battery voltage.

7.3 TEST SETUP



7.4 TEST RESULTS

- (1) Frequency stability versus input voltage (Supply Nominal voltage is DC 3V)
- (2) Frequency stability versus input voltage (Supply battery operating end point which shall be specified by the manufacturer DC 2.7V)

Refernce Frequency: 516MHz			
Power supply	Environment Temperature(°C)	Frequency Error (Hz)	Frequency Error (%)
DC 2.55V	25	1010	0.000197
DC 3.0V	25	1008	0.000196
DC 3.45V	25	1015	0.000198

Refernce Frequency: 516MHz				
Frequency Deviation measured with time Elapse(30 minutes)				
Environment Temperature(°C)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	1022	0.000199	0.005	Pass
40	1007	0.000196		
30	1005	0.000196		
20	1008	0.000197		
10	1008	0.000197		
0	1009	0.000197		
-10	1008	0.000197		
-20	1009	0.000197		
-30	1010	0.000197		

Refernce Frequency: 522.9MHz			
Power supply	Environment Temperature(°C)	Frequency Error (Hz)	Frequency Error (%)
DC 2.55V	25	1009	0.000194
DC 3.0V	25	1006	0.000194
DC 3.45V	25	1010	0.000194

Refernce Frequency: 522.9MHz				
Frequency Deviation measured with time Elapse(30 minutes)				
Environment Temperature(°C)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	1011	0.000195	0.005	Pass
40	1006	0.000195		
30	1006	0.000195		
20	1006	0.000195		
10	1007	0.000194		
0	1008	0.000194		
-10	1008	0.000194		
-20	1006	0.000195		
-30	1011	0.000195		

Refernce Frequency: 541.0MHz			
Power supply	Environment Temperature(°C)	Frequency Error (Hz)	Frequency Error (%)
DC 2.55V	25	1013	0.000192
DC 3.0V	25	1011	0.000192
DC 3.45V	25	1010	0.000191

Refernce Frequency: 541.0MHz				
Frequency Deviation measured with time Elapse(30 minutes)				
Environment Temperature(°C)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	1010	0.000191	0.00500	Pass
40	1005	0.000191		
30	1005	0.000191		
20	1006	0.000191		
10	1007	0.000192		
0	1007	0.000192		
-10	1007	0.000192		
-20	1006	0.000191		
-30	1006	0.000191		

*****END OF THE REPORT*****