TEST REPORT

上海市计量测试技术研究院
华东国家计量测试中心
中国上海测试中心

检 测 报 告

委托者 Customer	Queclink Wireless Solutions Co., Ltd
委托者地址 Address of customer	Room 501, Building 9, No. 99 TianZhou Road, Shanghai, China
样品名称 Name of sample	GPS Locator
制造厂 Manufacturer	Queclink Wireless Solutions Co., Ltd
型号/规格 Model/Specification	GL200
样品编号 No. of sample	359464036000334

批准人/职务 Approved by / Functions 副主任

(机构检测专用章)

核验员 Checked by

检测员 Tested by

检测日期 Date for test 2010 年 Year 10 月 Month 10 日 Day

投诉电话：021-50798262 Tel. For complaint

地址：上海市张衡路 1500 号（总部） 电话：021-38839800 传真：021-50798390 邮编：201203
Address No.1500 Zhangheng Road，Shanghai(headquarters) Tel. Fax. Post Code

上海市宜山路 716 号（分部） 电话：021-64701390 传真：021-64701810 邮编：200233
No. 716 Yishan Road，Shanghai(branch) Tel. Fax. Post Code

国家法定计量检定机构计量授权证书号（中心/院）：（国）法计（2007）01039 号/（2007）01019 号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No.（2007）01039 / No.（2007）01019

中国合格评定国家认可委员会实验室认可证书号：No. CNAS L0134
The number of the certificate accredited by CNAS is No.L0134

中国国家认证认可监督管理委员会资质认定计量认证证书（CMA）号：2009000597E
The number of the metrology accreditation certificate by CNCA is No. 2009000597E

本次检测所依据的技术规范（代号、名称）：
Reference documents for the test (code 、name)

FCC part 22: 2009 Part 22: Public Mobile Services

FCC part 24: 2009 Part 24: Personal Communications Services

本次检测所使用的主要测量仪器：
Main measuring instruments used in this test

Refer to Attachment 1

检测地点及环境条件：
Location and environmental condition for the test

地点：No. 716 Yishan Road
Location

温度：(21-24) ℃； 湿度：(52-62) %RH； 其它：/
Ambient temperature Relative humidity Others

检测结果/说明：
Results of test and additional explanation

The testing results are in compliance with FCC part 22: 2009, FCC part 24: 2009 (see the continued pages)
(Test date: 2010.09.08-2010.10.10)
(Date of report: 2010.10.11)

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

Contents

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

1. Test Summary

FCC Rule	Description of Test	Result
§ 2.1046 § 22.913 § 24.232	Peak Output Power	Pass
§ 22.913 § 24.232	Carrier Radiated Power	Pass
§ 2.1049 § 22.917 § 24.238(b)	Occupied Bandwidth	Pass
§ 2.1051 § 22.917 § 24.238(b)	Band Edge	Pass
§ 2.1051 § 22.917 § 24.238(b)	Spurious Conducted Emission	Pass
§ 2.1053 § 22.917 § 24.238(b)	Spurious Radiated Emission	Pass
§ 2.1046 § 22.355 § 24.235	Frequency Deviation	Pass

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

2. General Information

2.1 EUT Description

Product Name	GPS Locator
Trade Name	Queclink
Model No.	GL200
Type of modulation	GMSK
Antenna type	Soldered on PCB
Tx Frequency	824.2MHz~848.8MHz(GSM 850) 1850.2MHz ~ 1909.8MHz(PCS 1900)
Rx Frequency	869.2MHz~893.8MHz(GSM 850) 1930.2MHz ~ 1989.8MHz(PCS 1900)
Channel bandwidth	200kHz
FCC ID	YQD-GL200

2.2 Operational Description

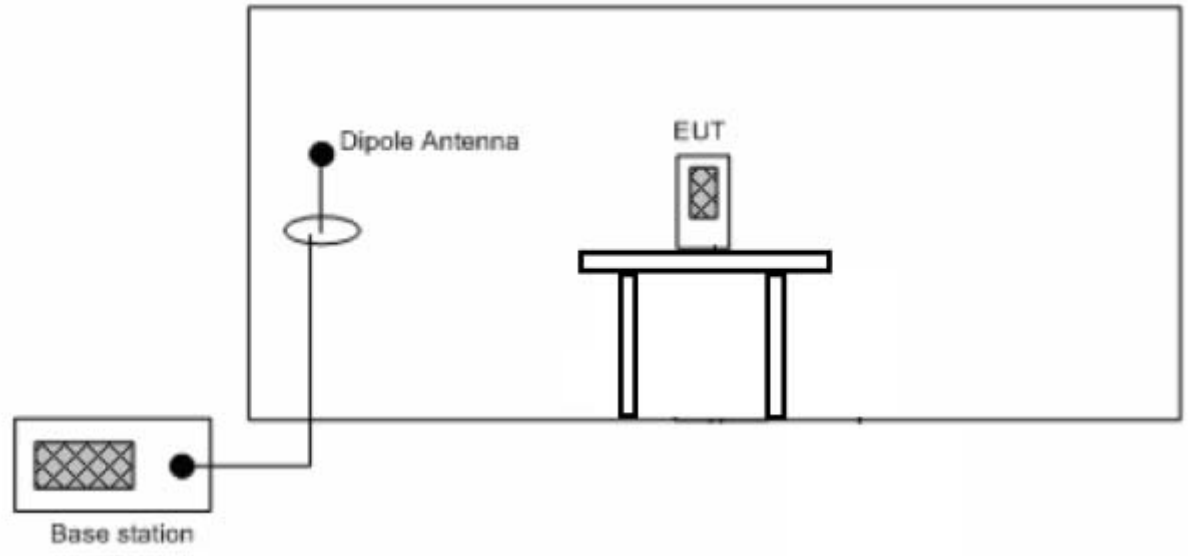
SIMT EMC has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode	GSM 850 + GPRS
	PCS 1900 + GPRS

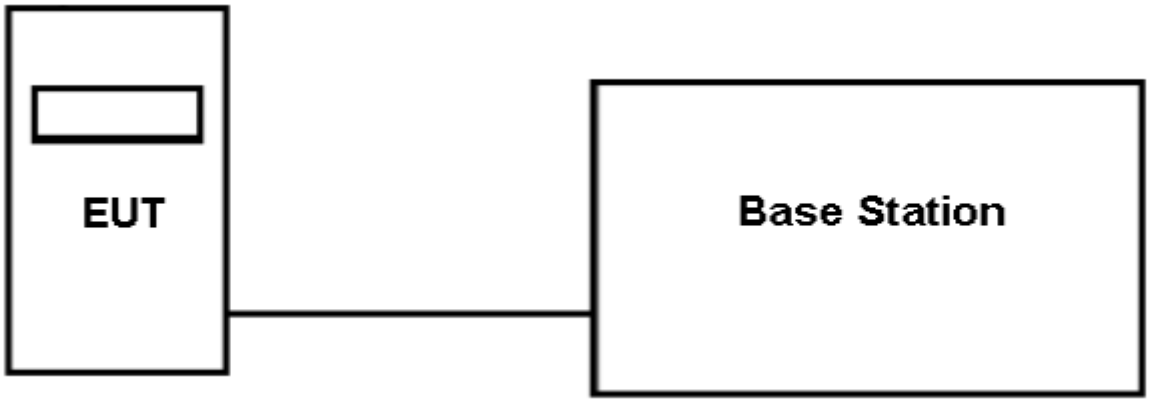
2.3 Configuration of Tested System

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

(1) Configuration of Radiated measurement



(2) Configuration of Conducted measurement



2.4 General Information of Test Site

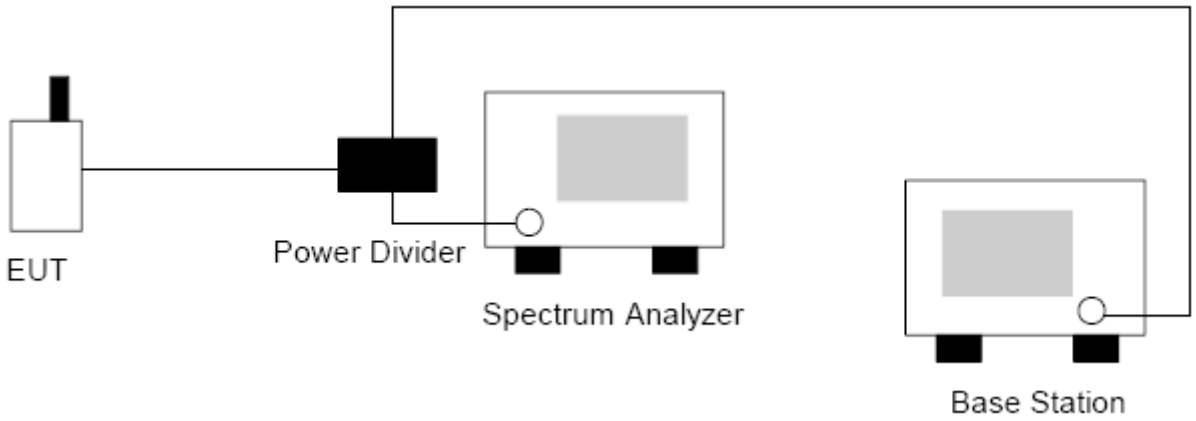
Site Name: SIMT EMC Lab.

Site Address: 716 Yi Shan Road. Shanghai. China
Tel: 8621-6470-1390 / Fax: 8621-6451-4252
E-Mail: EMC@SIMT.com.cn

3. Peak Output Power Test

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

3.1 Test setup



3.2 Limits

No specific requirement.

3.3 Test procedure

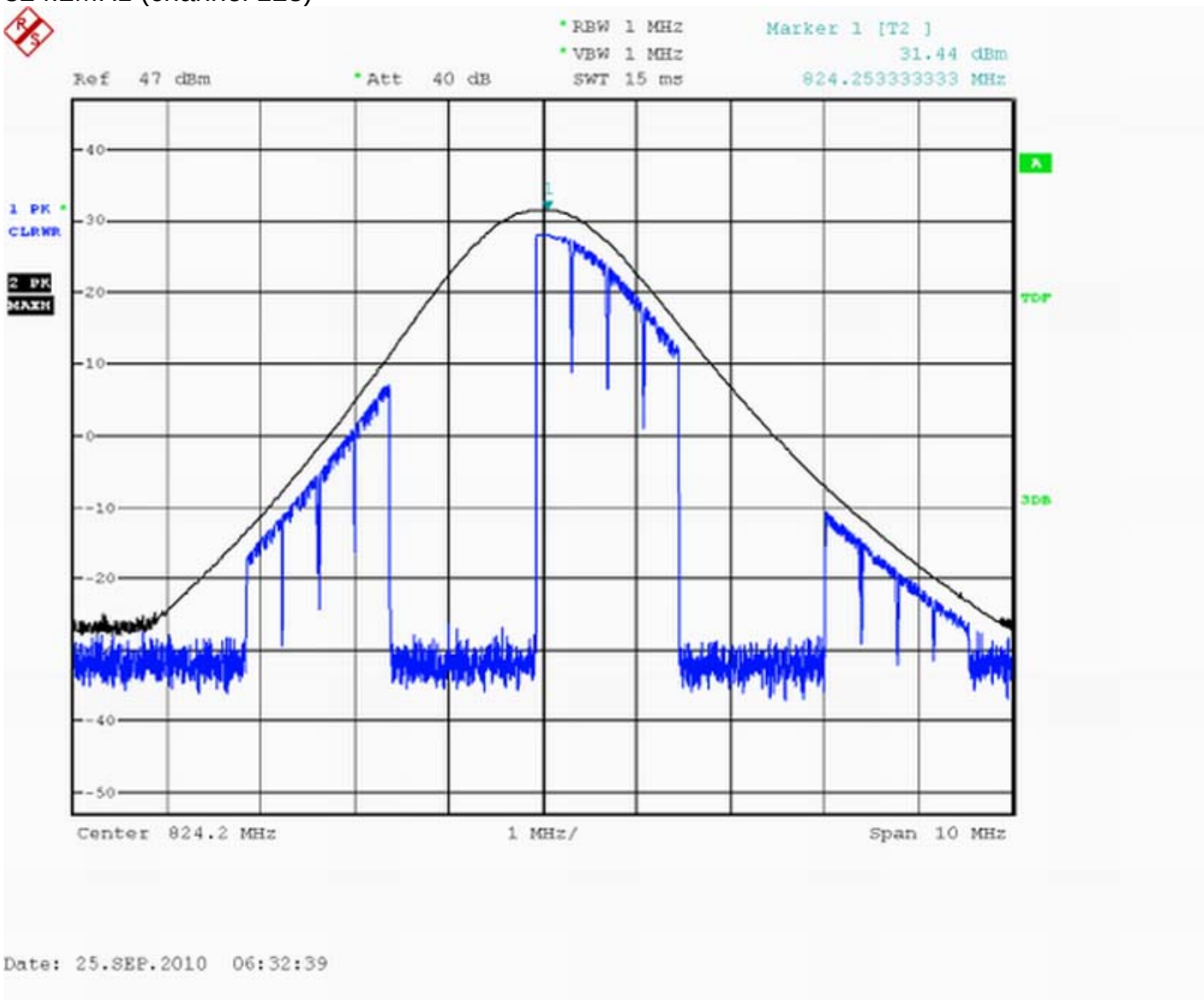
After a radio link has been established between EUT and Base station, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. Then the test data can be read at the tester screen. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels Bottom, middle and top channels.

3.4 Test results

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

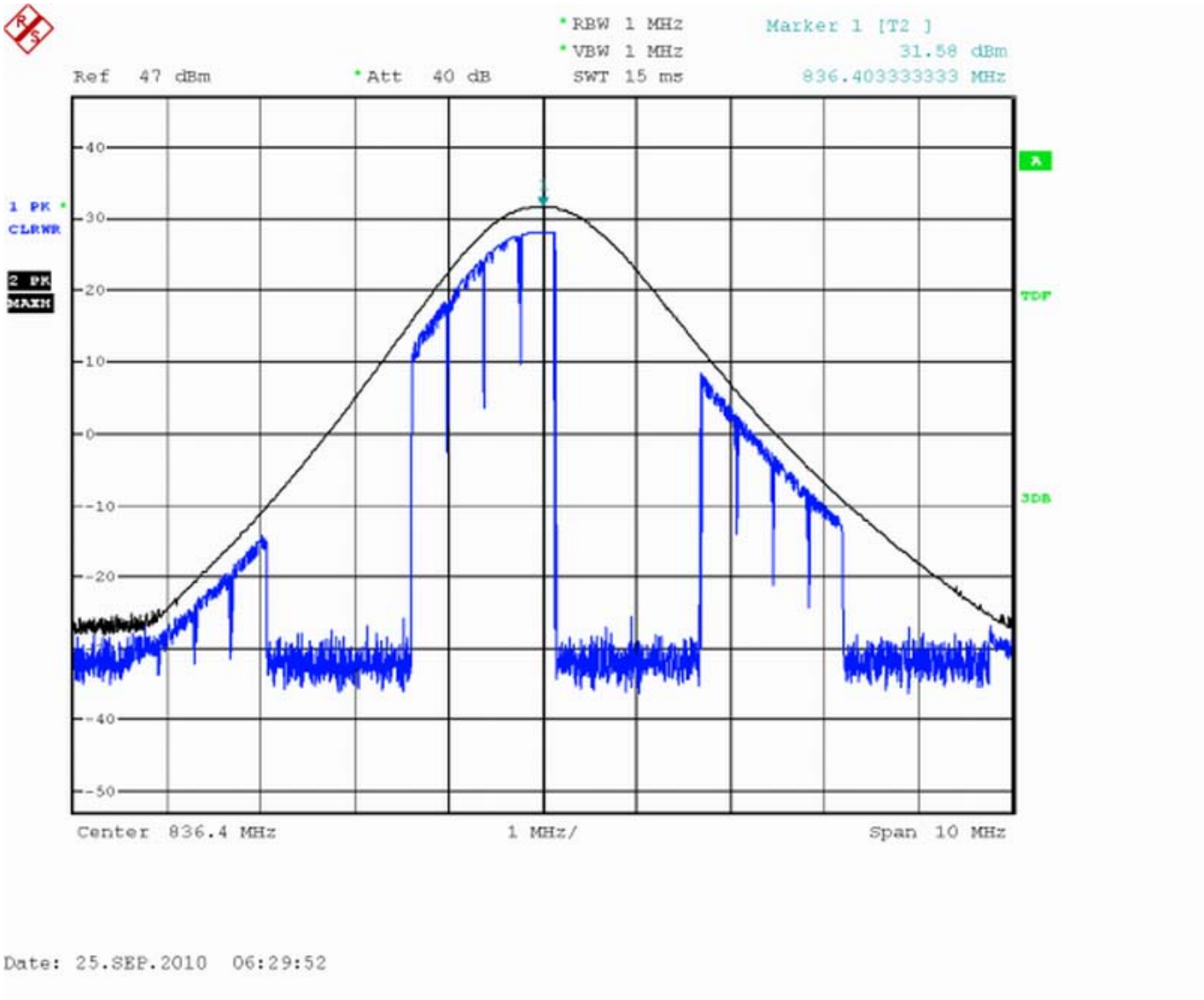
Test mode: GSM 850 + GPRS			Power source: DC: 3.7V	
Test Frequency (MHz)	Cable Loss (dB)	Test Level (dBm)	Carrier Power (dBm)	Test results
824.2 (channel 128)	16.40	15.04	31.44	Pass
836.4 (channel 189)	16.40	15.18	31.58	Pass
848.8 (channel 251)	16.40	15.25	31.65	Pass

824.2MHz (channel 128)



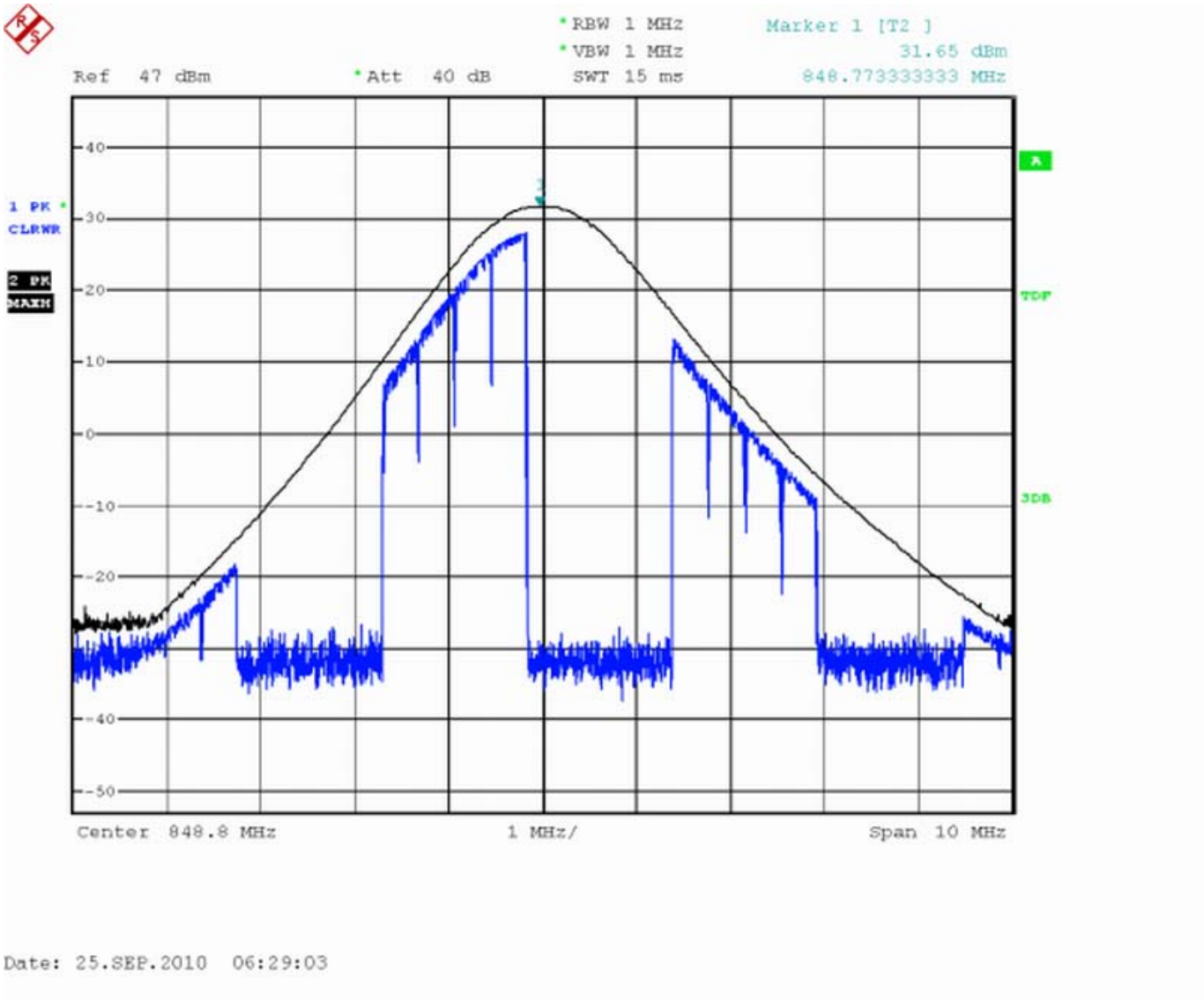
836.4MHz (channel 189)

检测结果/说明（续页）：
Results of test and additional explanation（continued page）



848.8MHz (channel 251)

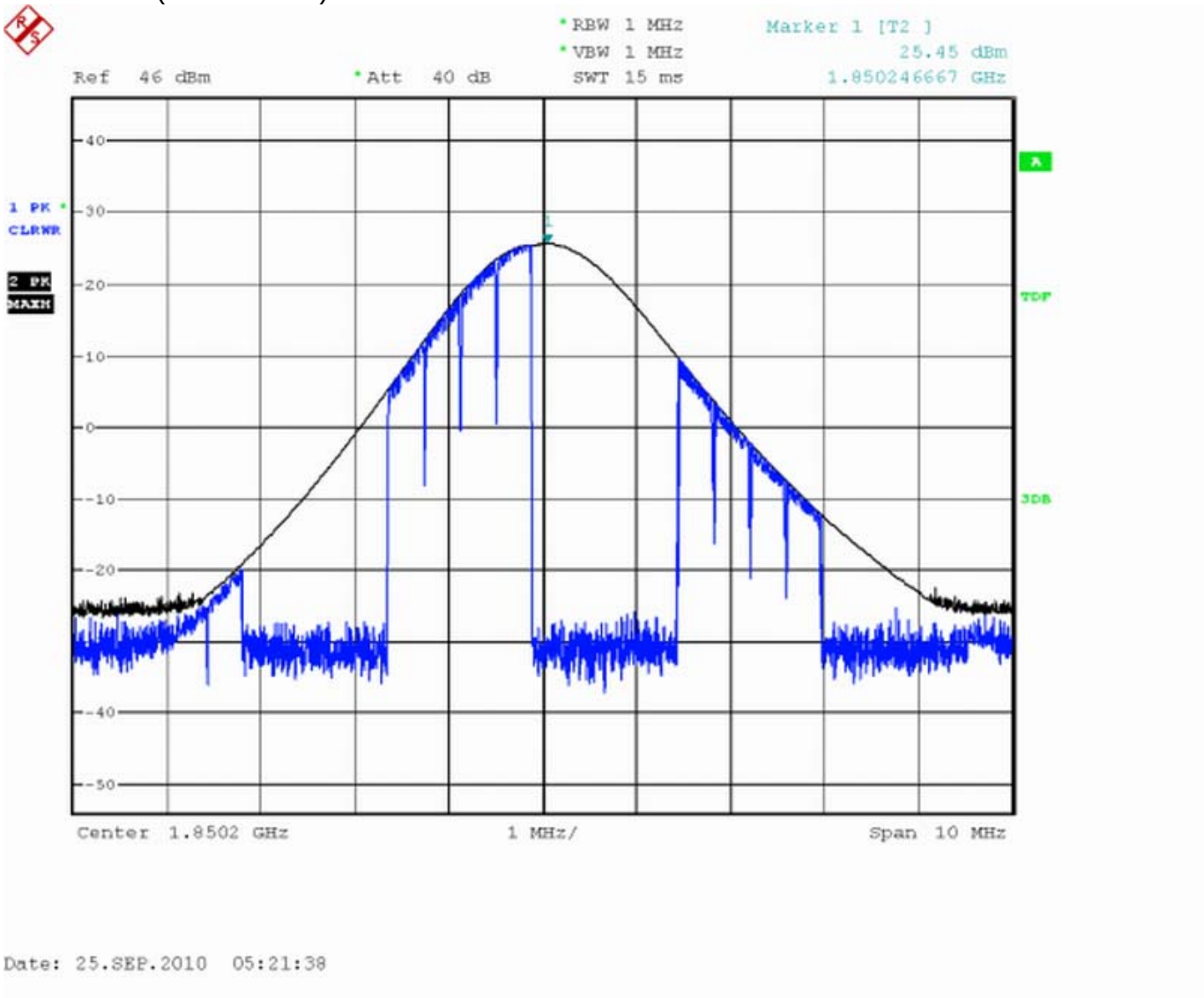
检测结果/说明（续页）：
Results of test and additional explanation（continued page）



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

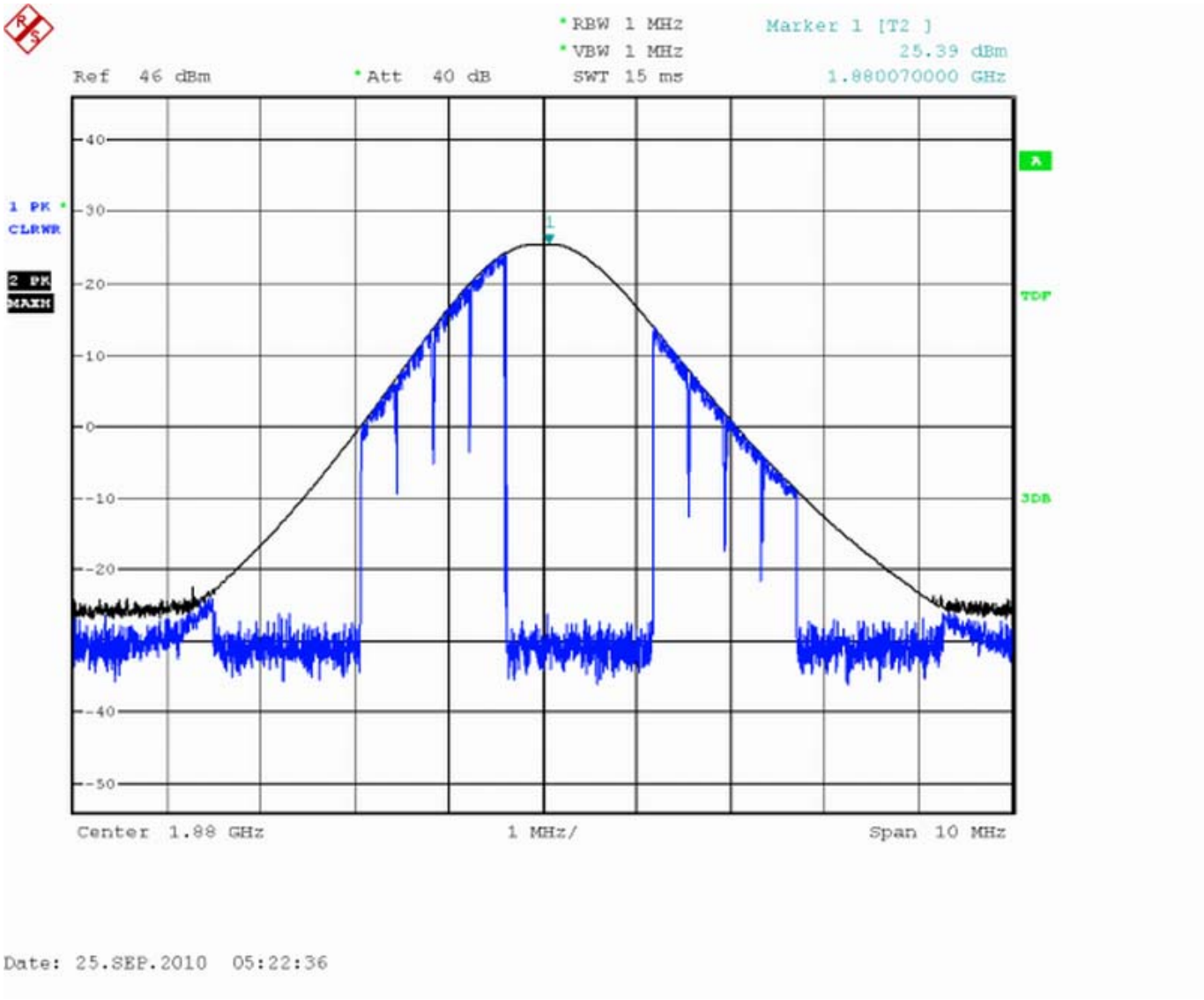
Test mode: PCS 1900 + GPRS			Power source: DC: 3.7V	
Test Frequency (MHz)	Cable Loss (dB)	Test Level (dBm)	Carrier Power (dBm)	Test results
1850.2 (channel 512)	16.60	8.85	25.45	Pass
1880.0 (channel 661)	16.60	8.79	25.39	Pass
1909.8 (channel 810)	16.70	9.00	25.70	Pass

1850.2MHz (channel 512)



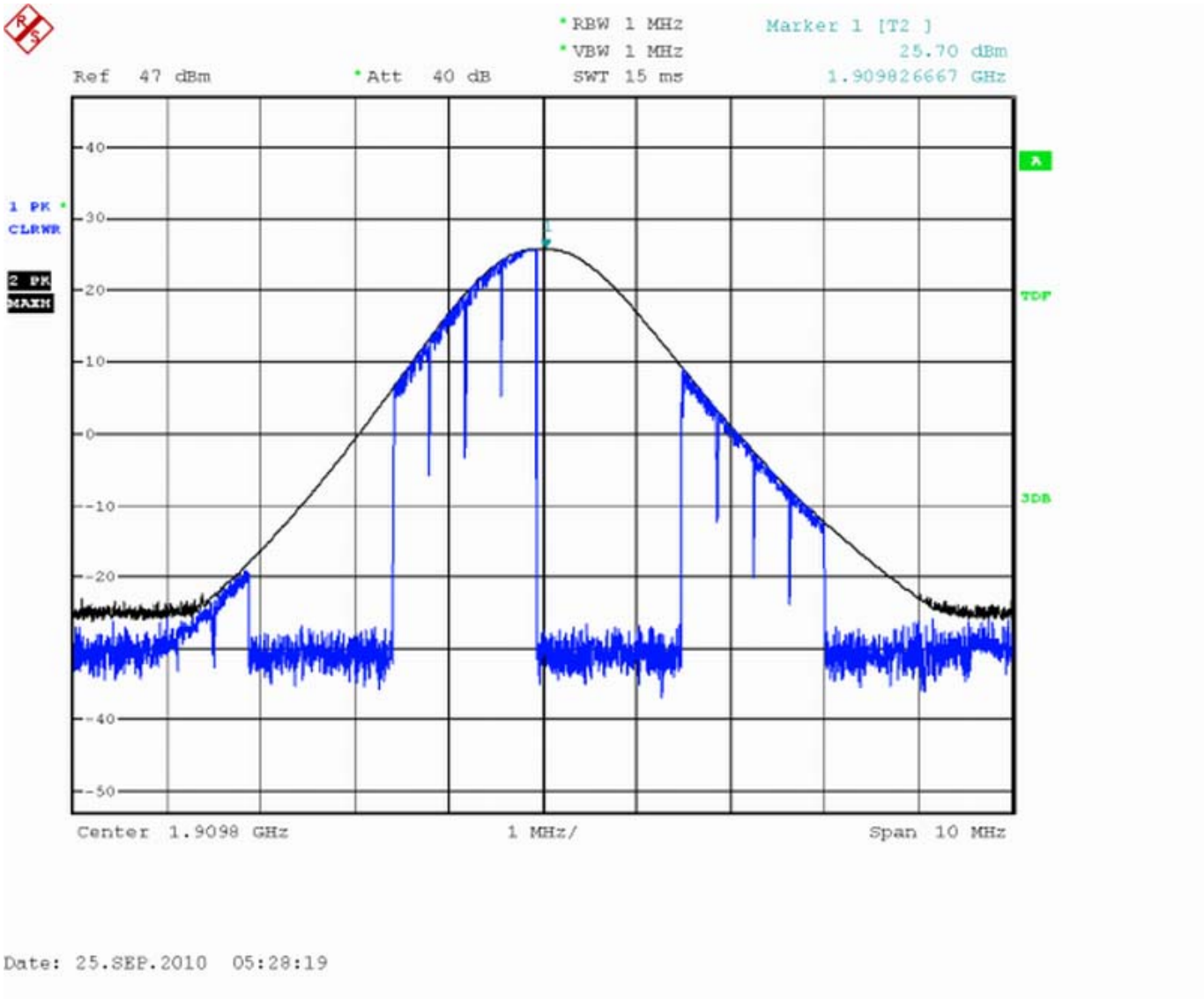
1880.0MHz (channel 661)

检测结果/说明（续页）：
Results of test and additional explanation（continued page）



1909.8MHz (channel 810)

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

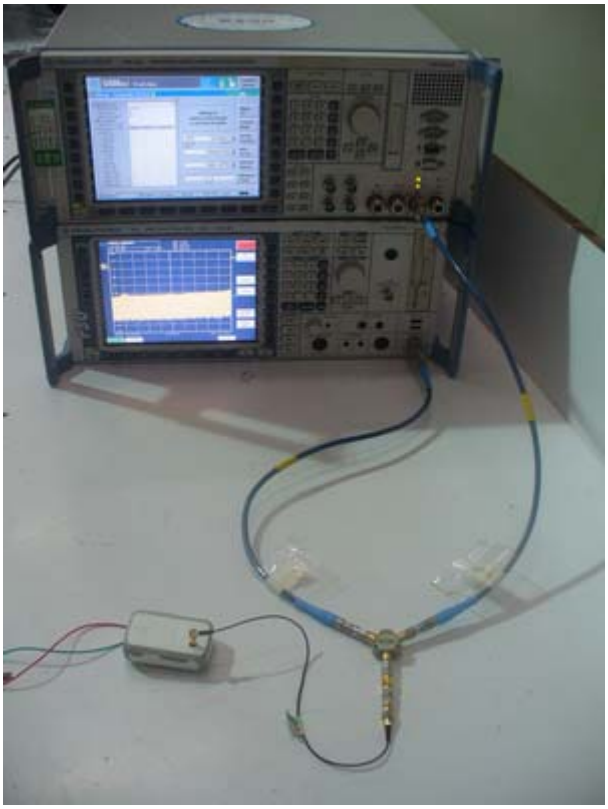


检测结果/说明（续页）：
Results of test and additional explanation（continued page）

3.5 Test Instrumentation (Test date: 2010.09.25)

Name/Model	Number	Due date
Universal Radio Communication Tester CMU 200	容-026-01	2011.06.22
Spectrum Analyzer FSU 26	容-001-33	2011.06.24
Power Splitter 11667C	容-030-11	2011.07.21

3.6 Test Photograph

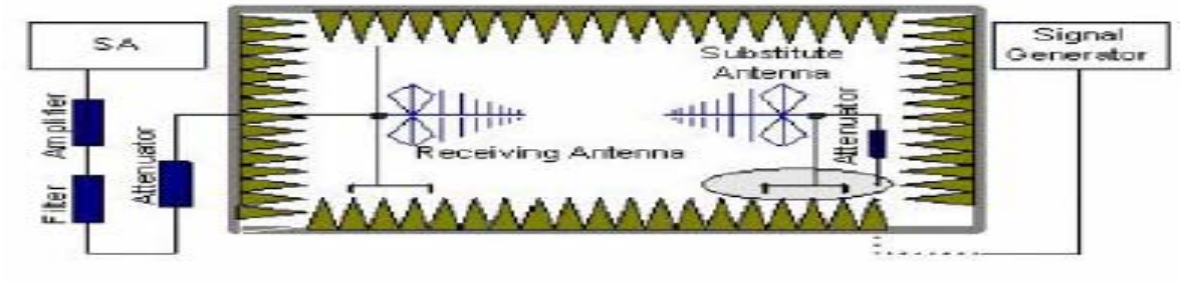


检测结果/说明（续页）：
Results of test and additional explanation（continued page）

4. Carrier Radiated Power Test

4.1 Test setup

Step 1



Step 2

4.2 Limits

GSM 850	E.R.P<38.5dBm
PCS 1900	E.I.R.P<33.0dBm

4.3 Test procedure

Step 1:
EUT was placed on a 1.5 meters high non-conductive table in a fully anechoic chamber. A receiving antenna was placed on the antenna mast 3 meters from the EUT. The height of receiving antenna is 1.5m. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A Peak detector is used and RBW is set to 1MHz.Then turn table rotation is adjusted from 0 degree to 360 degree until the maximum power value is founded on spectrum analyzer or receiver.

Step 2:
A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The EIRP or ERP of the EUT can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading value of the spectrum analyzer or receiver.

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

Step 3:

Calculation: ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs

Ps (dBm)：Input power to substitution antenna.

Ps= PG-Lc

PG (dBm)：output level of Signal generator

Lc(dB) ：Loss of the cable from Signal generator to substitution antenna

Gs (dBi or dBd)：Substitution antenna Gain.

Et = Rt + AF

Es = Rs + AF

AF (dB/m)：Receive antenna factor

Rt：The highest received signal in Spectrum Analyzer for EUT.

Rs：The highest received signal in spectrum analyzer for substitution antenna.

According to the Step 1 and Step 2, Rt= Rs ERP/EIRP = PG-Lc + Gs

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

4.4 Test results

Test mode: GSM 850 + GPRS				Power source: DC 3.7V	
Test Frequency (MHz)	Generator output (dBm)	Cable Loss (dB)	Antenna gain (dBd)	Carrier radiated power (ERP) (dBm)	Test results
824.2 (channel 128)	14.44	1.21	4.88	18.11	Pass
836.4 (channel 189)	12.28	1.29	4.86	15.85	Pass
848.8 (channel 251)	12.83	1.43	4.84	16.24	Pass

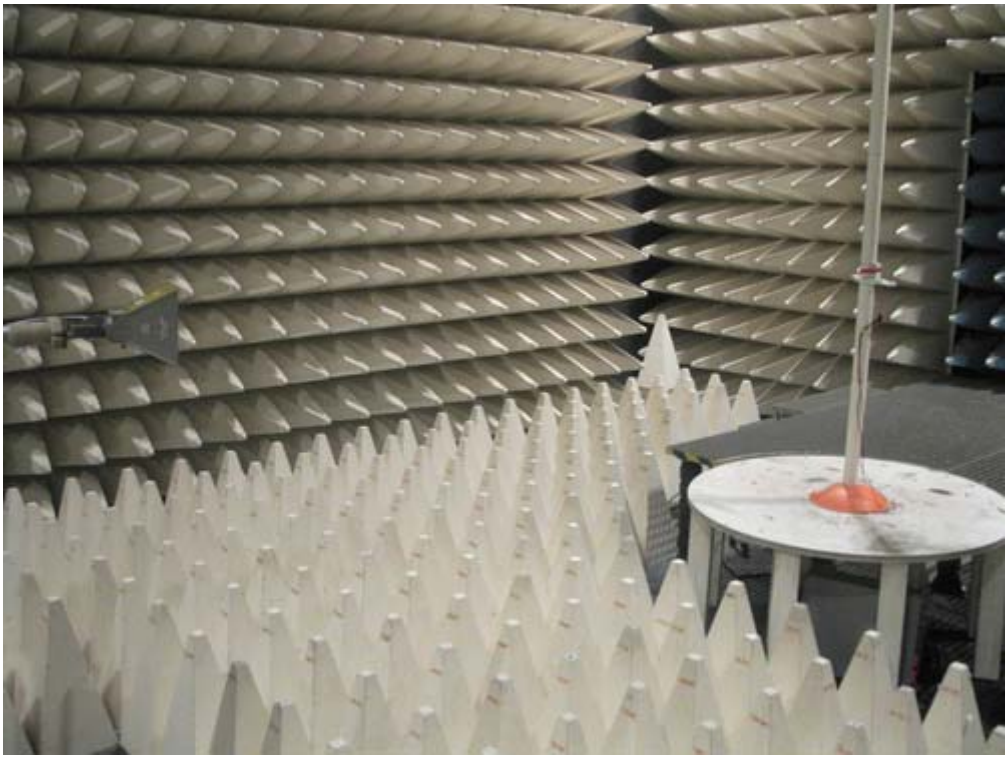
Test mode: PCS 1900 + GPRS				Power source: DC 3.7V	
Test Frequency (MHz)	Generator output (dBm)	Cable Loss (dB)	Antenna gain (dBi)	Carrier radiated power (EIRP) (dBm)	Test results
1850.2 (channel 512)	18.12	2.30	10.13	25.95	Pass
1880.0 (channel 661)	16.85	2.56	10.08	24.37	Pass
1909.8 (channel 810)	17.95	2.70	10.04	25.29	Pass

4.5 Test Instrumentation (Test date: 2010.09.26)

Name/Model	Number	Due date
Spectrum Analyzer FSU 26	容-001-33	2011.06.24
Microwave Signal Generator SMR 20	容-001-02	2011.02.02
Universal Radio Communication Tester CMU 200	容-026-01	2011.06.22
Double-Ridged Waveguide Horn Antenna HF 906	容-001-04	2011.06.17
Ultra Broadband Antenna HL 562	容-001-03	2011.06.14
Logarithmic Periodic Broadband Antenna UHALP 9108 A	容-001-40	2011.06.14
Broad-band Horn Antenna BBHA 9120D	容-001-06	2011.06.17

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

4.6 Test Photographs



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

X orientation

Y orientation

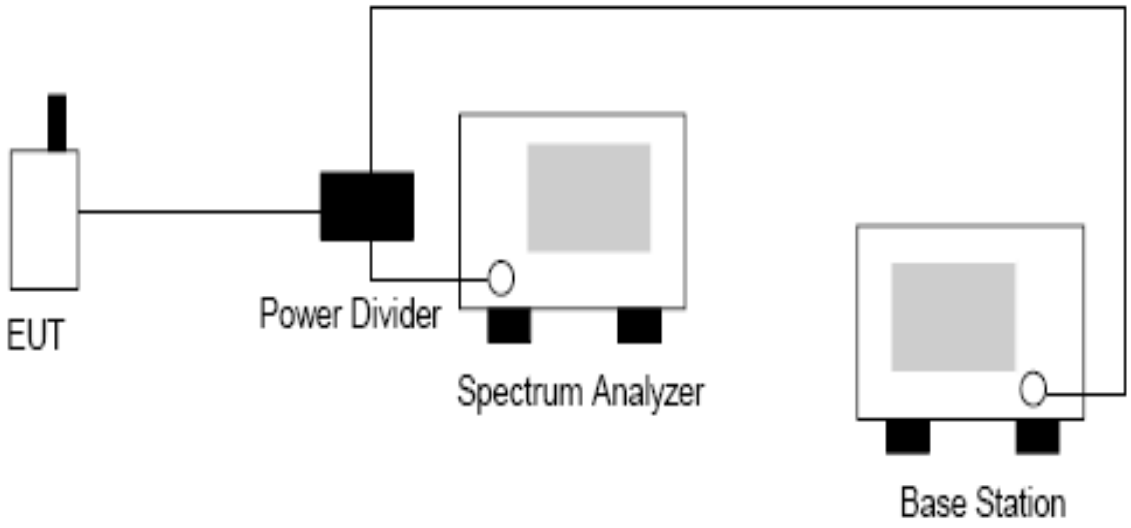
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

Z orientation

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

5. Occupied Bandwidth Test

5.1 Test setup



5.2 Limits

No specific occupied bandwidth requirements.

5.3 Test procedure

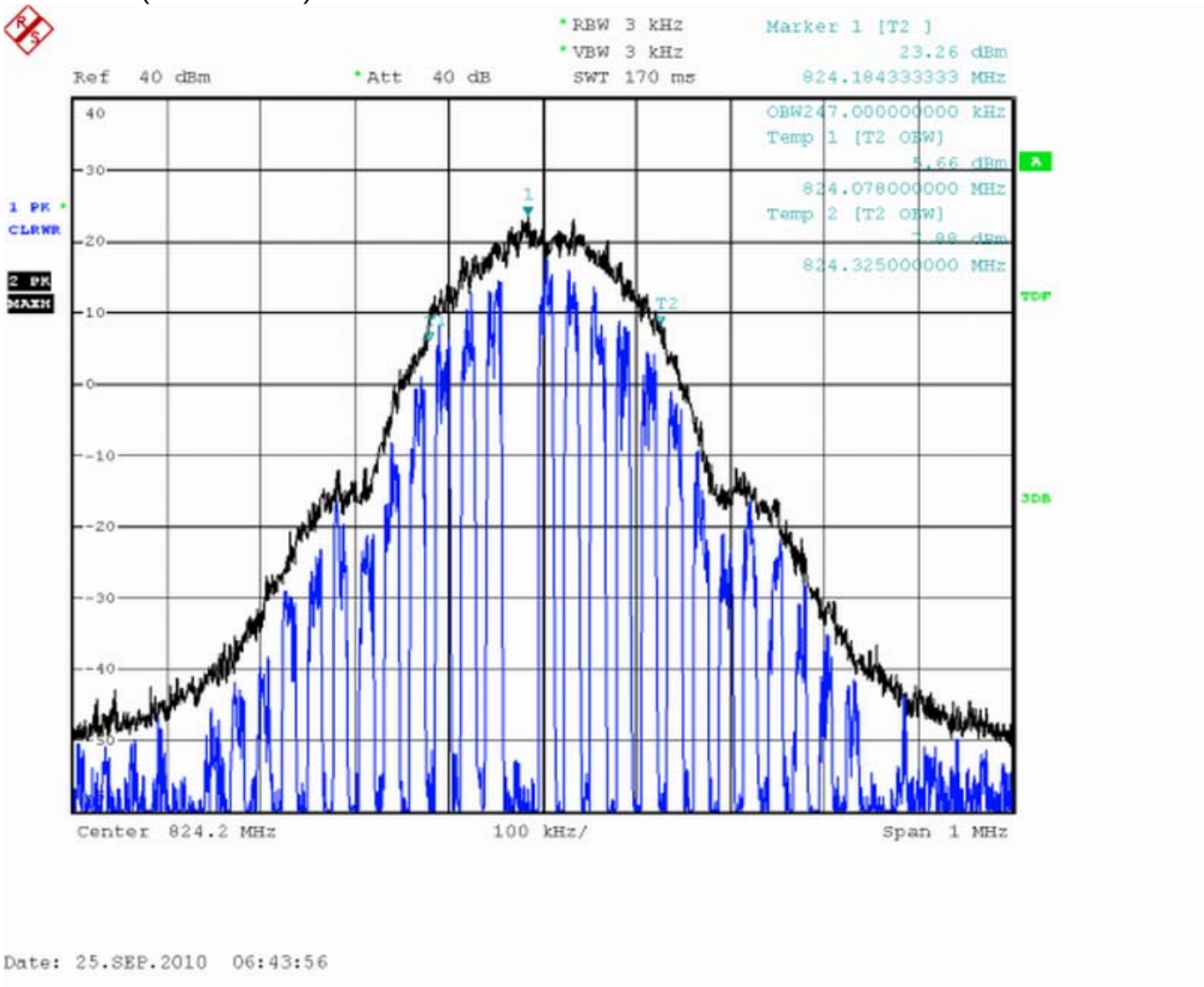
After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 3 kHz on spectrum analyzer. The bandwidth of 99% power can be read on spectrum analyzer. The measurement will be conducted at Bottom, middle and top three channels.

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

5.4 Test results

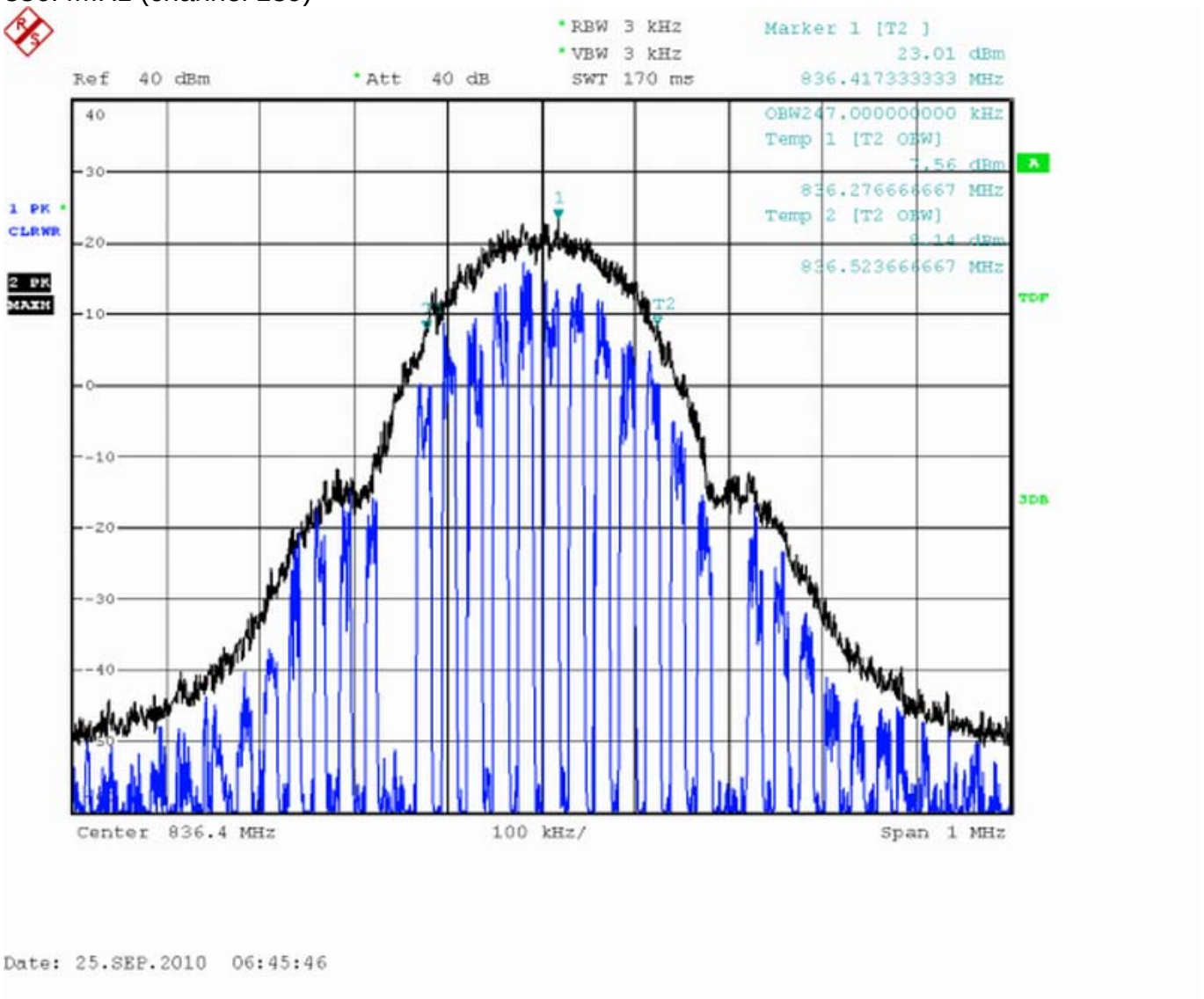
Test mode: GSM 850 + GPRS		
Power source: DC 3.7V		
Test Frequency (MHz)	Test level (kHz)	Test results
824.2 (channel 128)	247.0	Pass
836.4 (channel 189)	247.0	Pass
848.8 (channel 251)	247.0	Pass

824.2MHz (channel 128)



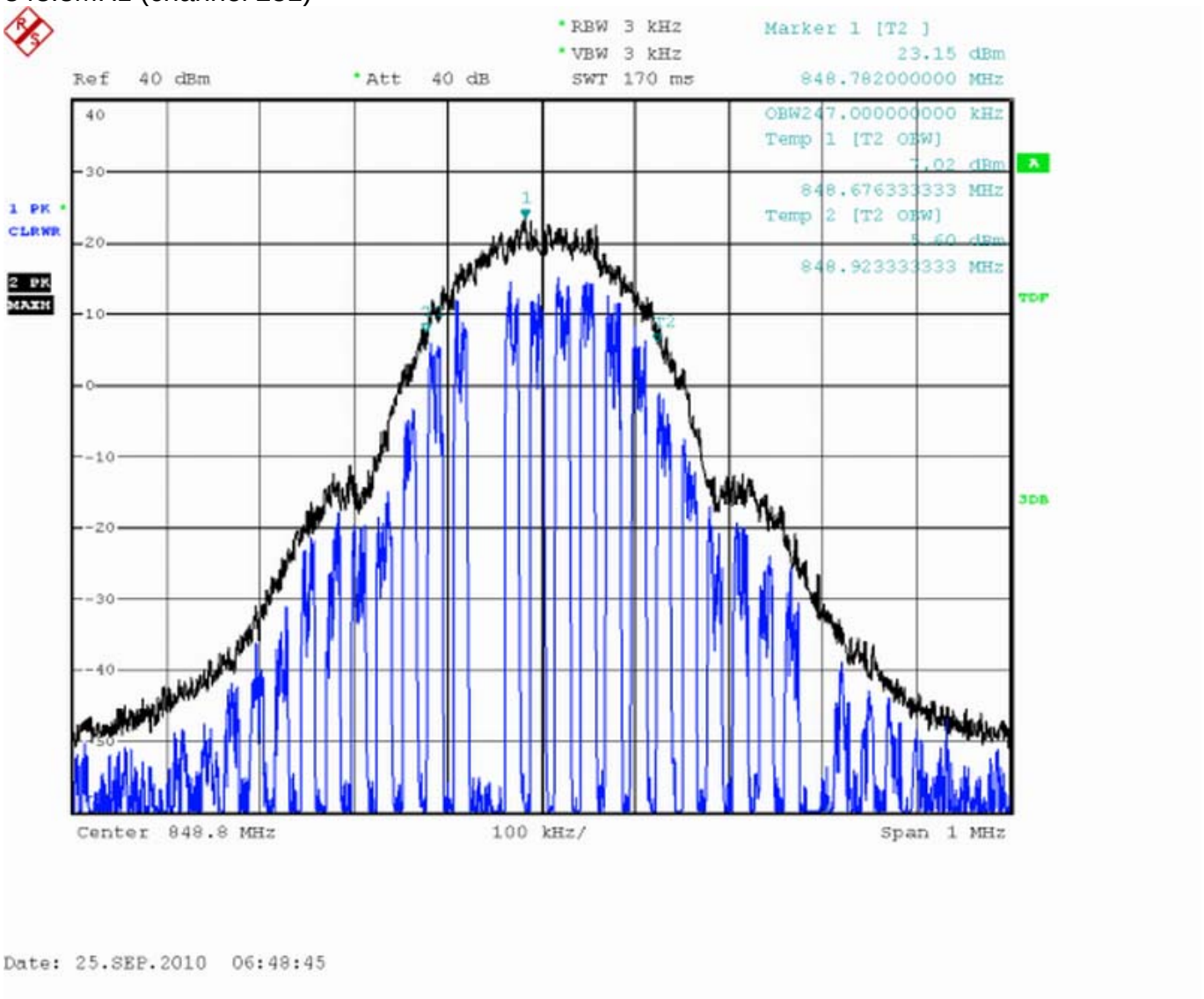
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

836.4MHz (channel 189)



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

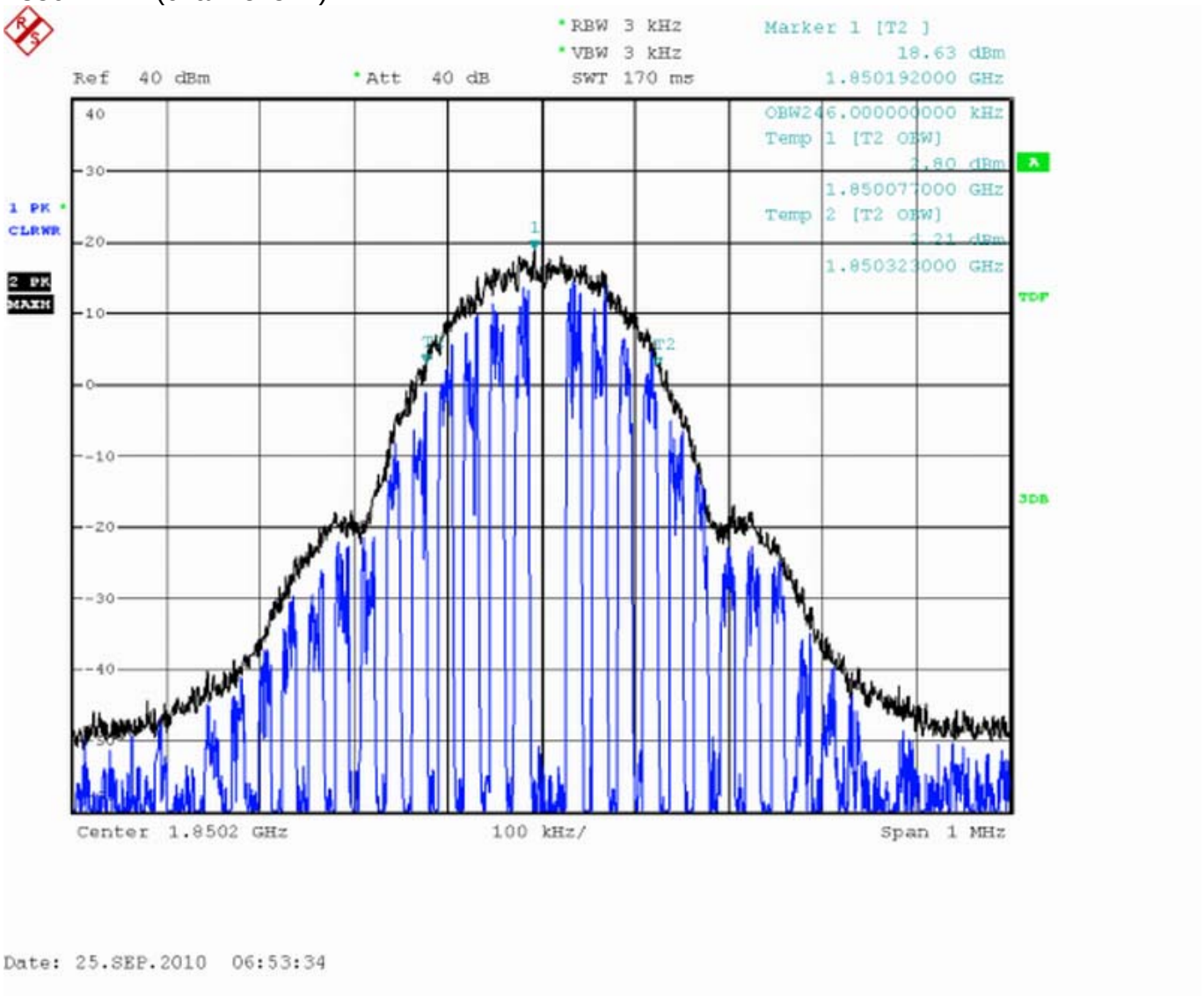
848.8MHz (channel 251)



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

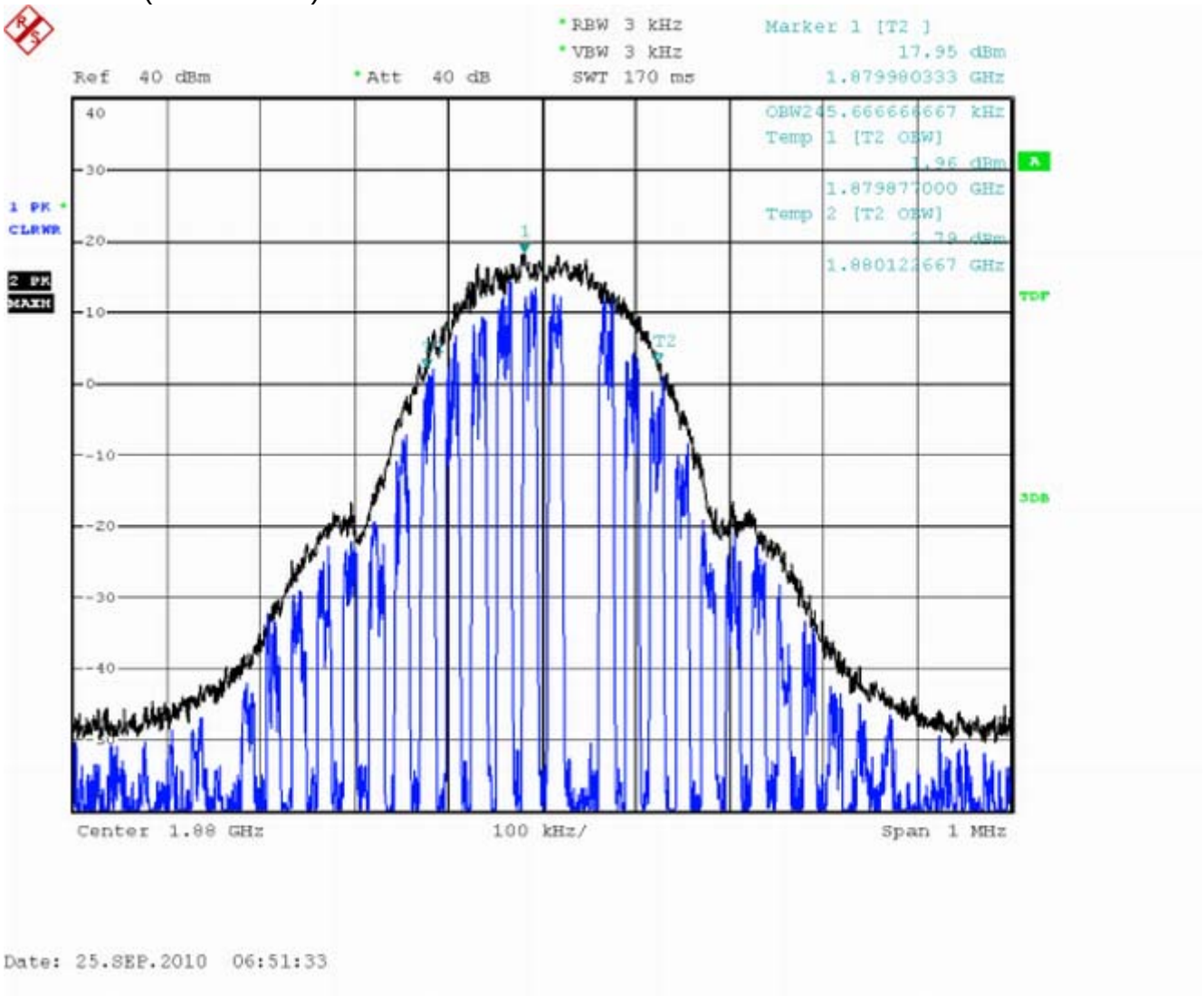
Test mode: PCS 1900 + GPRS		
Power source: DC 3.7V		
Test Frequency (MHz)	Test level (kHz)	Test results
1850.2 (channel 512)	246.0	Pass
1880.0 (channel 661)	245.7	Pass
1909.8 (channel 810)	246.7	Pass

1850.2MHz (channel 512)



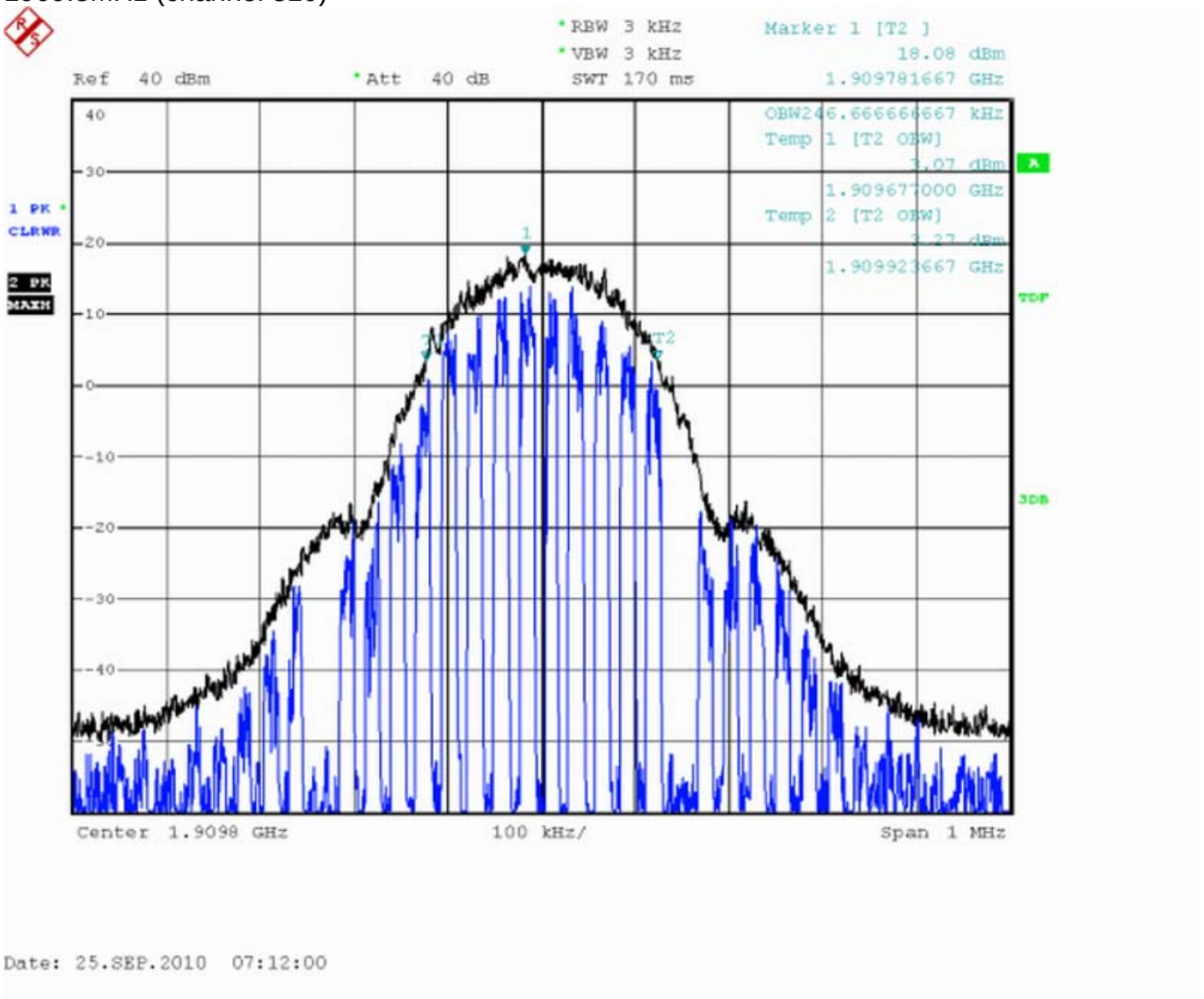
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

1880.0MHz (channel 661)



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

1909.8MHz (channel 810)

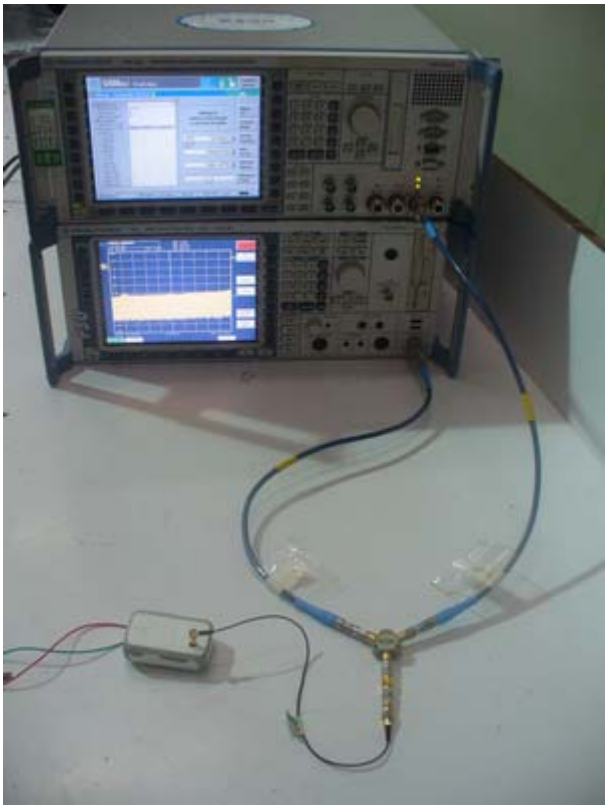


检测结果/说明（续页）：
Results of test and additional explanation（continued page）

5.5 Test Instrumentation (Test date: 2010.09.25)

Name/Model	Number	Due date
Universal Radio Communication Tester CMU 200	容-026-01	2011.06.22
Spectrum Analyzer FSU 26	容-001-33	2011.06.24
Power Splitter 11667C	容-030-11	2011.07.21

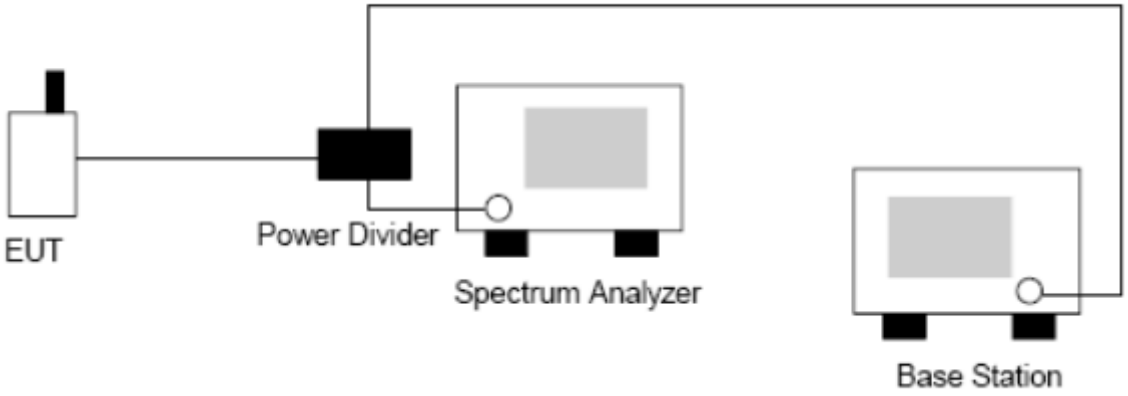
5.6 Test Photograph



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

6. Band Edge Test

6.1 Test setup



6.2 Limits

Limits	<-13dBm

6.3 Test procedure

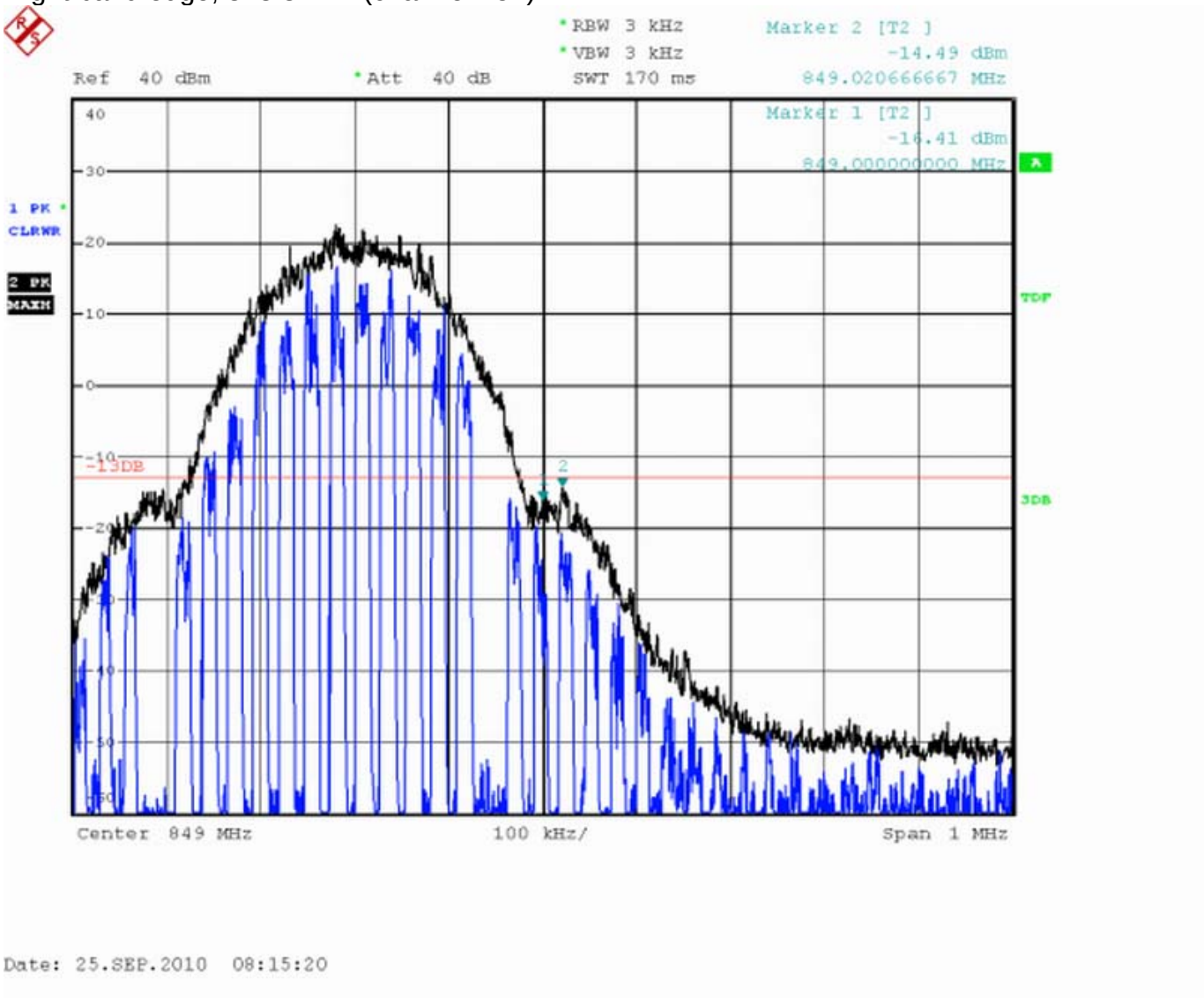
After a radio link has been established between EUT and Tester, the output
power of the cell signal of the testing equipment will be increased until the output power of the EUT reach a maximum value. In the first 1.0 MHz band immediately outside and adjacent to the licensee’s frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log(P).

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

6.4 Test results

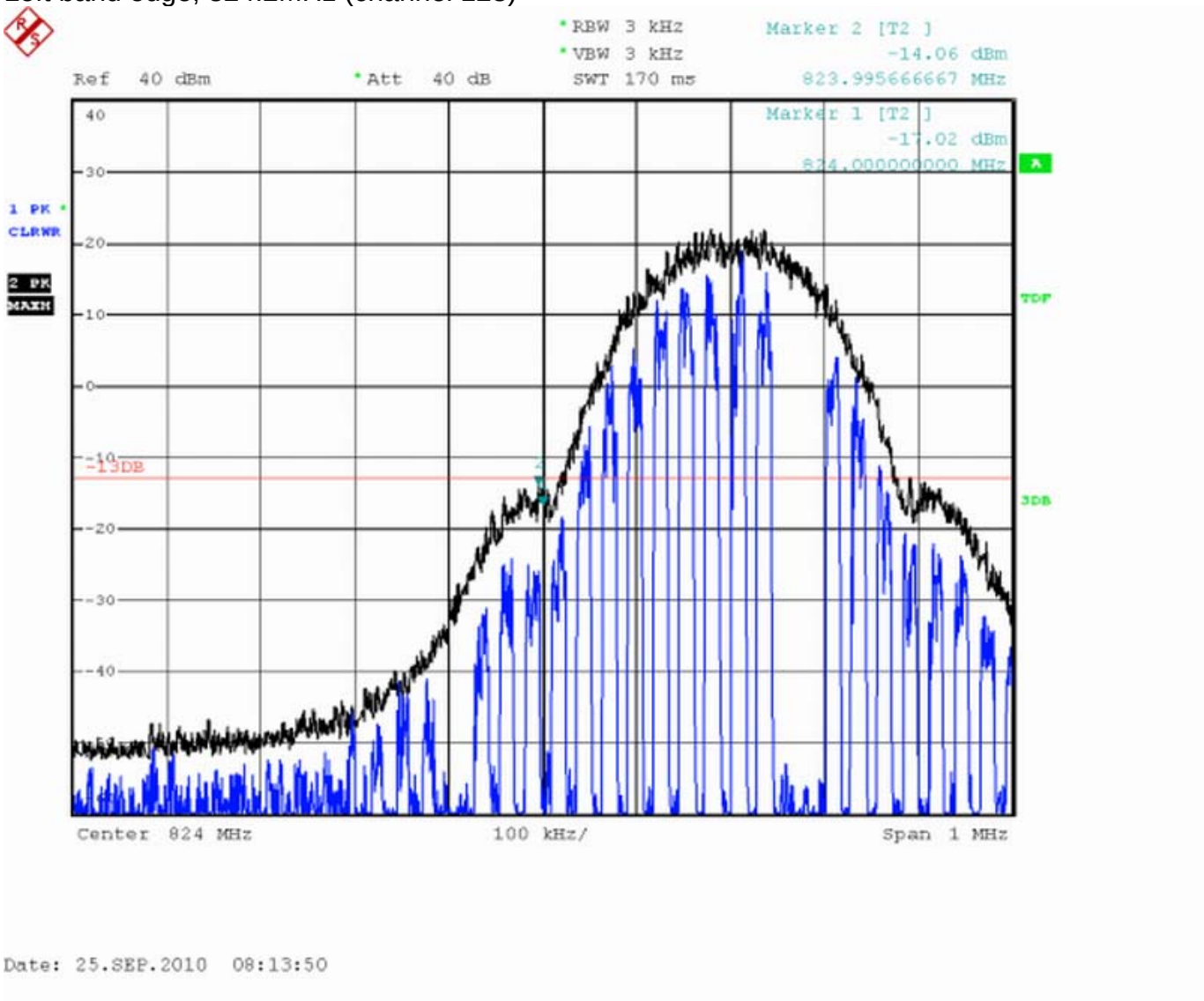
Test mode: GSM 850 + GPRS			
Power source: DC 3.7V			
Item	Test Frequency (MHz)	Test level (dBm)	Test results
Right band edge	848.8 (channel 251)	-14.49	Pass
Left band edge	824.2 (channel 128)	-14.06	Pass

Right band edge, 848.8MHz (channel 251)



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

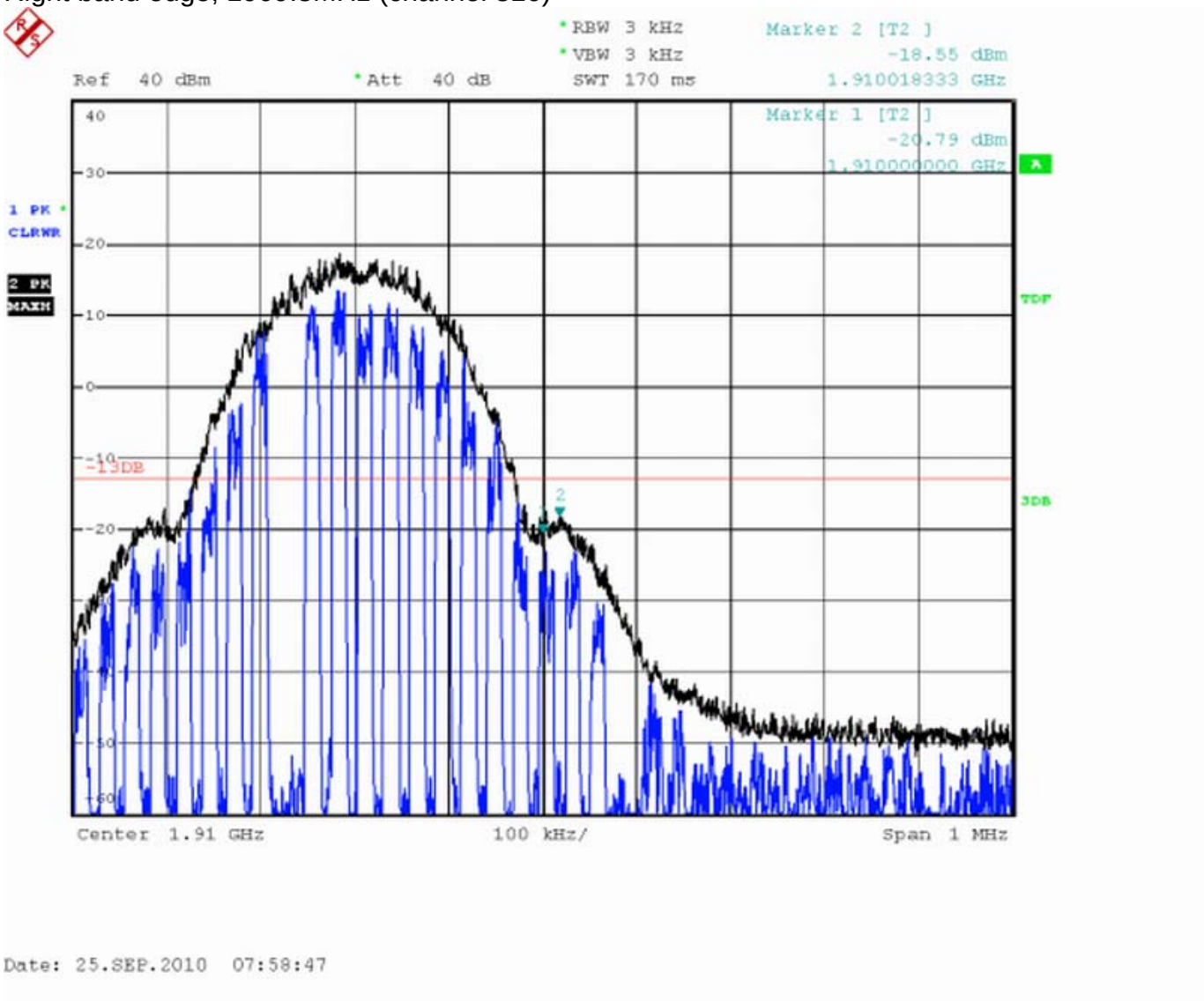
Left band edge, 824.2MHz (channel 128)



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

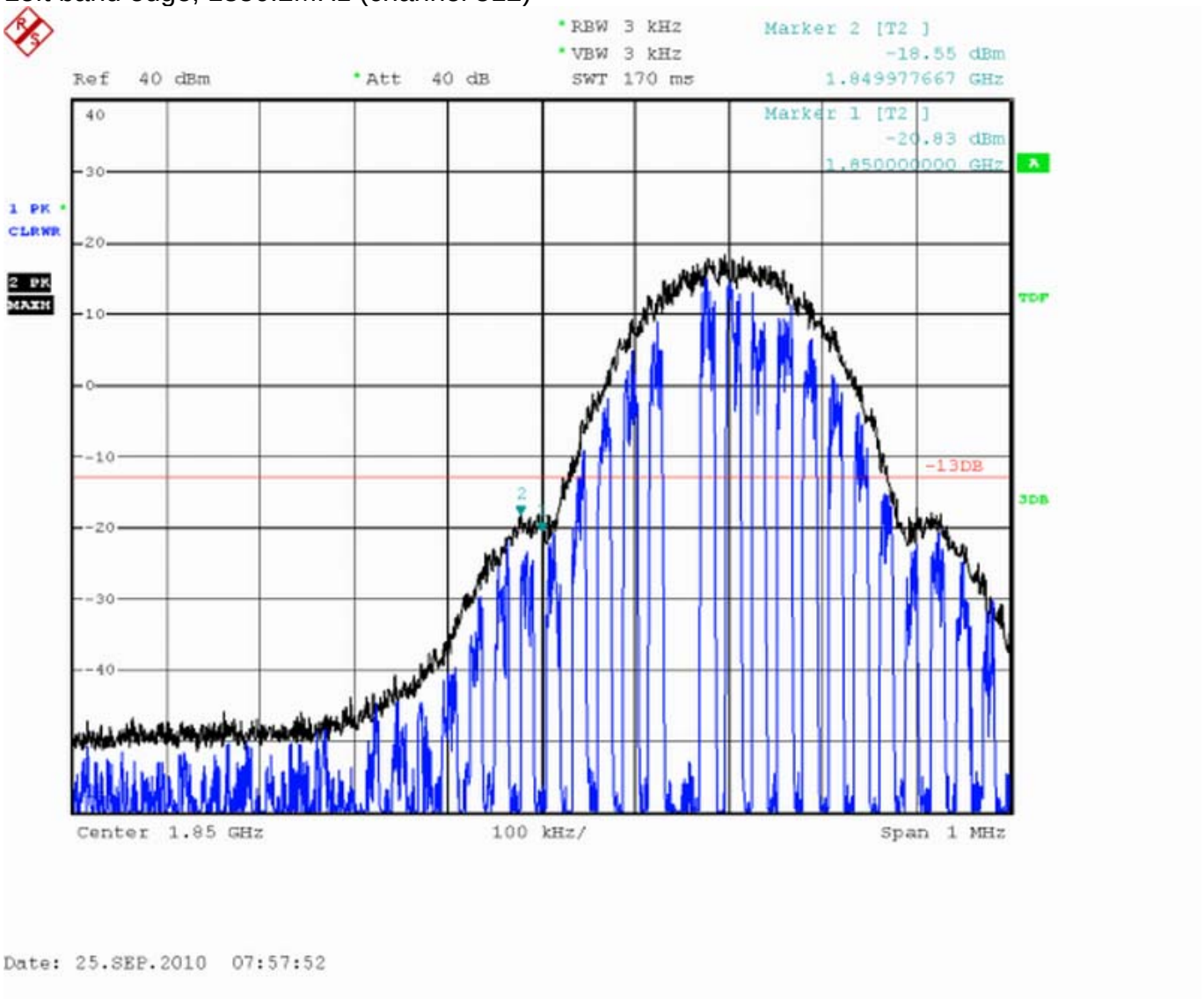
Test mode: PCS 1900 + GPRS			
Power source: DC 3.7V			
Item	Test Frequency (MHz)	Test level (dBm)	Test results
Right band edge	1909.8 (channel 810)	-18.55	Pass
Left band edge	1850.2 (channel 512)	-18.55	Pass

Right band edge, 1909.8MHz (channel 810)



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

Left band edge, 1850.2MHz (channel 512)

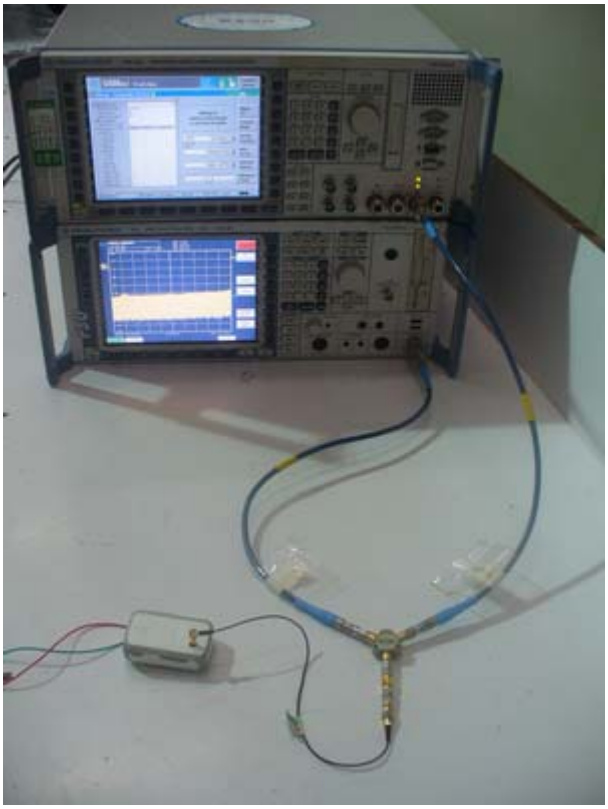


检测结果/说明（续页）：
Results of test and additional explanation（continued page）

6.5 Test Instrumentation (Test date: 2010.09.25)

Name/Model	Number	Due date
Spectrum Analyzer FSU 26	容-001-33	2011.06.24
Power Splitter 11667C	容-030-11	2011.07.21
Universal Radio Communication Tester CMU 200	容-026-01	2011.06.22

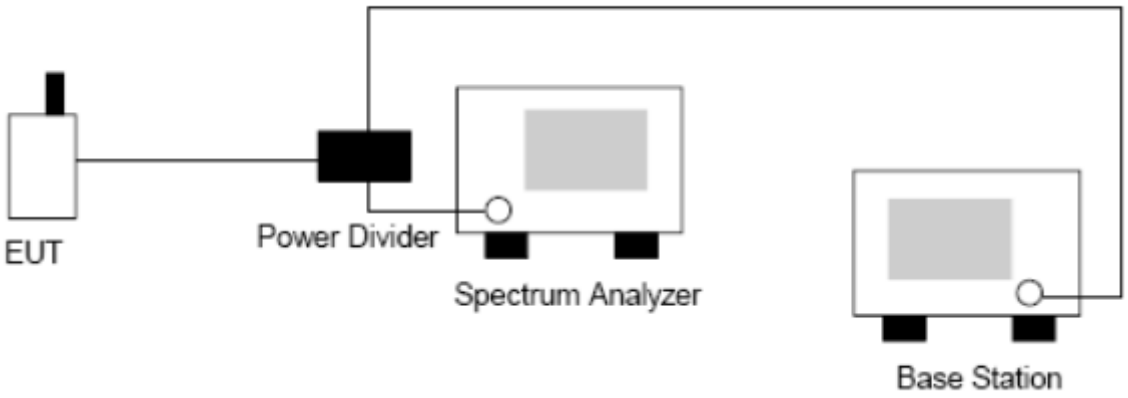
6.6 Test Photograph



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

7. Spurious Conducted Emission Test

7.1 Test setup



7.2 Limits

Limits	<-13dBm

7.3 Test procedure

The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The middle channel for the highest RF power within the transmitting frequency was measured.
The conducted spurious emission for the whole frequency range was taken.

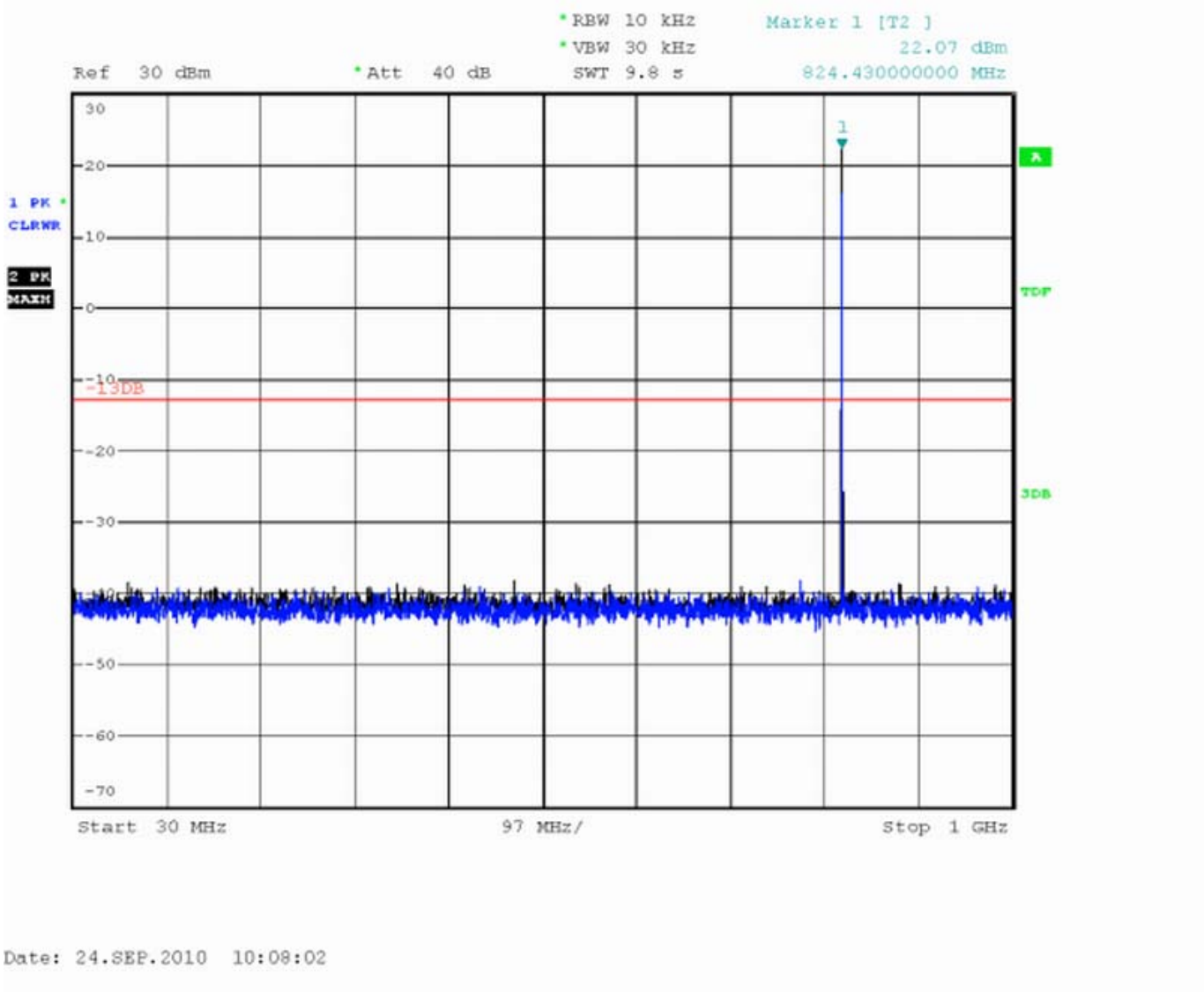
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

7.4 Test results

Power source: DC 3.7V

7.4.1 Test mode: GSM 850 + GPRS

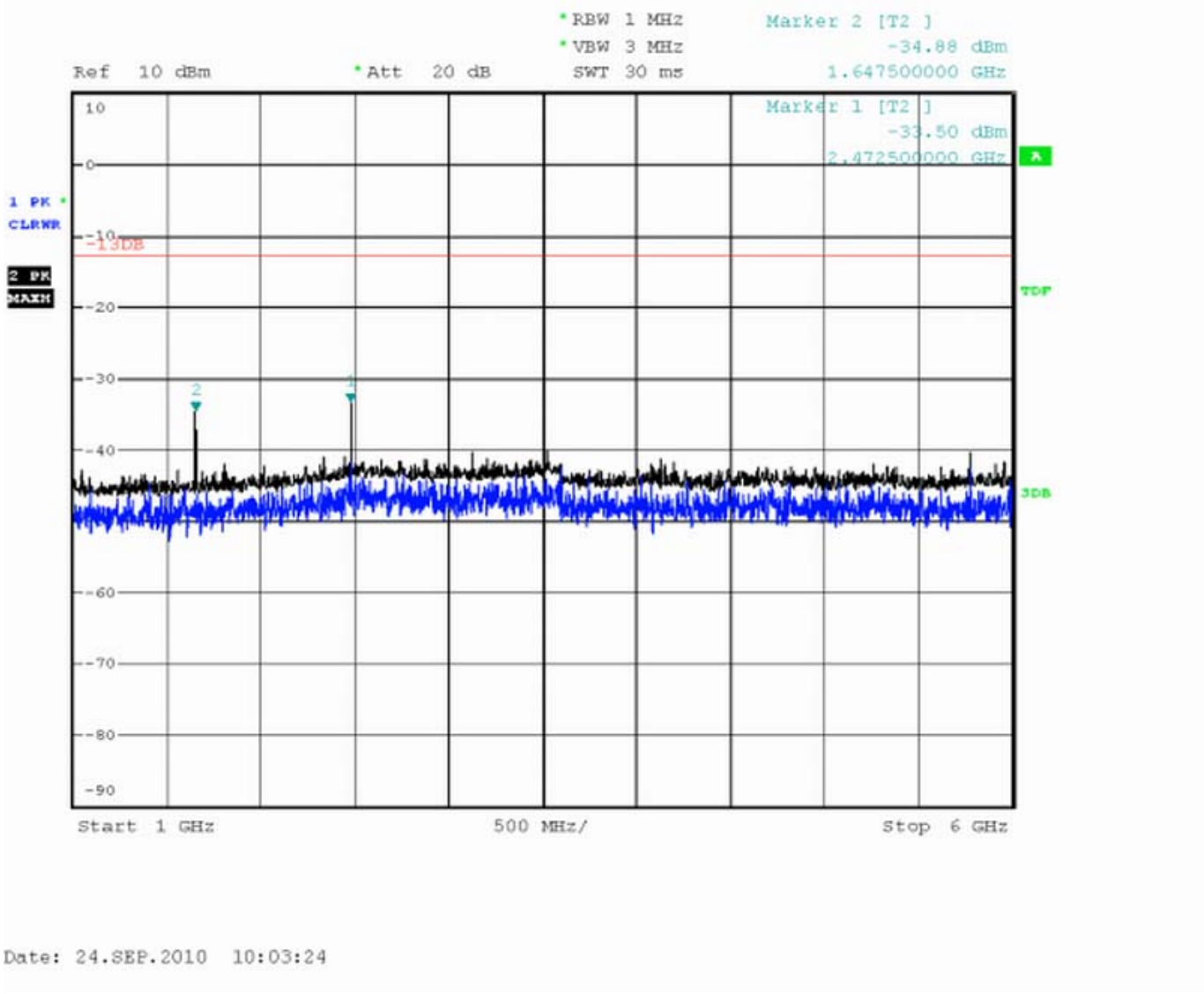
824.2MHz (channel 128), 30~1000MHz



Note: The signal beyond the limit is carrier

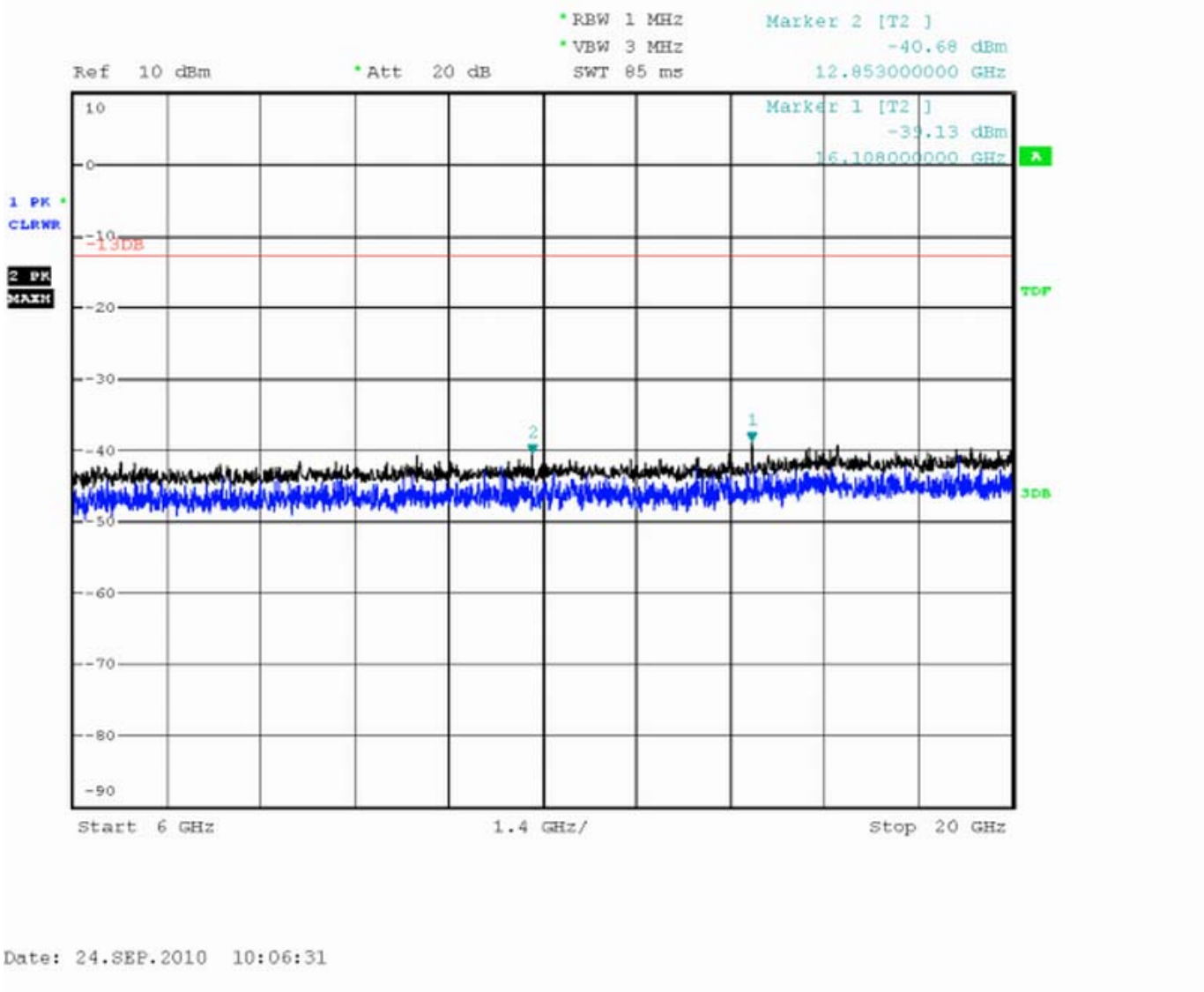
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

824.2MHz (channel 128), 1000~6000MHz



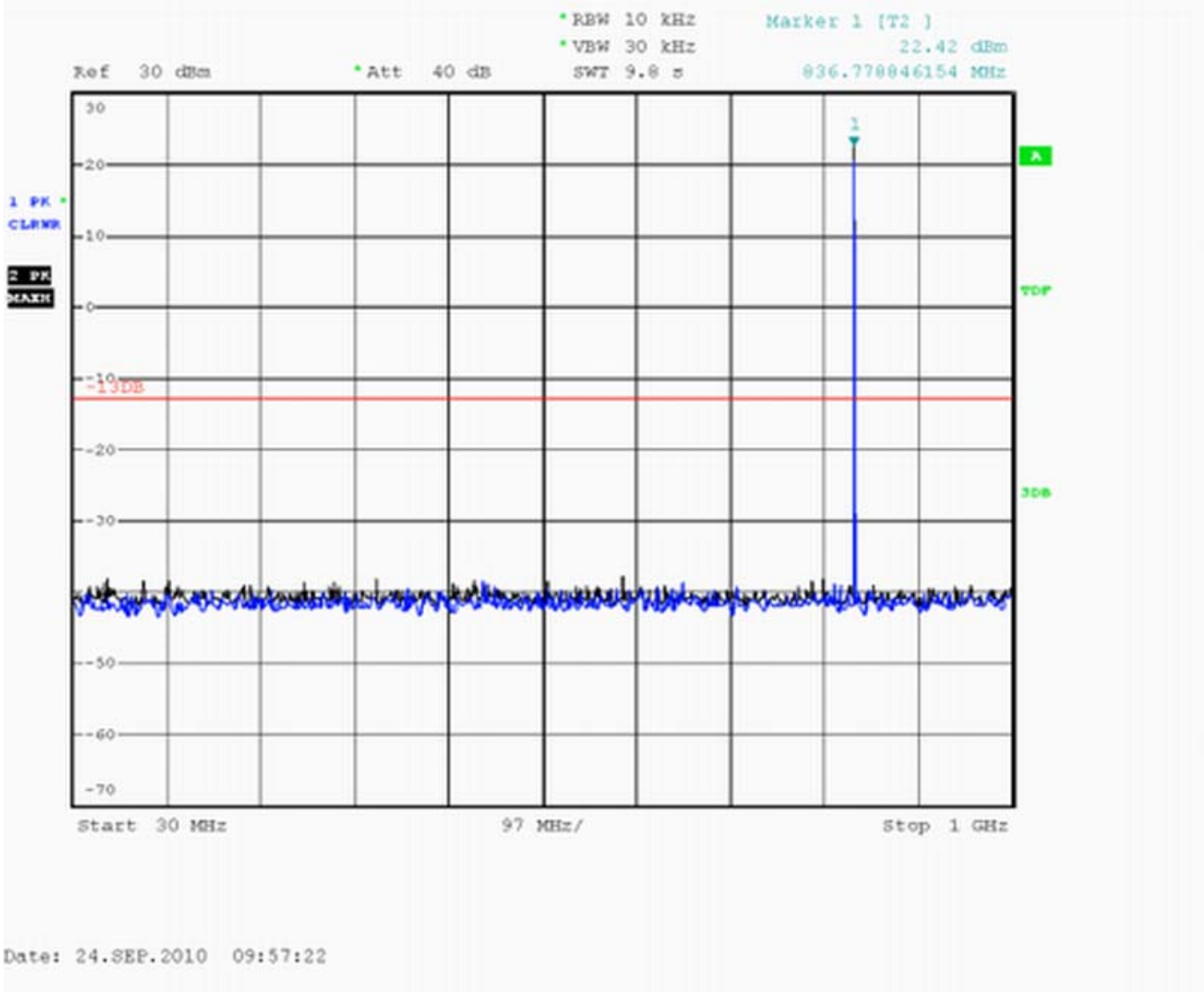
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

824.2MHz (channel 128), 6000~20000MHz



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

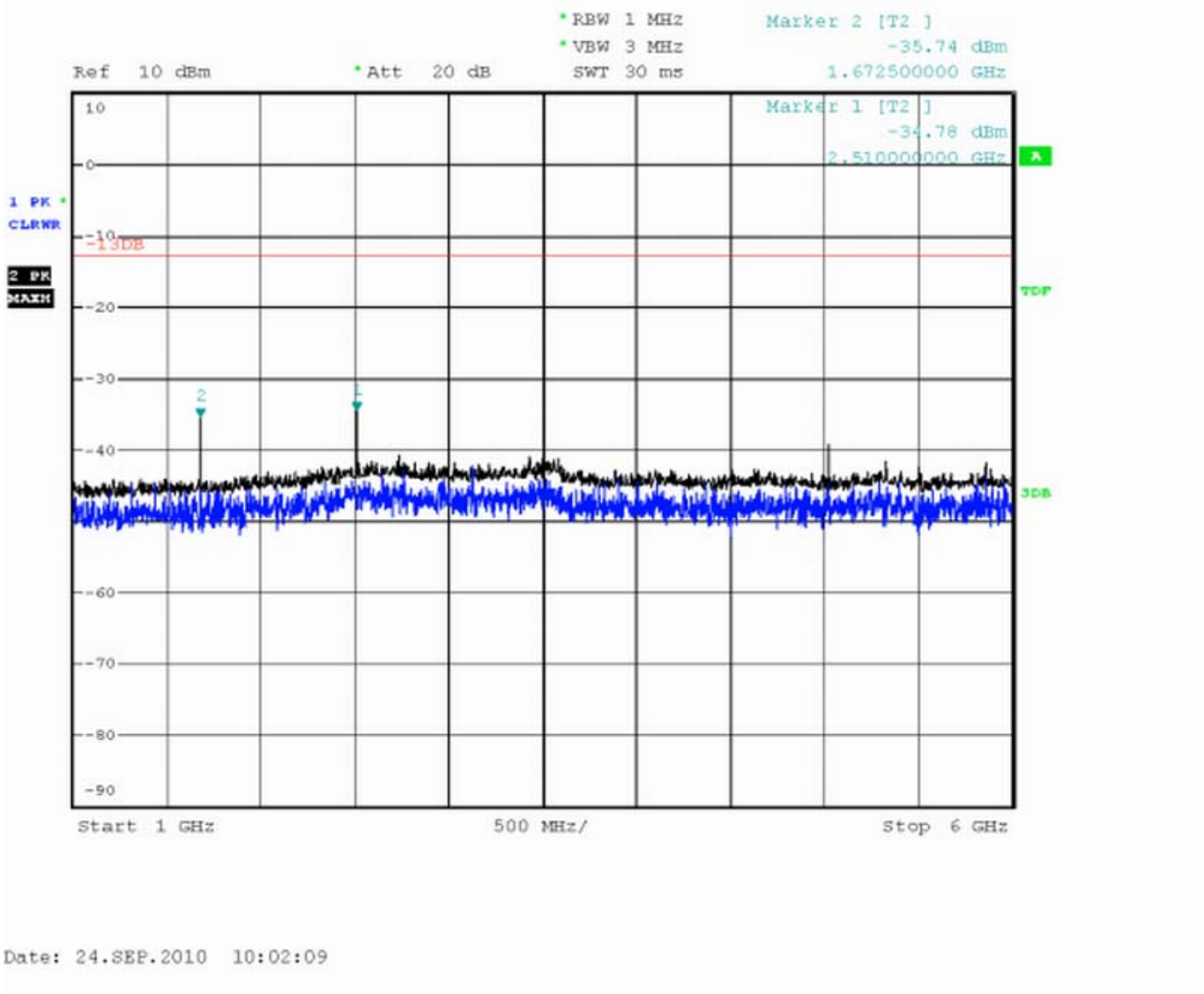
836.4MHz (channel 189), 30~1000MHz



Note: The signal beyond the limit is carrier

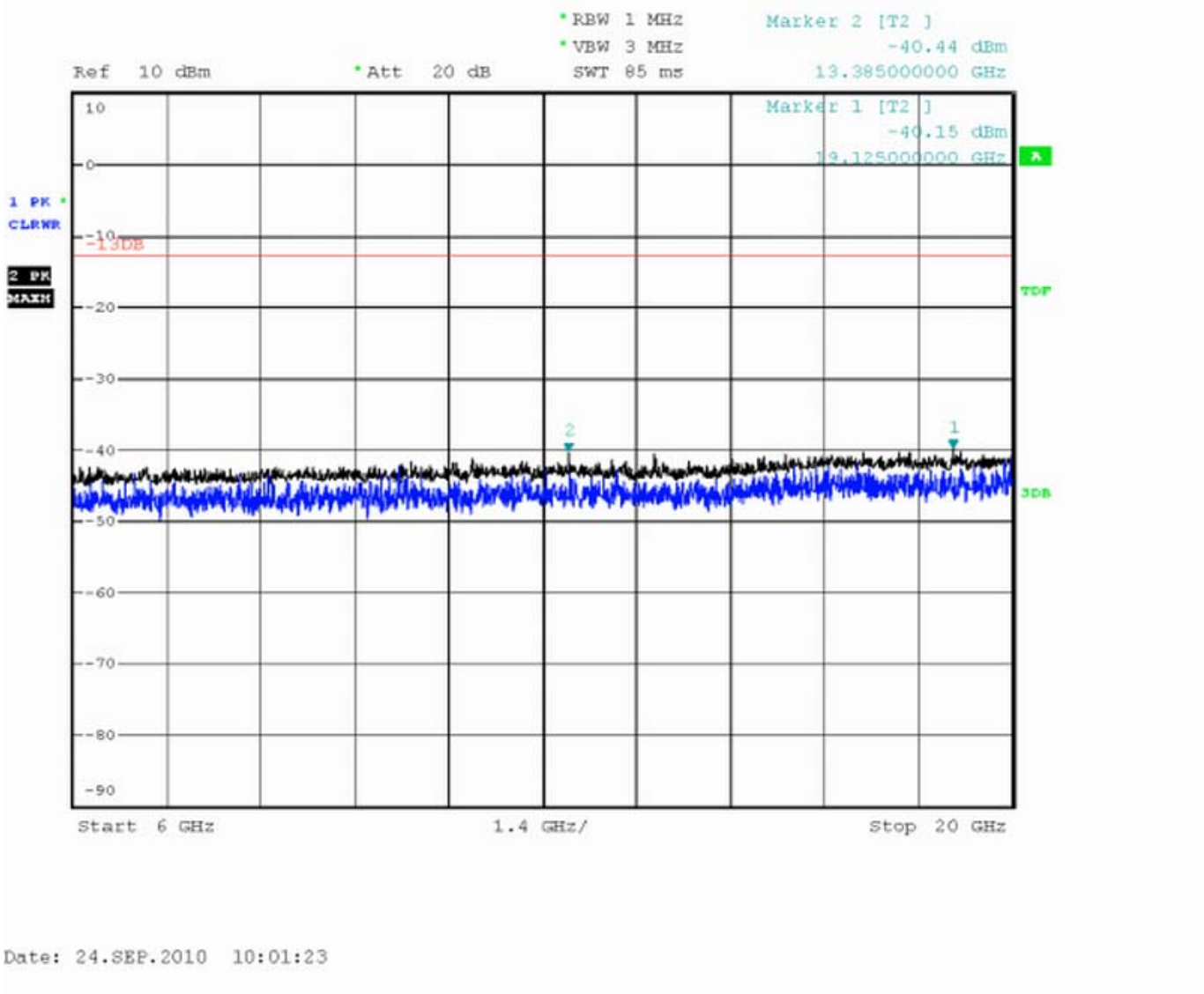
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

836.4MHz (channel 189), 1000~6000MHz



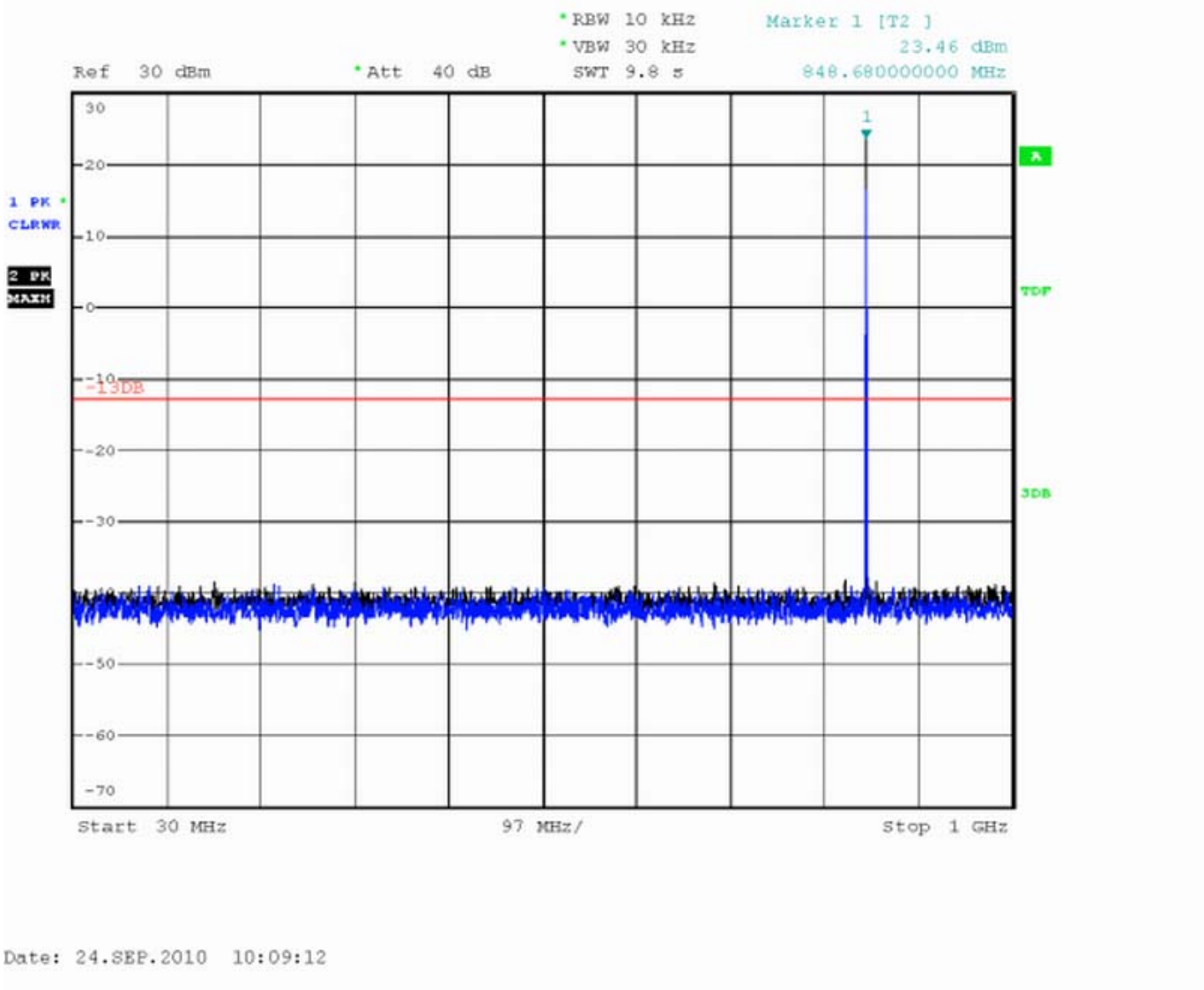
检测结果/说明（续页）：
Results of test and additional explanation（continued page）

836.4MHz (channel 189), 6000~20000MHz



检测结果/说明（续页）：
Results of test and additional explanation（continued page）

848.8MHz (channel 251), 30~1000MHz



Note: The signal beyond the limit is carrier

检测结果/说明（续页）：
Results of test and additional explanation（continued page）

848.8MHz (channel 251), 1000~6000MHz