FCC CERTIFICATION TEST REPORT FOR

FCC ID: U54-OBDMETER-XXX

Report Reference No. ..... :	13EAS10014 11
Date of issue ..... :	2014-3-17
Testing Laboratory ..... :	ATT Product Service Co., Ltd.
Address ..... :	No. 3, ChangLianShan Industrial Park, ChangAn Town, DongGuan City, GuangDong, China.
Applicant's name ..... :	Petratec International.Ltd
Address ..... :	12 Derech Ha' Sharon St. Kfar Saba, Israel
Manufacturer ..... :	GOLDEN REGENT ELECTRONICS INDUSTRIAL LTD
Address ..... :	#14, Gong Le Industry zone, Le qun Community, Xixiang, Baoan District,Shenzhen
Test specification:	
Test item description ..... :	On-Board Diagnostics Meter
Trade Mark ..... :	
Model/Type reference ..... :	OBD Meter
Ratings ..... :	DC 12-24V

Responsible Engineer

Bin Jiang

（Bin Jiang/ Engineer）

Approved by

（Tomy Wu /EMC Manager）

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TEST REPORT DECLARE

Applicant	:	Petratec International.Ltd
Address	:	12 Derech Ha' Sharon St. Kfar Saba, Israel
Equipment under Test	:	On-Board Diagnostics Meter
Model No	:	OBD Meter
Trade Mark	:	
Manufacturer	:	GOLDEN REGENT ELECTRONICS INDUSTRIAL LTD
Address	:	#14,Gong Le Industry zone, Le qun Community,Xixiang, Baoan District, Shenzhen

Test Standard Used: FCC Rules and Regulations Part 15 Subpart C: 2010

Test procedure used: ANSI C63.10:2009 ANSI C63.4：2003
FCC Public Notice DA 00-705

FCC ID: U54-OBDMETER-XXX

We Declare:

The equipment described above is tested by ATT Product Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and ATT Product Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	13EAS10014 11		
Date of Test:	2014-03-02---2014-03-12	**Date of Report**:	2014-03-17

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of ATT Product Service Co., Ltd.

1.Summary of test Standards and results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Results
Variation of power source	15.31(e)	N/A
Antenna requirement	15. 203	PASS*
Conducted limits	15.207(a) ANSI C63.10 :2009	N/A
Conditions for intentional radiators to comply with periodic pperation	15.231(e) ANSI C63.10 :2009	PASS
Field strength emissions	15.231(e) ANSI C63.4 :2003	PASS
Emission bandwidth	15.231(c) ANSI C63.10 :2009	PASS
Requiments for devices operating within 40.66-40.70MHz band	15.231(e) ANSI C63.10 :2009	N/A
Conditions for intentional radiators to comply with periodic operation	15.231(d) ANSI C63.10 :2009	NA
Note: (1) N/A" denotes test is not applicable in this Test Report (2) The EUT not AC power. (3) The EUT is automatically limiting operation		

2.General test information

2.1ACCRESITATIONS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	**FCC**	**Registration Number :923232**
Canada	**INDUSTRY CANADA**	**Registration Number 11033A**

2.2Description of EUT

EUT* Name	:	On-Board Diagnostics Meter
Model Number	:	OBD Meter
Trade Mark	:	
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 12-24V
Operation frequency	:	433.86MHz
Modulation	:	FSK
Antenna Type	:	built-in PCB antenna, maximum PK gain:0dBi
Date of Receipt	:	2014-3-6
Sample Type	:	Series production

Note: EUT is the ab. of equipment under test.

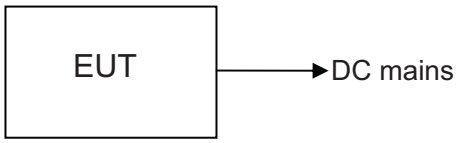
2.3Accessories of EUT

Description of Accessories	Manufacturer	Model number or Type	Other
/	/	/	/

2.4Assistant equipment used for test

Description of Assistant equipment	Manufacturer	Model number or Type	Other
/	/	/	/

2.5Block diagram of EUT configuration for test



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2.6Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.7Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.44dB
Uncertainty for Radiation Emission test (150KHz-30MHz)	3.21dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.14 dB (Polarize: V)
	3.16 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz to 25GHz)	2.08dB(Polarize: V)
	2.56dB (Polarize: H)
Uncertainty for radio frequency	1×10-9
Uncertainty for conducted RF Power	0.65dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

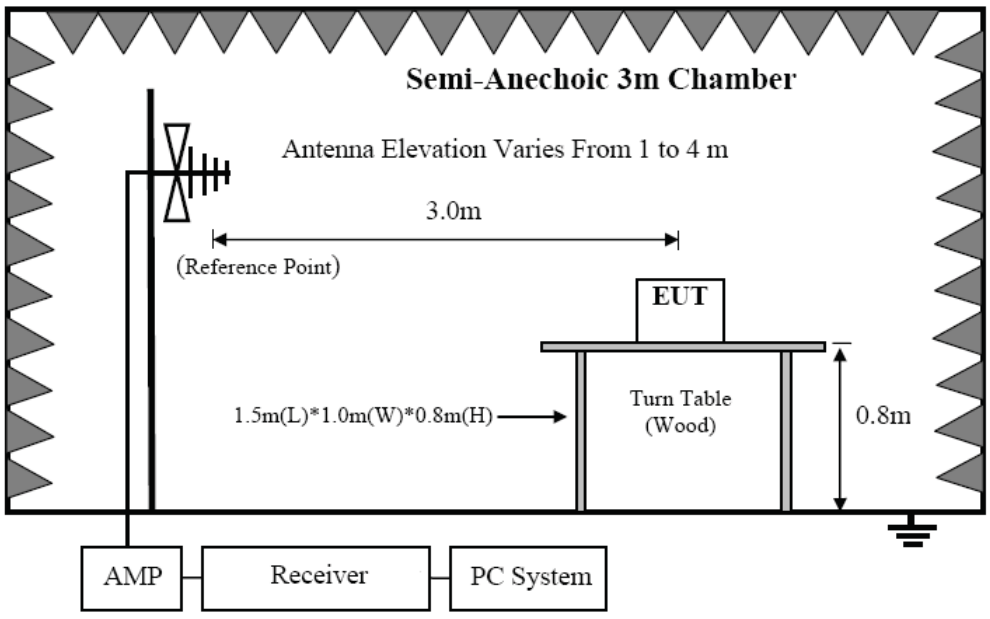
3.Radiated emission

3.1Test equipment

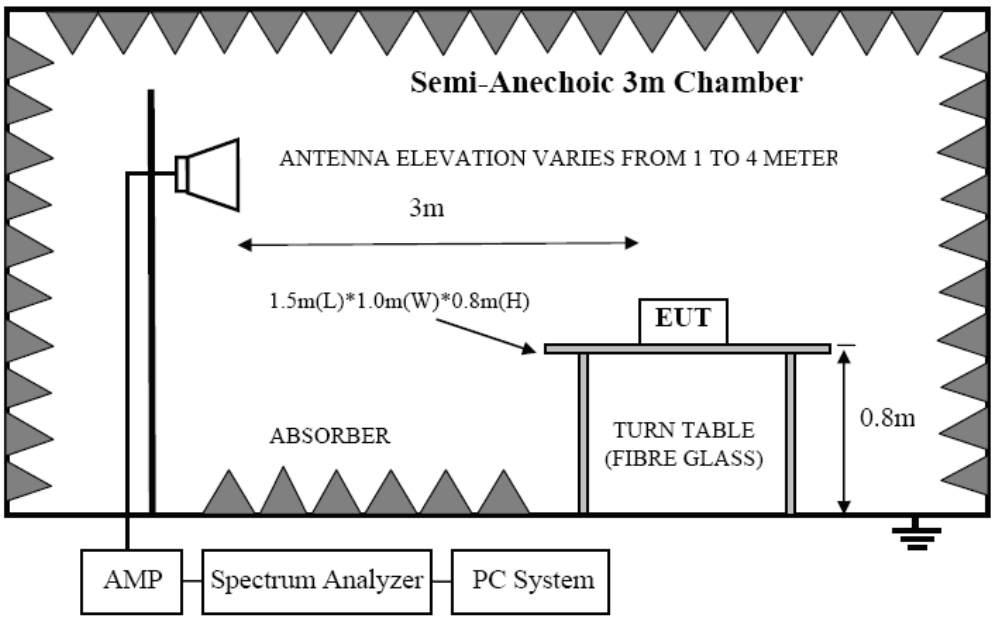
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2014/12/26	1Y
2	Spectrum analyzer	Agilent	E4407B	US40240708	2014/07/17	1Y
3	Loop antenna	Chase	HLA6120	20129	2014/12/27	1Y
4	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	2014/12/27	1Y
5	Double Ridged Horn Antenna	R&S	HF907	100276	2014/12/27	1Y
6	Pre-Amplifier	R&S	SCU-01	10049	2014/12/27	1Y
7	Pre-amplifier	A.H.	PAM0-0118	360	2014/12/27	1Y
8	RF Cable	R&S	R01	10403	2014/12/27	1Y
9	RF Cable	R&S	R02	10512	2014/12/27	1Y
10	Horn Antenna	EMCO	3116	9608-4877	2014/12/27	1Y

3.2Block diagram of test setup

In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP

3.3 Limits

In addition to the provisions of &15.205 and &15.209,the field strength of emissions from intentional radiators

Operated under this section shall not exceed the following:

Fundamental frequency	Field strength of fundamental		Field strength of spurious emissions	
(MHz)	uV/m	dBuV/m	uV/m	dBuV/m
40.66-40.70	1000	60	100	40
70-130	500	54	50	34
130-174	500 to 1500	54-63.5	50 to 150	34 to 43.5
174-260	1500	63.5	150	43.5
260-470	1500 to 5000	63.5-74	150to 500	43.5 to 54
Abover 470	5000	74	500	54

3.4 Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast.

(3) Spectrum frequency from 30MHz to 4.5GHz (tenth harmonic of fundamental frequency) was swept

Note: According FCC 15.33(a) the spectrum shall be investigated from the lowest radio frequency signal generated in the device. so radiated emissions were investigated start from 30MHz.

Below pre-scan procedure was first performed in order to find prominent radiated emissions.

(a) Change work frequency or channel of device if practicable.

(b) Change modulation type of device if practicable.

(c) Change power supply range from 85% to 115% of the rated supply voltage.

(d) Adjust the EUT's antenna length and position is practicable.

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produce highest emissions.

(f) Rotated EUT from 0 degree to 360 degree and varied test antenna height from 1m to 4m in both horizontal and vertical polarities.

(4) When the relative maximum emissions were swept in step 4, holding the EUT's state, use the follow procedures to measure out the final emissions of device.

(a) Marked to the interested frequency point with appropriate span to see the whole signal wave.

(b) For emissions below 1GHz except fundamental, the Spectrum Analyzer's RBW is set at 120 KHz,VBW is set at 300 KHz, for emissions above 1GHz except fundamental, the Spectrum Analyzer's RBW is set at 1MHz, and VBW is set at 3MHz. For fundamental emission the Spectrum Analyzer's RBW is set at 200 KHz (above 20dB bandwidth of fundamental signal), and VBW is set at 300 KHz.

(c) At each measured frequency point, the maximum Peak levels were measured by rotated EUT and varied test antenna.

(5) The duty cycle factor was use to calculate Average Level as below formula:

Average level = PK Level – duty cycle factor

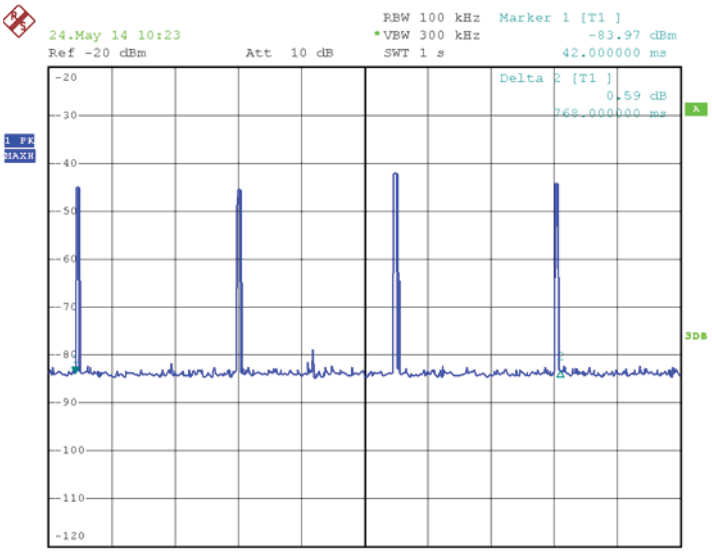
3.5 Test Result

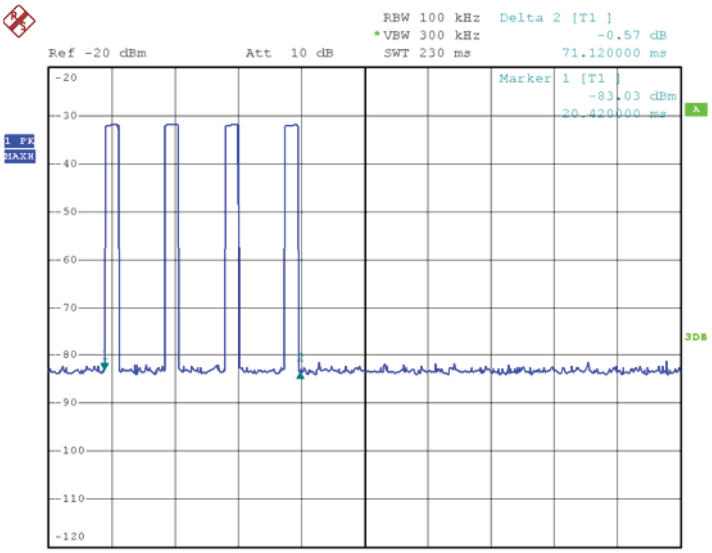
PASS. (See below detailed test result)

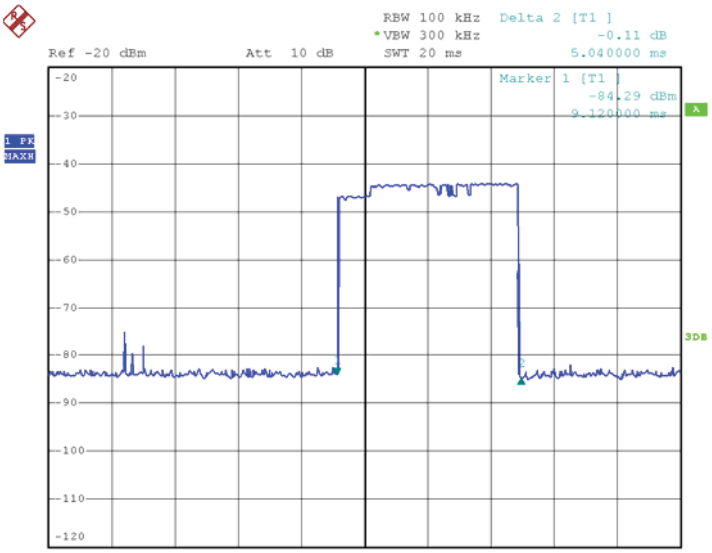
The frequency range from 30MHz to 4500MHz was investigated. When PK measured levels comply with average limit, then the average levels were deemed to comply with average limit. When PK measured levels exceed average limit, and, Duty cycle factor is used to calculate average level. Vertical and Horizontal mode all have been tested , Vertica mode is the worse case

Duty cycle(x)= 4*5.04/71.12=0.28346
Duty cycle factor = 20 log (1/x) = -10.95dB

duty cycle：







Radiated Emission Test Result

Test Site : 3m Chamber

Test Date : 2014-3-11 **Tested By** : Rock Huang

EUT : On-Board Diagnostics Meter **Model Number** : OBD Meter

Power Supply : DC 12V **Test Mode** : Tx mode

Condition : Temp:24.5'C,Humi:55% **Antenna/Distance** : 3m

Frequency (MHz)	PK Reading (dBμV)	Polar (H/V)	PK Limit (dBμV/m)	Duty cycle factor (dB)	AV Reading (dBμV)	AV Limit (dBμV)
433.86	83.3	V	92.87	-10.95	72.35	72.87
433.86	71.29	H	92.87	/	/	72.87
867.7	53.74	V	72.87	-10.95	42.79	52.87
867.7	49.3	H	72.87	/	/	52.87
1301.5	51.05	V	72.87	/	/	52.87
1301.5	47.74	H	72.87	/	/	52.87
2360.54	47.94	V	72.87	/	/	52.87
2360.54	43.85	H	72.87	/	/	52.87

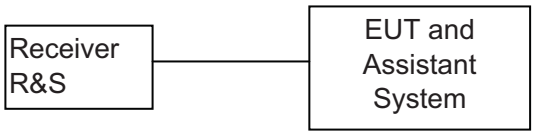
Remark： When PK value is lower than AV limit， then AV value deem to comply AV limit with out further test or calculation。

4. Stop transmiitting time test

4.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2014/12/26	1Y

4.2 Block diagram of test setup



4.3 Limits

The duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

4.4 Test Procedure

(1). The EUT's RF signal was coupled to spectrum analyzer by a antenna connected to spectrum analyzer..

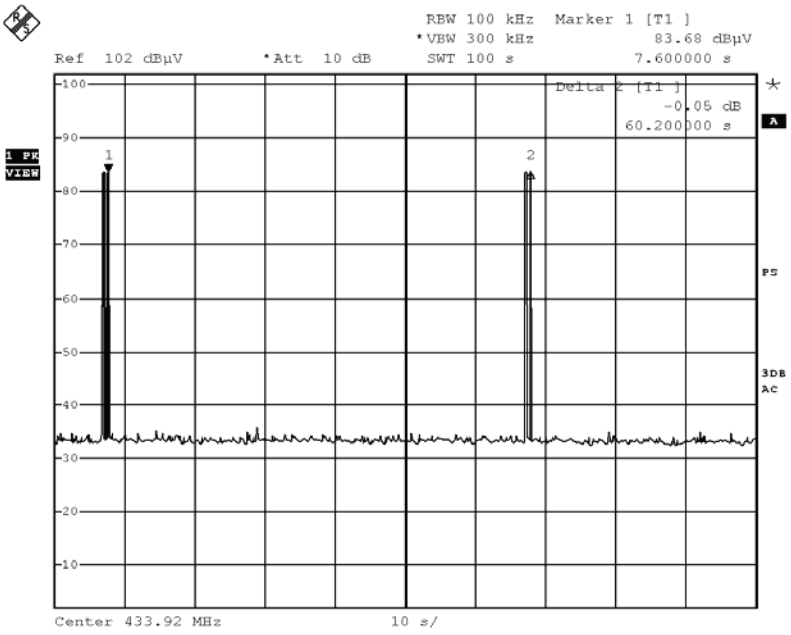
(2). Set the spectrum to zero span mode, and centered of EUT frequency.

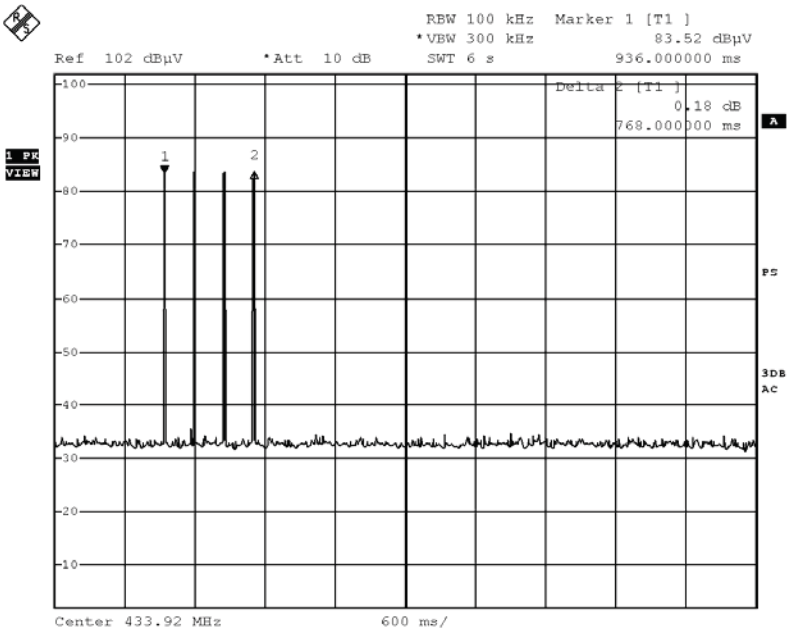
(3). Measure the EUT stop transmitting time.

4.5 Test Result

PASS. (See below detailed test result)

4.6 Original test data



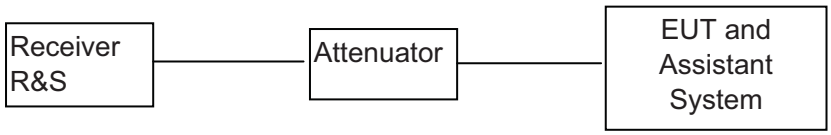


5. 20dB bandwidth

5.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2014/12/26	1Y

5.2 Block diagram of test setup



5.3 Limits

The bandwidth of the emission shall be no wider than 0.25% of the center frequency of devices operation above 70MHz and below 900MHz

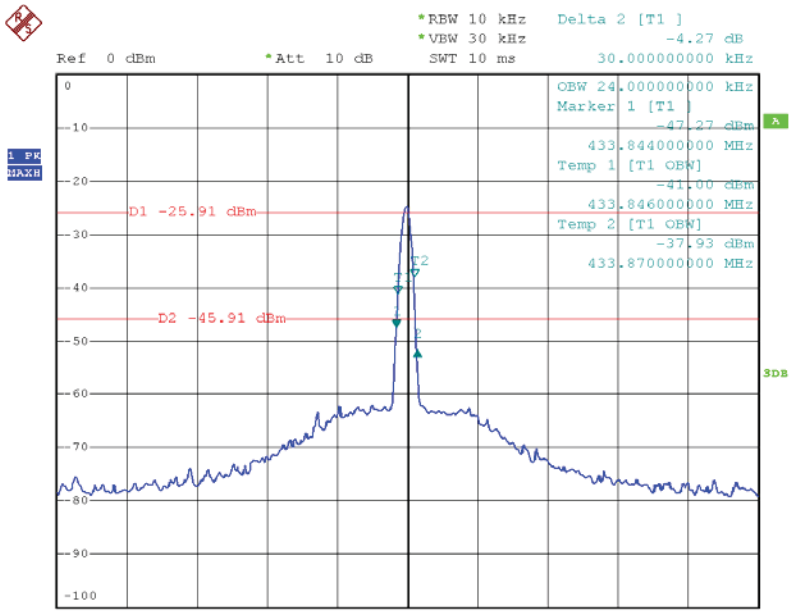
5.4 Test Procedure

1. The EUT's RF signal was coupled to spectrum analyzer by a antenna connected to spectrum analyzer.
2. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10 kHz RBW and 30 kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.5 Test Result

Frequency (MHz)	20 dB Bandwidth (kHz)	Limit(kHz): No wider than 0.25% of the center frequency	Conclusion
433.86	30	433.86*0.25%=1.0846MHz	PASS

5.6 Original test data



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