

# RED-Radio Test Report

Client Name : Jinan USR IOT Technology Limited  
Address : Room 203, 205, 208. Floor 2, Wuzhou Scientific Research Building, No.1100 Shunfeng Street, Gaoxin District, Jinan, Shandong, 250101, China  
Product Name : Industrial 4G Modem  
Date : May 20, 2019

**Shenzhen Anbotech Compliance Laboratory Limited**


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## TEST REPORT

Applicant : Jinan USR IOT Technology Limited  
Manufacturer : Jinan USR IOT Technology Limited  
Product Name : Industrial 4G Modem  
Model No. : USR-G781, USR-G806, USR-G800 V2, USR-G808, USR-G809, USR-G810,  
USR-G811, GW-R4513, GW-R5514, GW-R731  
Trade Mark :   
Rating(s) : Input: DC 9-12V, 300mA Max

**Test Standard(s) : ETSI EN301 511 V12.5.1(2017-03)**

**Test Method(s) : ETSI TS 151 010-1 V13.5.0 (2017-11)**

The device described above is tested by Shenzhen Anbotech Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotech Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the ETSI EN301 511 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotech Compliance Laboratory Limited.

Date of Receipt

Apr. 02, 2019

Date of Test

Apr. 02~ May 16, 2019

Prepared By



*Oliay Yang*

(Engineer / Oliay Yang)

Reviewer

*Snowy Meng*

(Supervisor / Snowy Meng)

Approved & Authorized Signer

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## 1. General Information

### 1.1. Client Information

Applicant	:	Jinan USR IOT Technology Limited
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Manufacturer	:	Jinan USR IOT Technology Limited
Address	:	Room 203, 205, 208. Floor 2, Wuzhou Scientific Research Building, No.1100 Shunfeng Street, Gaoxin District, Jinan, Shandong, 250101, China
Factory	:	Jinan USR IOT Technology Limited
Address	:	Room 203, 205, 208. Floor 2, Wuzhou Scientific Research Building, No.1100 Shunfeng Street, Gaoxin District, Jinan, Shandong, 250101, China

### 1.2. Description of Device (EUT)

Product Name	:	Industrial 4G Modem
Model No.	:	USR-G781, USR-G806, USR-G800 V2, USR-G808, USR-G809, USR-G810, USR-G811, GW-R4513, GW-R5514, GW-R731 (Note: All samples are the same except the name, so we prepare "USR-G781" for test only.)
Trade Mark	:	
Test Power Supply	:	AC 230V, 50Hz for adapter
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Product Description	Operation Frequency:	GSM 900: 880 -915 MHz (TX); 935 - 963 MHz (RX) DCS1800: 1710 -1785 MHz (TX); 1805-1880 MHz (RX)
	Modulation Type:	GMSK, 8PSK
	Radio Technology	GPRS/EGPRS (900/1800)
	Multislot Class	GPRS: 12,EGPRS: 12
	Antenna Type:	Sucker External Antenna
	Antenna Gain(Peak):	GSM 900: 1.74 dBi DCS1800: 2.42 dBi
<b>Remark:</b> 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2) This report is for GSM.		

### 1.3. Auxiliary Equipment Used During Test

Adapter	:	P/N:DQS151-120100-16312B Model:DQS151-120100-VV Input: AC 100-240V 50/60Hz 0.4A Max Output: DC 12.0V, 1.0A
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### 1.4 Test Standard Description

ETSI EN 301 511 V12.5.1: Global System for Mobile communications (GSM);  
Mobile Stations (MS) equipment; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.  
ETSI TS 151 010-1 V13.5.0: Digital cellular telecommunications system (Phase 2+);  
Mobile Station (MS) conformance specification; Part 1: Conformance specification  
(ETSI TS 151 010-1 version 13.5.0 Release 12)

### 1.5 Additional Information

N/A

### 1.6 Test Conditions

Temperature:	15-35 °C	
Relative humidity content:	Up to 75 %	
Details of power supply:	230 V AC	
- Extreme test conditions:	Vnom= 230 V	AC
	Vmin = 217 V	AC
	Vmax = 253 V	AC
- Extreme temperature:	-20°C / 60°C	
Vibration	Frequency	ASD
	5Hz-20Hz	0,96 m2/s3
	20 Hz to 500 Hz	0,96 m2/s3 at 20 Hz, thereafter -3 dB/Octave
Other parameter:	None	

#### General Test Conditions

GSM900	LCH	MCH	HCH
GPRS900	880.2	902.6	914.8
EGPRS900			

DCS1800	LCH	MCH	HCH
GPRS1800	1710.2	1747.4	1784.8
EGPRS1800			

VL	VN	VH	TL	TN	TH
Low voltage	Normal voltage	High voltage	Low temperature	Normal temperature	High temperature

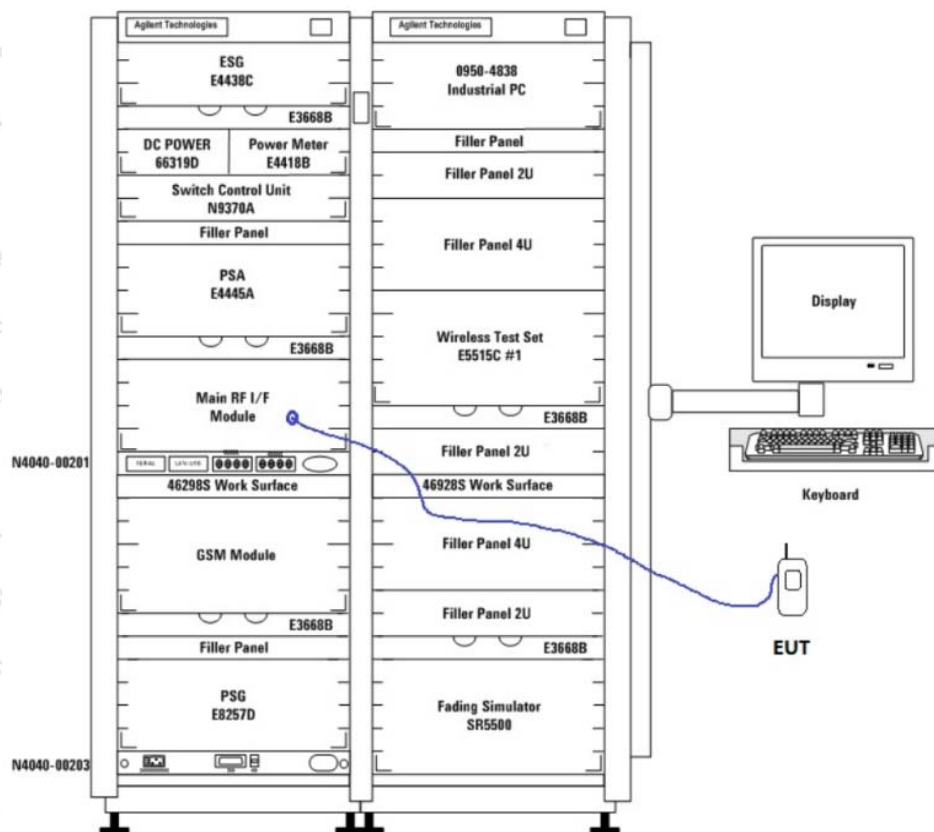
### 1.7 Measurement Uncertainty (95% confidence levels, k=2)

#### Maximum measurement uncertainty

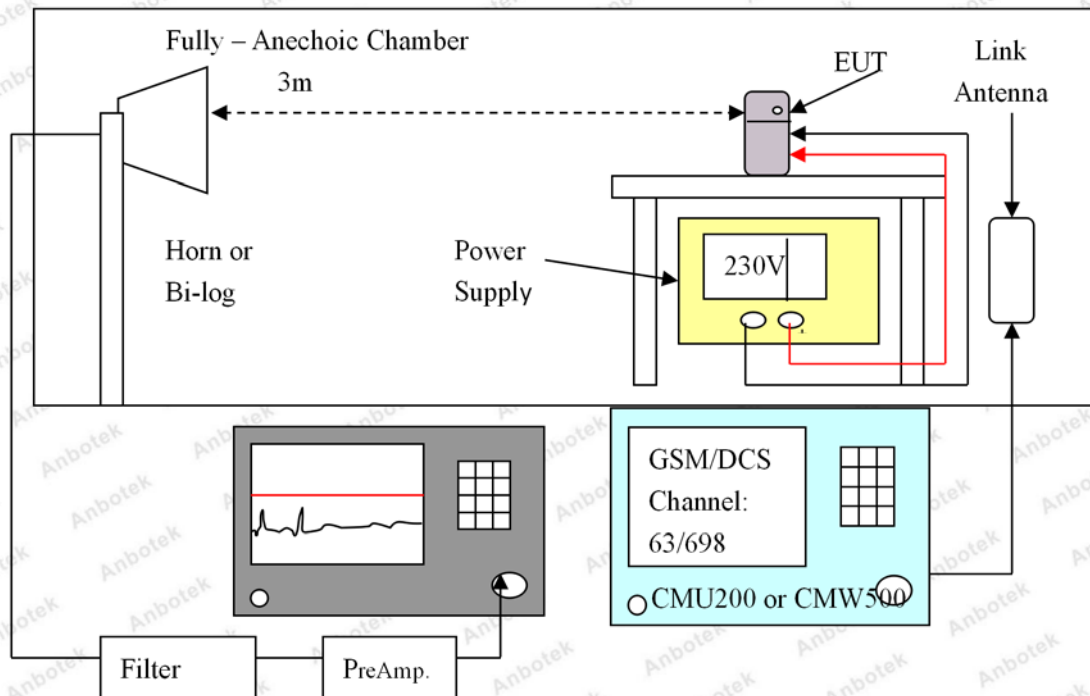
Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1,5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±1 °C
Humidity	±5 %
DC and low frequency voltages	±3 %
Time	±5 %
Duty Cycle	±5 %

## 1.8 Measurement and Test Setup

### 1.8.1 Conducted Test Setup



### 1.8.2 Radiated Test Setup




### 1.9 Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 05, 2018	1 Year
2.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 05, 2018	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 05, 2018	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 19, 2018	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
9.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 05, 2018	1 Year
10.	DC Power Supply	LW	TPR-6420D	374470	Oct. 31, 2018	1 Year
11.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 01, 2018	1 Year
12.	Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	117888	Nov. 05, 2018	1 Year
13.	Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	104209	Nov. 05, 2018	1 Year
14.	High-Pass Filter	CDKMV	ZHPF-BM1100-4000-0730	B2015094550	Nov. 08, 2018	1 Year
15.	High-Pass Filter	CDKMV	ZHPF-M3.5-18G-3834	1307006523	Nov. 05, 2018	1 Year
16.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063507	Nov. 05, 2018	1 Year
17.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063513	Nov. 05, 2018	1 Year

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## 2. Summary of Test Results

3GPP TS 51.010-1 Item	EN 301 511 Reference	TEST DESCRIPTION	GSM 900	DCS 1800
12.1.1	4.2.12	Conducted spurious emissions - MS allocated a channel	Pass	Pass
		Voltage High	Pass	Pass
		Voltage Low	Pass	Pass
12.1.2	4.2.13	Conducted spurious emissions - MS in idle mode	Pass	Pass
		Voltage High	Pass	Pass
		Voltage Low	Pass	Pass
12.2.1	4.2.16	Radiated spurious emissions - MS allocated a channel	Pass	Pass
		Voltage High	Pass	Pass
		Voltage Low	Pass	Pass
12.2.2	4.2.17	Radiated spurious emissions - MS in idle mode	Pass	Pass
		Voltage High	Pass	Pass
		Voltage Low	Pass	Pass
13.1	4.2.1	Transmitter – Frequency error and phase error	N/A	N/A
		Temperature High, Voltage High	N/A	N/A
		Temperature High, Voltage Low	N/A	N/A
		Temperature Low, Voltage High	N/A	N/A
		Temperature Low, Voltage Low	N/A	N/A
		Vibration (X axis)	N/A	N/A
		Vibration (Y axis)	N/A	N/A
13.2	4.2.2	Vibration (Z axis)	N/A	N/A
		Transmitter – Frequency error under multipath and interference conditions	N/A	N/A
		Temperature High, Voltage High	N/A	N/A
		Temperature High, Voltage Low	N/A	N/A
		Temperature Low, Voltage High	N/A	N/A
13.3.4.1	4.2.5	Temperature Low, Voltage Low	N/A	N/A
		Transmitter output power and burst timing - MS with external antenna	N/A	N/A
		Temperature High, Voltage High	N/A	N/A
		Temperature High, Voltage Low	N/A	N/A

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3GPP TS 51.010-1 Item	EN 301 511 Reference	TEST DESCRIPTION	GSM 900	DCS 1800
13.4	4.2.6	Temperature Low, Voltage High	N/A	N/A
		Temperature Low, Voltage Low	N/A	N/A
		Transmitter - Output RF spectrum	N/A	N/A
		Temperature High, Voltage High	N/A	N/A
		Temperature High, Voltage Low	N/A	N/A
		Temperature Low, Voltage High	N/A	N/A
		Temperature Low, Voltage Low	N/A	N/A
13.16.1	4.2.4	Frequency error and phase error in GPRS multislot configuration	Pass	Pass
		Temperature High, Voltage High	Pass	Pass
		Temperature High, Voltage Low	Pass	Pass
		Temperature Low, Voltage High	Pass	Pass
		Temperature Low, Voltage Low	Pass	Pass
		Vibration (X axis)	Pass	Pass
		Vibration (Y axis)	Pass	Pass
13.16.2-1	4.2.10	Vibration (Z axis)	Pass	Pass
		Transmitter output power in GPRS multislot configuration - MS with external antenna connector	Pass	Pass
		Temperature High, Voltage High	Pass	Pass
		Temperature High, Voltage Low	Pass	Pass
		Temperature Low, Voltage High	Pass	Pass
13.16.3	4.2.11	Temperature Low, Voltage Low	Pass	Pass
		Output RF spectrum in GPRS multislot configuration	Pass	Pass
		Temperature High, Voltage High	Pass	Pass
		Temperature High, Voltage Low	Pass	Pass
		Temperature Low, Voltage High	Pass	Pass
14.7.1	4.2.20	Temperature Low, Voltage Low	Pass	Pass
13.17.1	4.2.22	Receiver Blocking and spurious response - speech channels	Pass	Pass
13.17.2	4.2.23	Frequency error and Modulation accuracy in EGPRS Configuration	Pass	Pass
13.17.3	4.2.24	Frequency error under multipath and interference conditions in EGPRS Configuration	Pass	Pass
13.17.4	4.2.25	EGPRS Transmitter output power	Pass	Pass
		Output RF spectrum in EGPRS	Pass	Pass

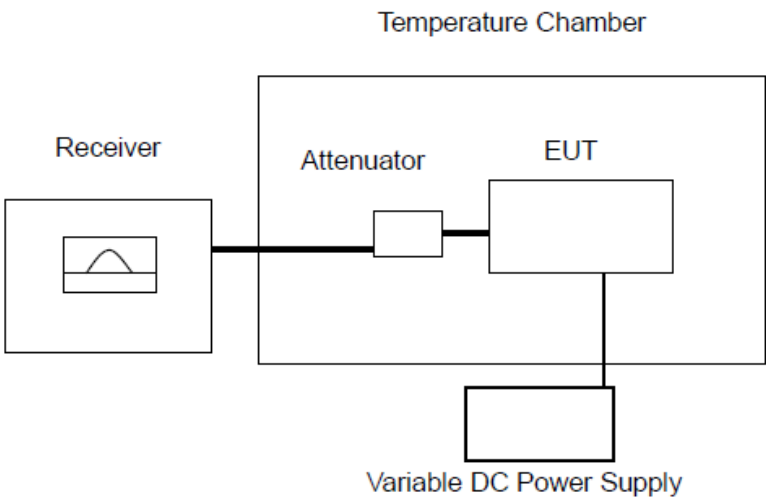
3GPP TS 51.010-1 Item	EN 301 511 Reference	TEST DESCRIPTION	GSM 900	DCS 1800
		configuration		
14.18.5	4.2.26	Blocking and spurious response in EGPRS configuration	Pass	Pass

3. Frequency Error and Phase Error in GPRS Multislot Configuration

3.1. Test Limit

- 1. For all measured bursts, the frequency error, derived in step c.6), shall be less than 10E-7
- 2. For all measured bursts, the RMS phase error, derived in step c.8), shall not exceed 5 degrees.
- 3.For all measured bursts, each individual phase error, derived in step c.7), shall not exceed 20 degrees

3.2. Test Setup



3.3. Test Procedure

- 1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.1.2 for the test conditions.
- 2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.1.3 for the measurement method.

3.4. Test Result

Temperature:	25°C	Relative Humidity:	63 %
Pressure:	1012 hPa	Test Voltage:	AC 230V, 50Hz for adapter

**MS under maximum power control level (5)**

GSM 900	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
LCH (880.2MHz)	NT/NV	13	88	PASS	RMS	0.8	5	PASS
					Peak	1.4	20	PASS
	TL/VL	11	88	PASS	RMS	0.8	5	PASS
					Peak	2.0	20	PASS
	TL/VH	13	88	PASS	RMS	0.8	5	PASS
					Peak	1.4	20	PASS
	TH/VL	13	88	PASS	RMS	1.2	5	PASS
					Peak	1.6	20	PASS
	TH/VH	12	88	PASS	RMS	0.3	5	PASS
					Peak	1.8	20	PASS
	Vibration	14	88	PASS	RMS	1.0	5	PASS
					Peak	1.5	20	PASS

**MS under maximum power control level (19)**

GSM 900	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
LCH (880.2MHz)	NT/NV	12	88	PASS	RMS	1.1	5	PASS
					Peak	2.1	20	PASS
	TL/VL	11	88	PASS	RMS	0.5	5	PASS
					Peak	2.1	20	PASS
	TL/VH	13	88	PASS	RMS	0.7	5	PASS
					Peak	2.1	20	PASS
	TH/VL	14	88	PASS	RMS	0.5	5	PASS

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					Peak	1.2	20	PASS
	TH/VH	12	88	PASS	RMS	0.7	5	PASS
					Peak	1.4	20	PASS
	Vibration	10	88	PASS	RMS	0.9	5	PASS
					Peak	1.4	20	PASS

**MS under maximum power control level (5)**

GSM 900	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
MCH (902.6MHz)	NT/NV	13	90.3	PASS	RMS	1.0	5	PASS
					Peak	1.2	20	PASS
	TL/VL	12	90.3	PASS	RMS	0.4	5	PASS
					Peak	1.5	20	PASS
	TL/VH	14	90.3	PASS	RMS	0.7	5	PASS
					Peak	2.0	20	PASS
	TH/VL	12	90.3	PASS	RMS	0.9	5	PASS
					Peak	1.7	20	PASS
	TH/VH	11	90.3	PASS	RMS	0.6	5	PASS
					Peak	1.5	20	PASS
	Vibration	12	90.3	PASS	RMS	0.4	5	PASS
					Peak	2.3	20	PASS

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**MS under maximum power control level (19)**

GSM 900	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
MCH (902.6MHz)	NT/NV	13	90.3	PASS	RMS	0.3	5	PASS
					Peak	1.6	20	PASS
	TL/VL	14	90.3	PASS	RMS	0.6	5	PASS
					Peak	1.7	20	PASS
	TL/VH	13	90.3	PASS	RMS	0.7	5	PASS
					Peak	1.4	20	PASS
	TH/VL	13	90.3	PASS	RMS	1.1	5	PASS
					Peak	1.4	20	PASS
	TH/VH	12	90.3	PASS	RMS	0.8	5	PASS
					Peak	1.2	20	PASS
	Vibration	11	90.3	PASS	RMS	0.5	5	PASS
					Peak	1.7	20	PASS

**MS under maximum power control level (5)**

GSM 900	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
HCH (914.8MHz)	NT/NV	11	91.5	PASS	RMS	0.6	5	PASS
					Peak	1.8	20	PASS
	TL/VL	12	91.5	PASS	RMS	0.1	5	PASS
					Peak	1.4	20	PASS
	TL/VH	12	91.5	PASS	RMS	0.9	5	PASS
					Peak	1.3	20	PASS
	TH/VL	12	91.5	PASS	RMS	0.6	5	PASS
					Peak	1.3	20	PASS

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	TH/VH	11	91.5	PASS	Peak	2.2	20	PASS
					RMS	0.9	5	PASS
					Peak	1.6	20	PASS
	Vibration	12	91.5	PASS	RMS	0.2	5	PASS
					Peak	1.9	20	PASS

## MS under maximum power control level (19)

GSM 900	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
HCH (914.8MHz)	NT/NV	13	91.5	PASS	RMS	0.6	5	PASS
					Peak	1.8	20	PASS
	TL/VL	11	91.5	PASS	RMS	0.6	5	PASS
					Peak	1.9	20	PASS
	TL/VH	10	91.5	PASS	RMS	0.5	5	PASS
					Peak	1.5	20	PASS
	TH/VL	11	91.5	PASS	RMS	1.0	5	PASS
					Peak	1.2	20	PASS
	TH/VH	10	91.5	PASS	RMS	0.2	5	PASS
					Peak	1.9	20	PASS
	Vibration	13	91.5	PASS	RMS	0.4	5	PASS
					Peak	1.4	20	PASS

## MS under maximum power control level (0)

DCS1800	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
LCH (1710.2MHz)	NT/NV	0	171	PASS	RMS	0.6	5	PASS
					Peak	1.9	20	PASS

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	TL/VL	-2	171	PASS	RMS	0.7	5	PASS
					Peak	2.1	20	PASS
	TL/VH	-2	171	PASS	RMS	1.1	5	PASS
					Peak	2.1	20	PASS
	TH/VL	-1	171	PASS	RMS	0.9	5	PASS
					Peak	2.3	20	PASS
	TH/VH	-1	171	PASS	RMS	1.1	5	PASS
					Peak	1.7	20	PASS
	Vibration	2	171	PASS	RMS	1.2	5	PASS
					Peak	7.6	20	PASS

## MS under maximum power control level (15)

DCS1800	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
LCH (1710.2MHz)	NT/NV	0	171	PASS	RMS	0.7	5	PASS
					Peak	2.0	20	PASS
	TL/VL	-1	171	PASS	RMS	0.9	5	PASS
					Peak	1.9	20	PASS
	TL/VH	-2	171	PASS	RMS	0.3	5	PASS
					Peak	1.4	20	PASS
	TH/VL	0	171	PASS	RMS	1.3	5	PASS
					Peak	2.0	20	PASS
	TH/VH	1	171	PASS	RMS	0.8	5	PASS
					Peak	1.5	20	PASS
	Vibration	-1	171	PASS	RMS	0.7	5	PASS

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					Peak	1.4	20	PASS
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**MS under maximum power control level (0)**


DCS1800	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
MCH (1747.4MHz)	NT/NV	-1	174.7	PASS	RMS	0.8	5	PASS
					Peak	1.6	20	PASS
	TL/VL	-2	174.7	PASS	RMS	1.3	5	PASS
					Peak	2.5	20	PASS
	TL/VH	0	174.7	PASS	RMS	0.5	5	PASS
					Peak	1.5	20	PASS
	TH/VL	-1	174.7	PASS	RMS	0.5	5	PASS
					Peak	1.8	20	PASS
	TH/VH	1	174.7	PASS	RMS	0.5	5	PASS
					Peak	2.0	20	PASS
	Vibration	1	174.7	PASS	RMS	0.6	5	PASS
					Peak	1.7	20	PASS

**MS under maximum power control level (15)**

DCS1800	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
MCH (1747.4MHz)	NT/NV	5	174.7	PASS	RMS	0.5	5	PASS
					Peak	2.2	20	PASS
	TL/VL	-2	174.7	PASS	RMS	1.1	5	PASS
					Peak	2.0	20	PASS
	TL/VH	2	174.7	PASS	RMS	0.4	5	PASS

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	TH/VL	5	174.7	PASS	Peak	1.7	20	PASS
					RMS	0.4	5	PASS
					Peak	2.3	20	PASS
	TH/VH	5	174.7	PASS	RMS	0.8	5	PASS
					Peak	2.0	20	PASS
	Vibration	3	174.7	PASS	RMS	0.6	5	PASS
					Peak	2.5	20	PASS

**MS under maximum power control level (0)**

DCS1800	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
HCH (1784.8MHz)	NT/NV	5	178.5	PASS	RMS	1.4	5	PASS
					Peak	1.7	20	PASS
	TL/VL	1	178.5	PASS	RMS	0.6	5	PASS
					Peak	1.9	20	PASS
	TL/VH	4	178.5	PASS	RMS	1.0	5	PASS
					Peak	2.2	20	PASS
	TH/VL	5	178.5	PASS	RMS	0.6	5	PASS
					Peak	2.5	20	PASS
	TH/VH	4	178.5	PASS	RMS	1.0	5	PASS
					Peak	2.3	20	PASS
	Vibration	7	178.5	PASS	RMS	1.3	5	PASS
					Peak	2.5	20	PASS

**MS under maximum power control level (15)**

DCS1800	Test Condition	Frequency Error (Hz)	Limit (Hz)	Result	Phase Error (deg)		Limit (deg)	Result
HCH (1784.8MHz)	NT/NV	8	178.5	PASS	RMS	0.6	5	PASS
					Peak	2.5	20	PASS
	TL/VL	7	178.5	PASS	RMS	0.9	5	PASS
					Peak	2.4	20	PASS
	TL/VH	7	178.5	PASS	RMS	1.3	5	PASS
					Peak	1.6	20	PASS
	TH/VL	6	178.5	PASS	RMS	0.8	5	PASS
					Peak	2.2	20	PASS
	TH/VH	5	178.5	PASS	RMS	0.8	5	PASS
					Peak	2.4	20	PASS
	Vibration	6	178.5	PASS	RMS	0.6	5	PASS
					Peak	1.6	20	PASS

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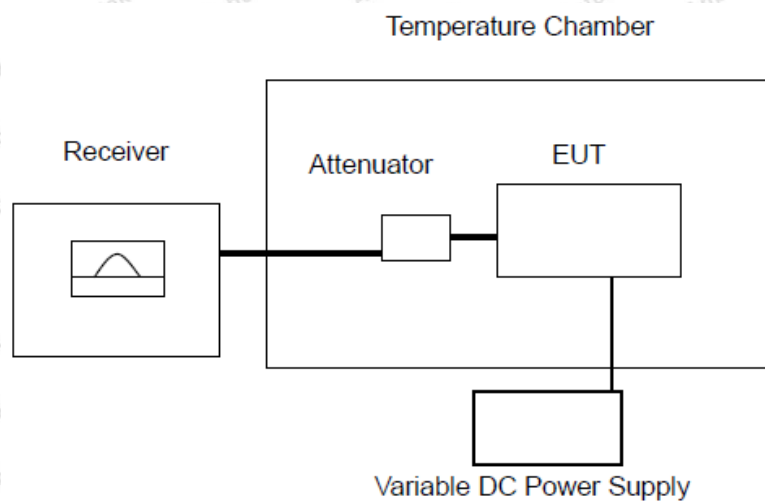
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## 4. Transmitter Output Power in GPRS Multislot Configuration

### 4.1. Test Limit

Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.2.5

### 4.2. Test Setup



### 4.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.2.4 for the measurement method..

### 4.4. Test Result

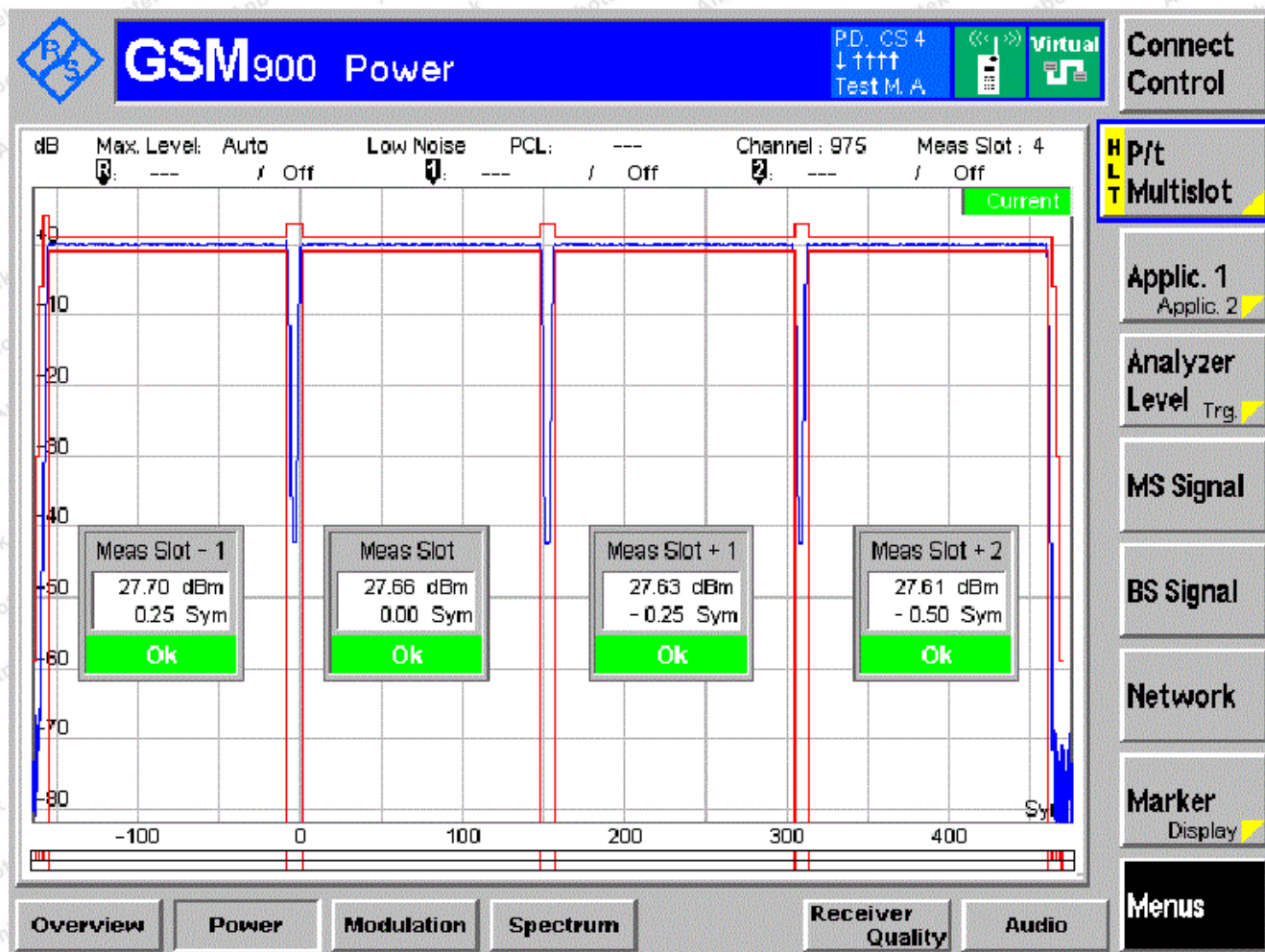
Temperature:	25°C	Relative Humidity:	63 %
Pressure:	1012 hPa	Test Voltage:	AC 230V, 50Hz for adapter

Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
GSM900		LCH	MCH	HCH	Result
TN/VN	5	27.76	27.64	28.02	PASS
	12	16.70	16.78	17.02	PASS
	19	3.94	3.42	4.42	PASS

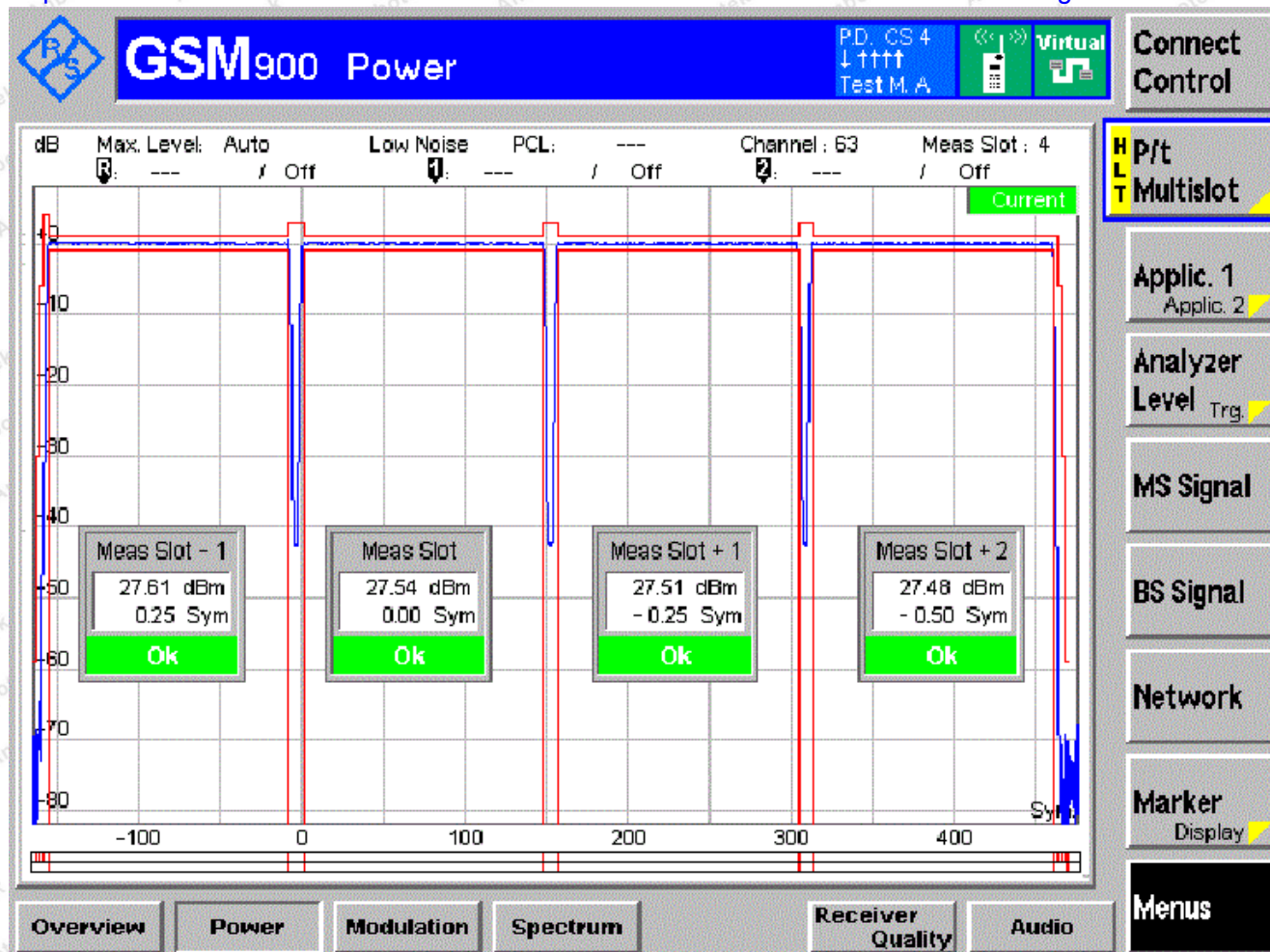
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
DCS1800		LCH	MCH	HCH	Result
TN/VN	0	25.64	24.92	24.69	PASS
	8	12.77	12.14	11.80	PASS
	15	-0.80	-1.36	-1.42	PASS

a) GSM 900 TN/VN

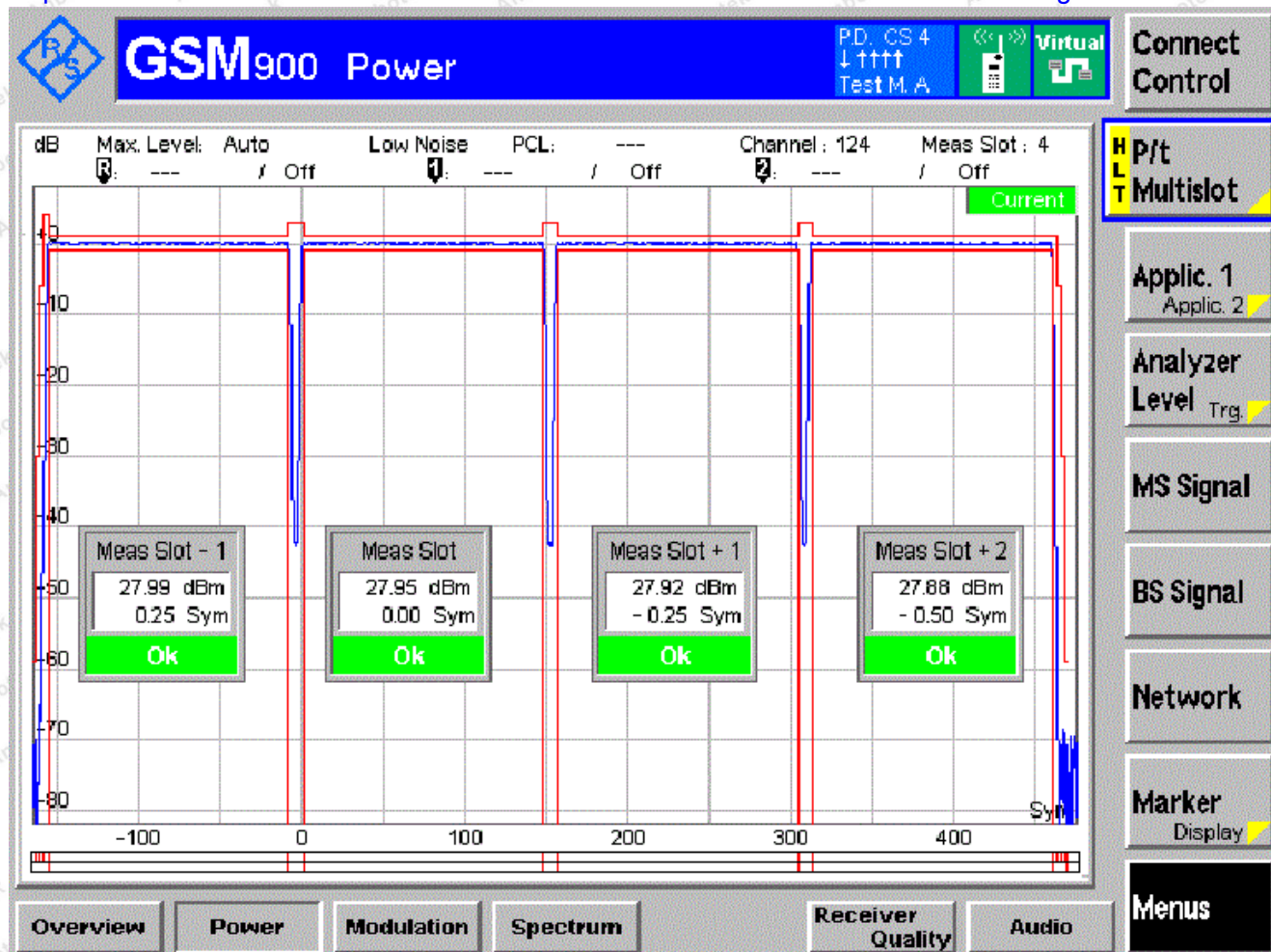
Channel LCH PCL 5



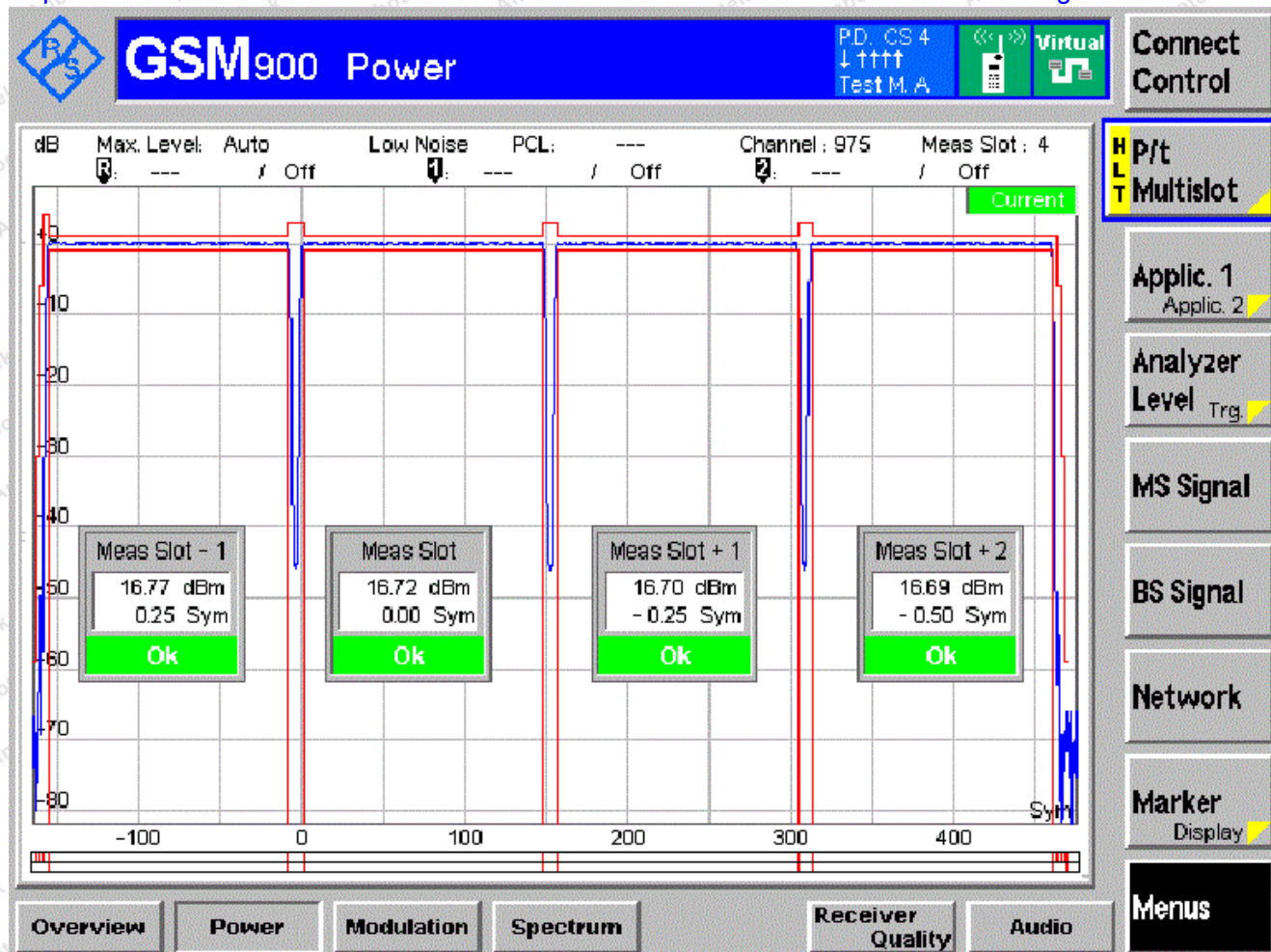
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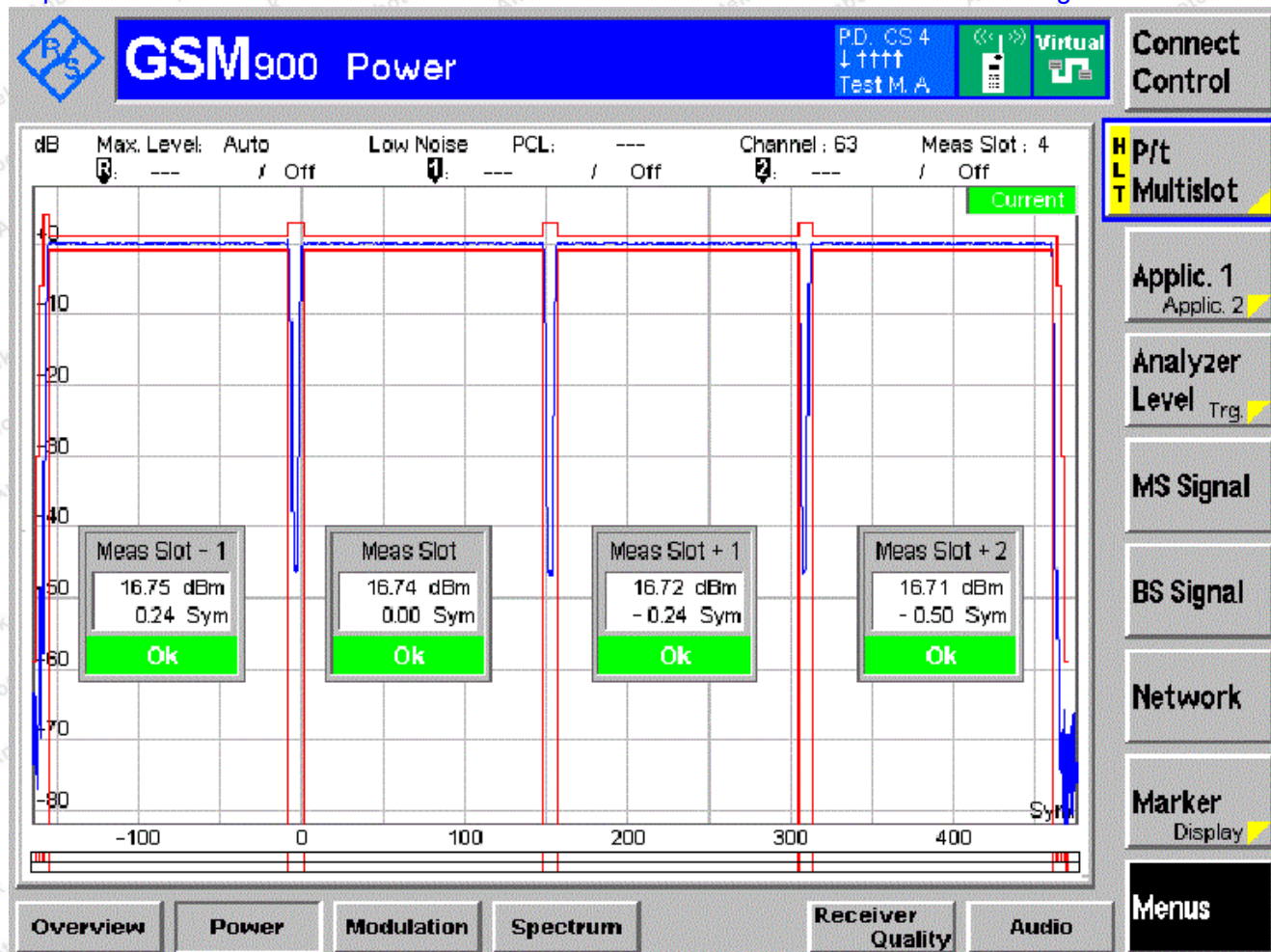


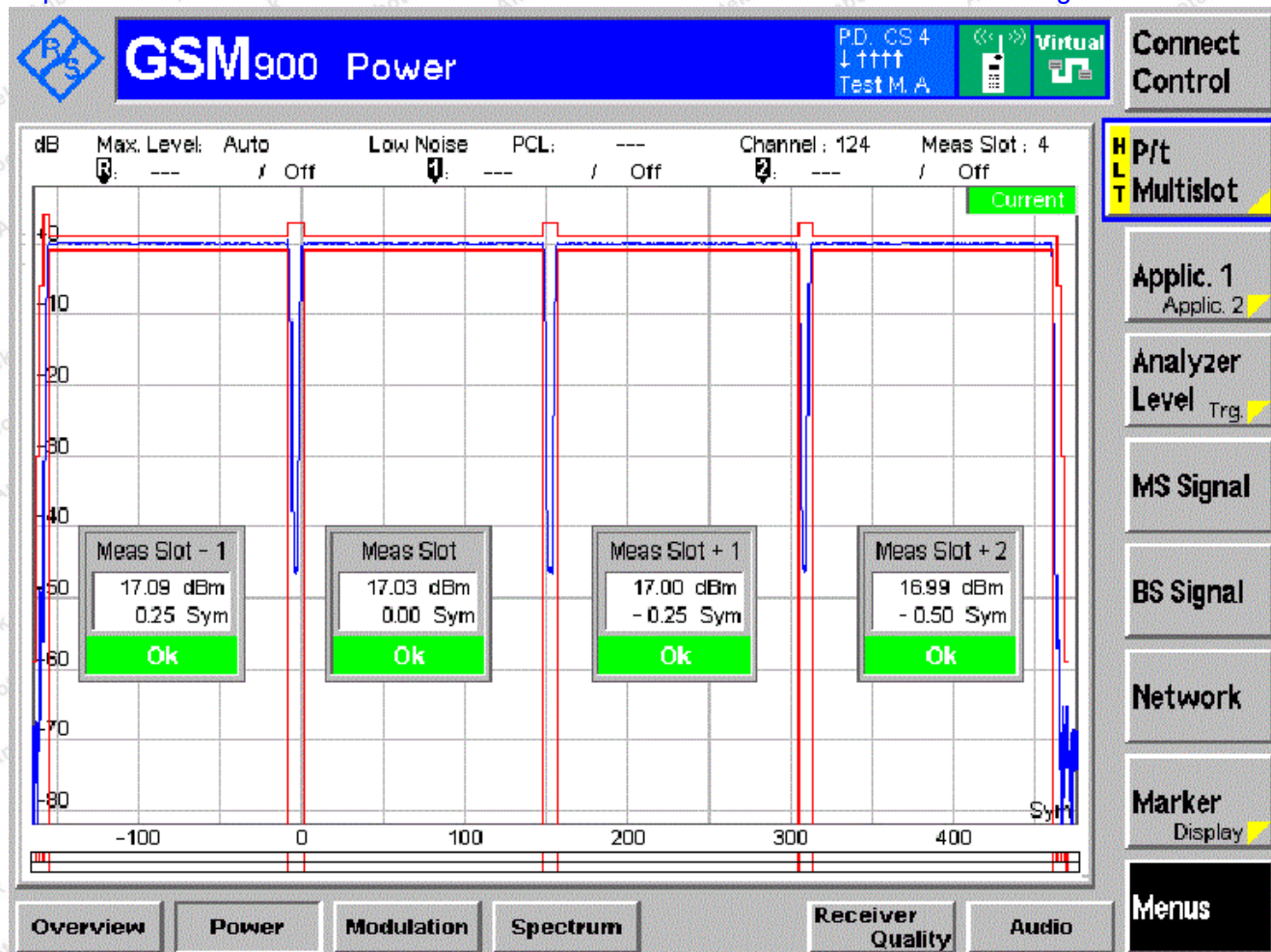
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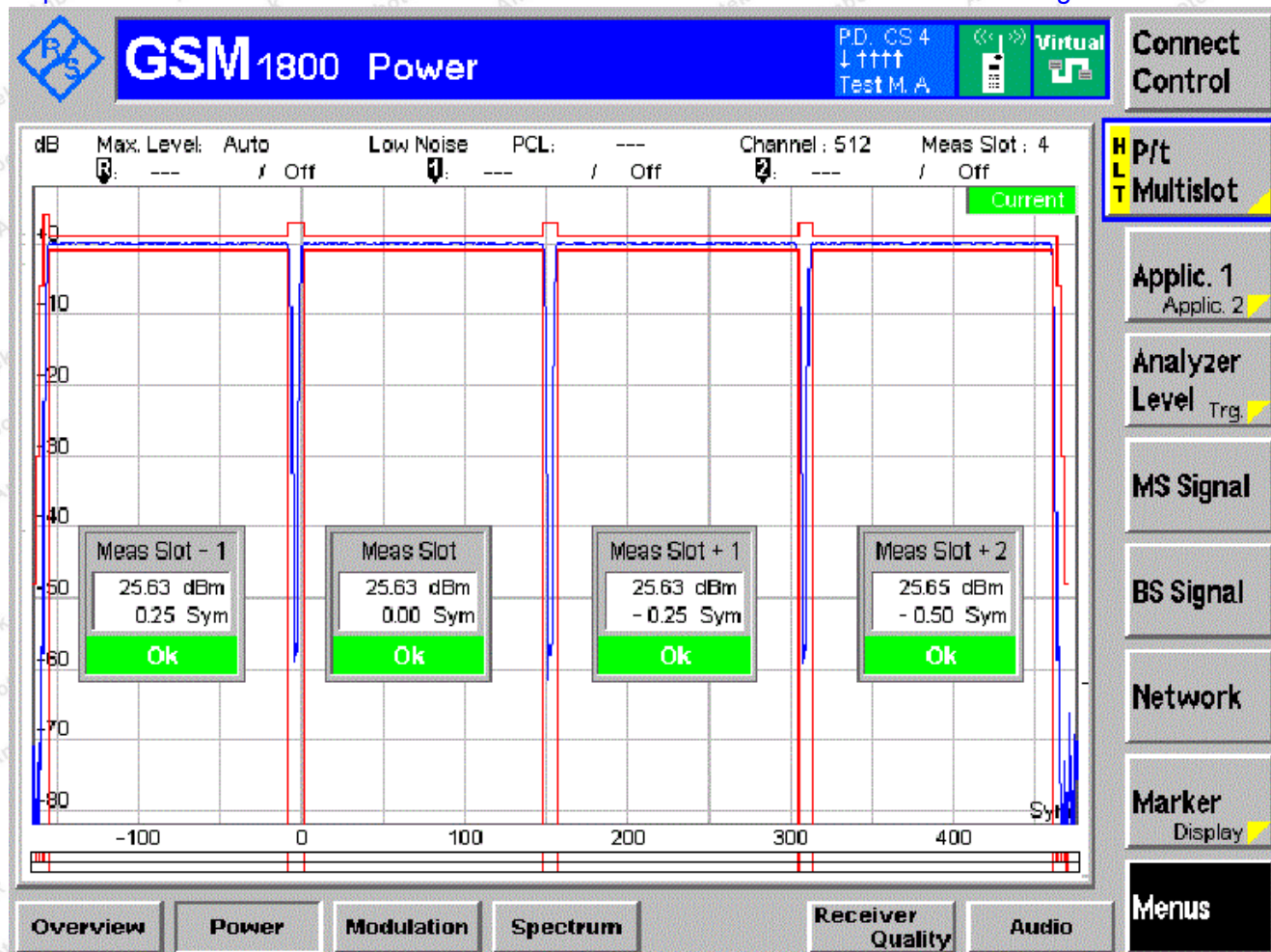
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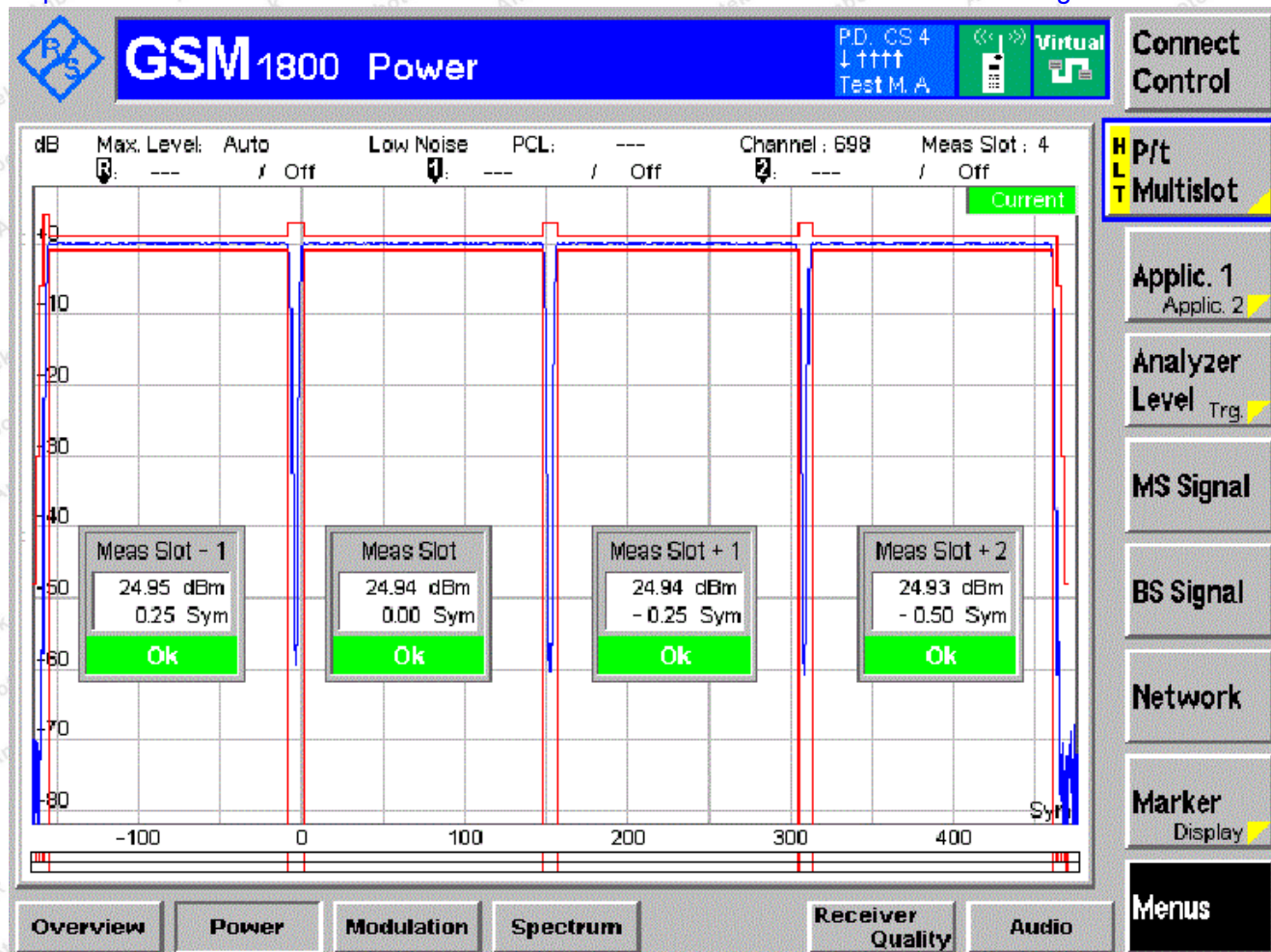




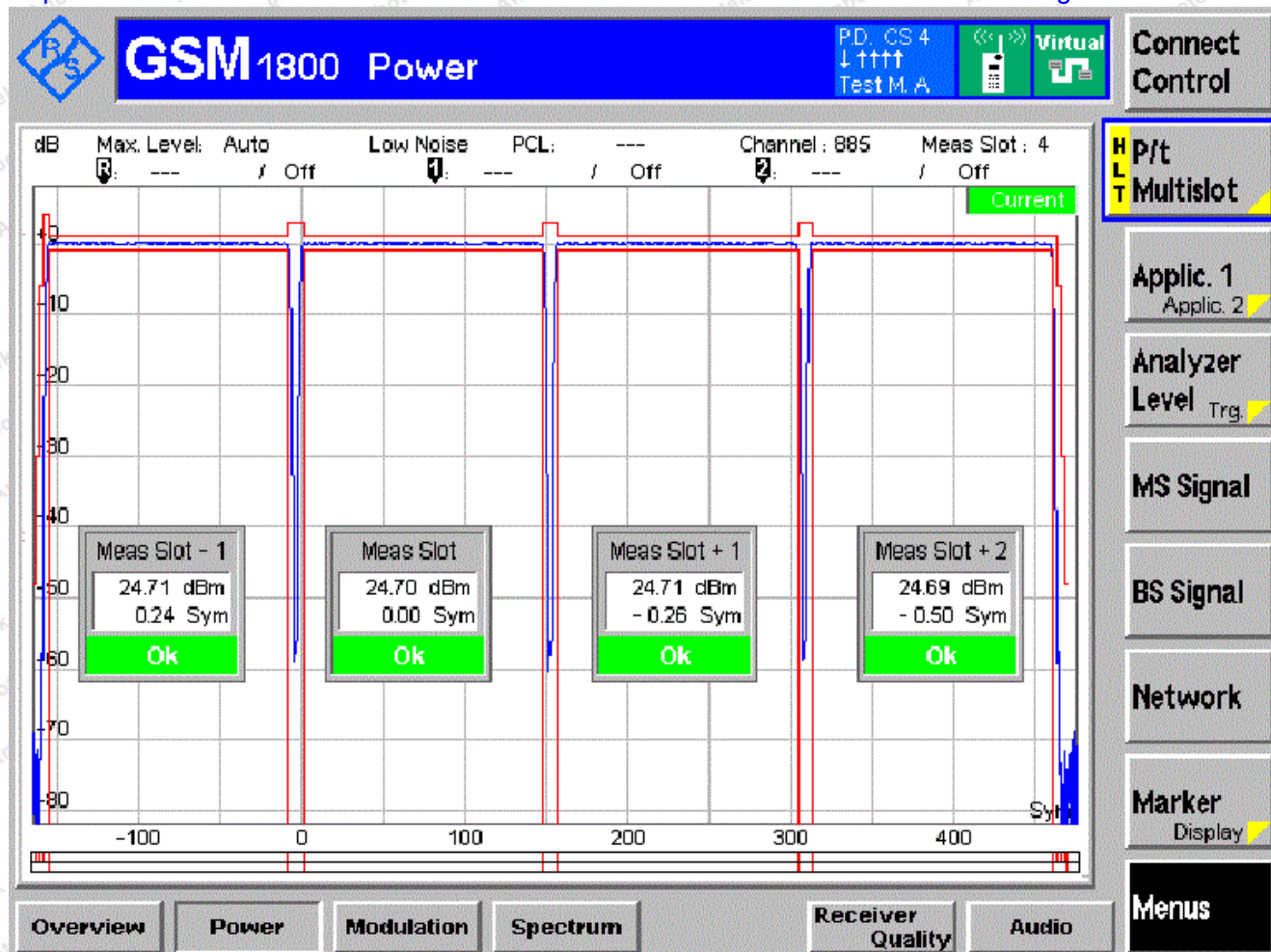
b) DCS1800 TN/VN  
Channel LCH PCL 0

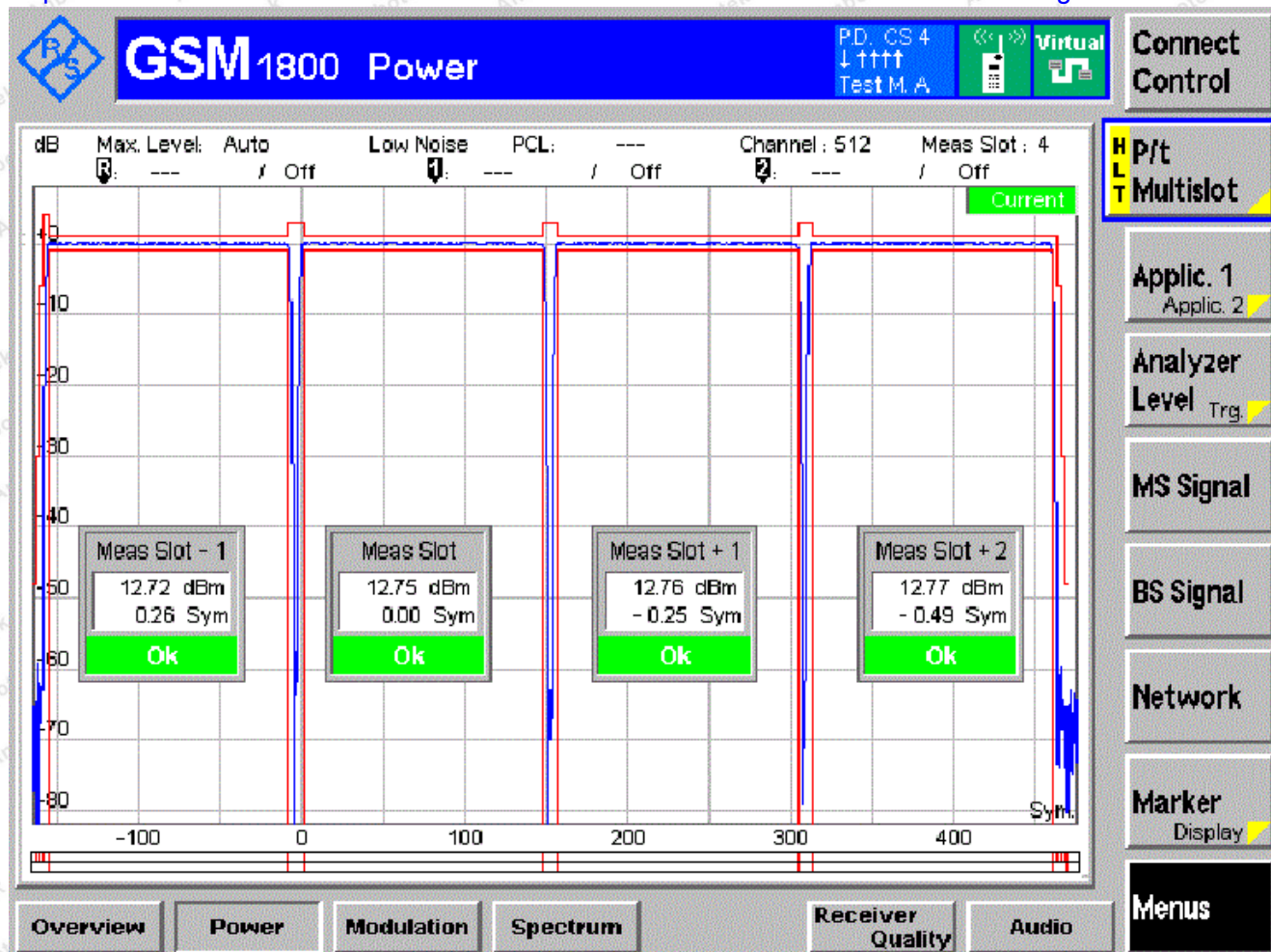


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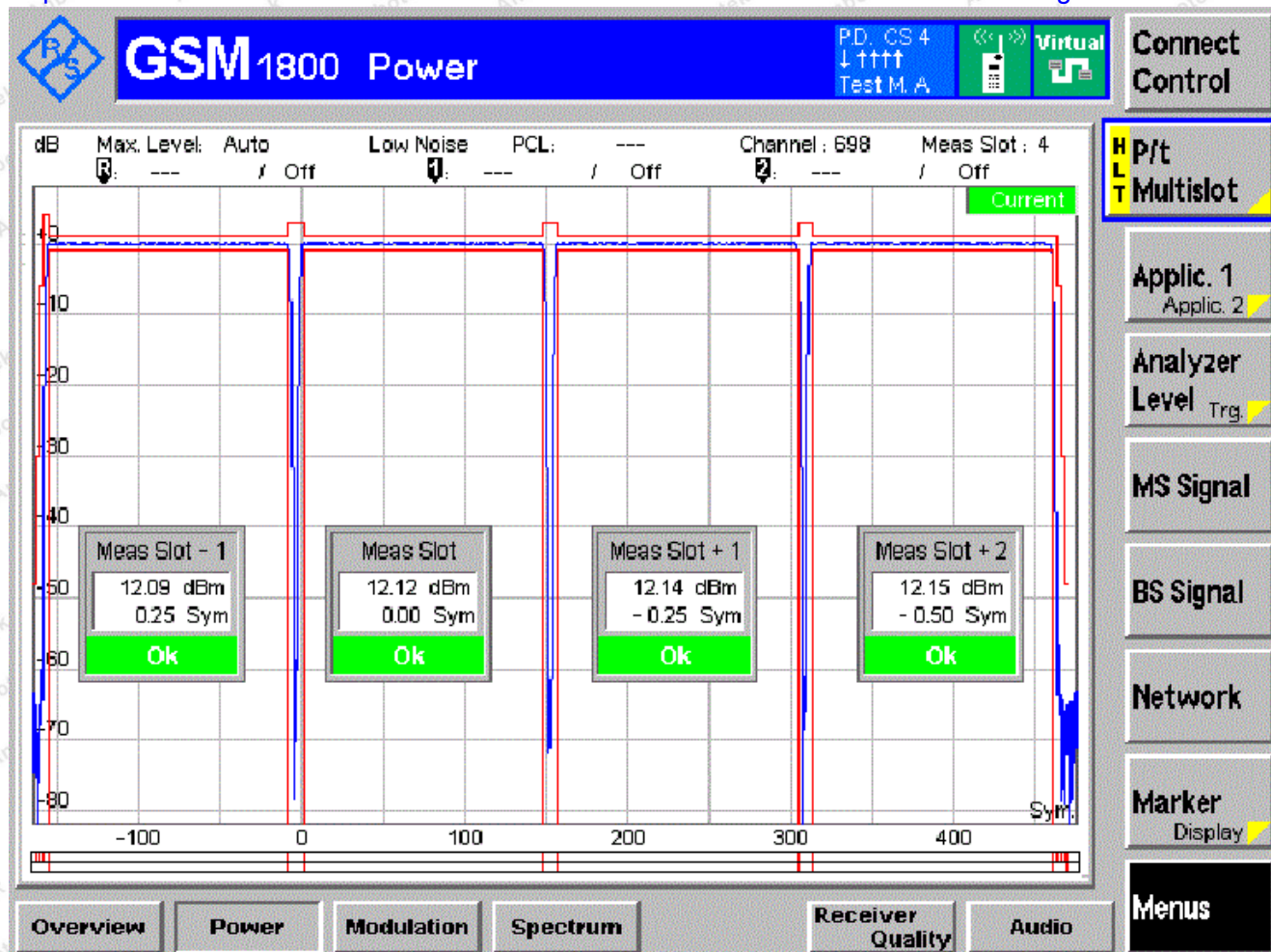


Channel HCH PCL 0

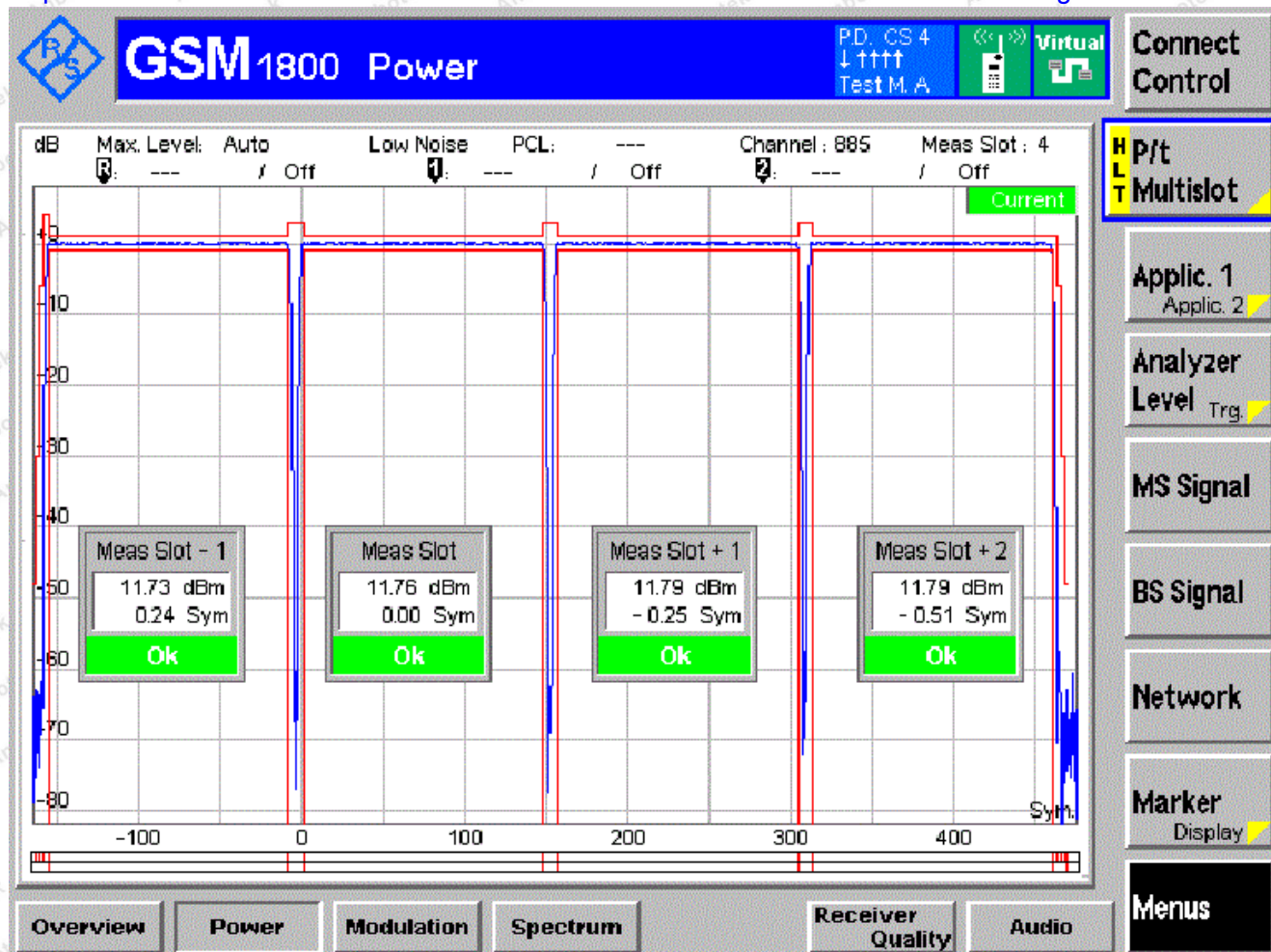




Channel MCH PCL 8



Channel HCH PCL 8

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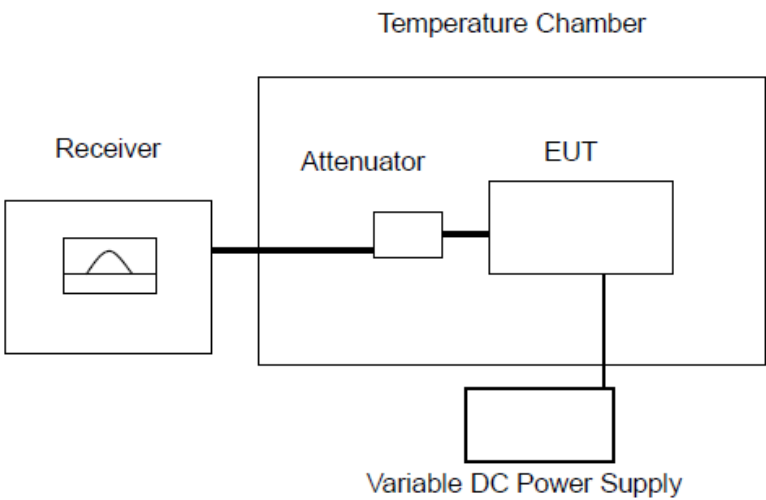
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5. Output RF Spectrum in GPRS Multislot Configuration

5.1. Test Limit

Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.3.5

5.2. Test Setup



5.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.3.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.16.3.4 for the measurement method.

5.4. Test Result


Temperature:	25°C	Relative Humidity:	63 %
Pressure:	1012 hPa	Test Voltage:	AC 230V, 50Hz for adapter

Modulation& switch Spectrum	Power level	Result		
		Traffic Channels		
GSM900		LCH	MCH	HCH
TN/VN	5	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	19	PASS	PASS	PASS
TL/VL	5	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	19	PASS	PASS	PASS
TL/VH	5	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	19	PASS	PASS	PASS
TH/VL	5	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	19	PASS	PASS	PASS
TH/VH	5	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	19	PASS	PASS	PASS

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Modulation& switch Spectrum	Power level	Result		
		Traffic Channels		
DCS1800		LCH	MCH	HCH
TN/VN	0	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	15	PASS	PASS	PASS
TL/VL	0	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	15	PASS	PASS	PASS
TL/VH	0	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	15	PASS	PASS	PASS
TH/VL	0	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	15	PASS	PASS	PASS
TH/VH	0	PASS	PASS	PASS
	7	PASS	PASS	PASS
	11	PASS	PASS	PASS
	15	PASS	PASS	PASS

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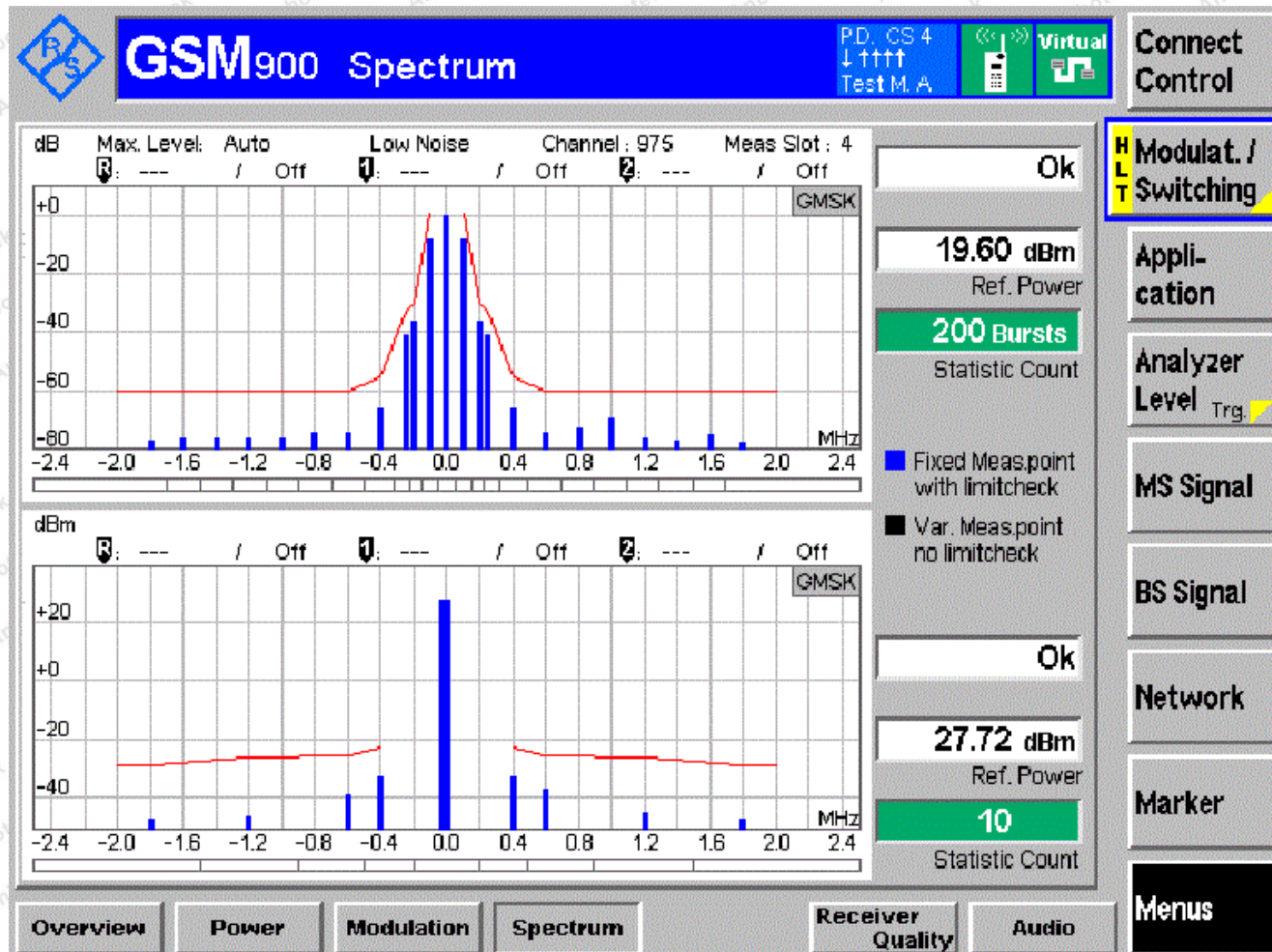
Report No.: SZAWW190402002-04W

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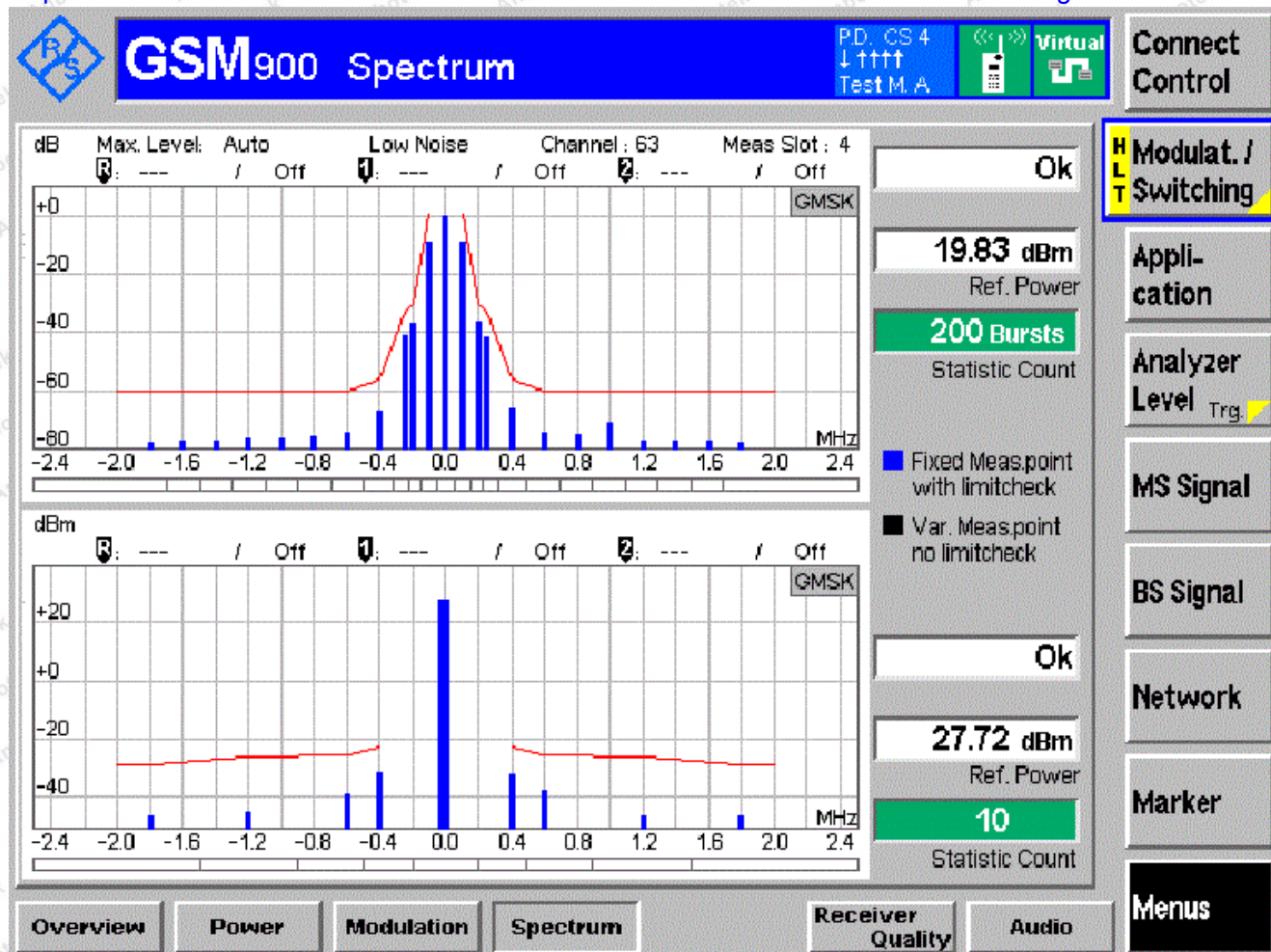
Graphs of output RF spectrum in GPRS multislot configuration

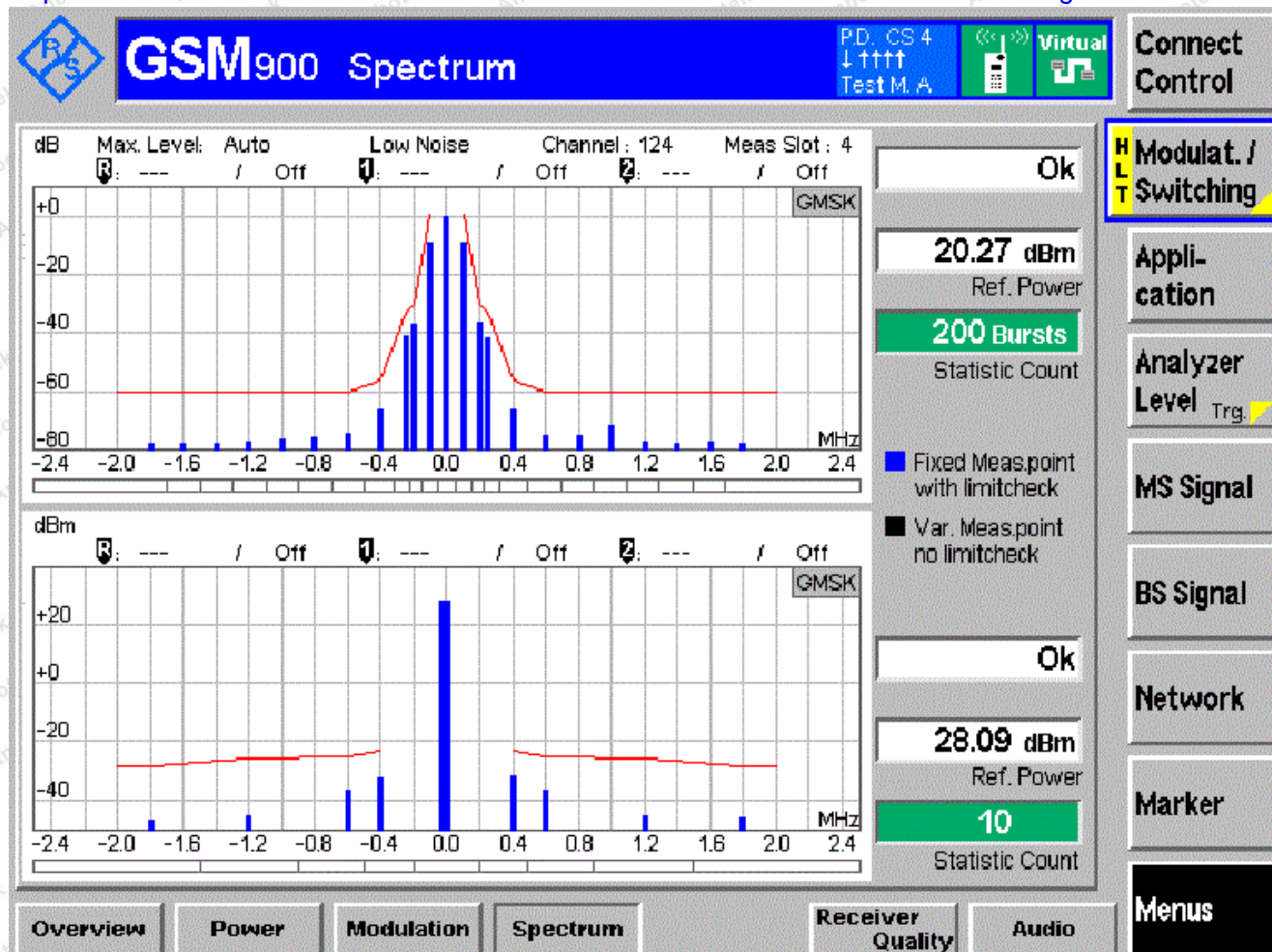
a) GSM 900 TN/VN

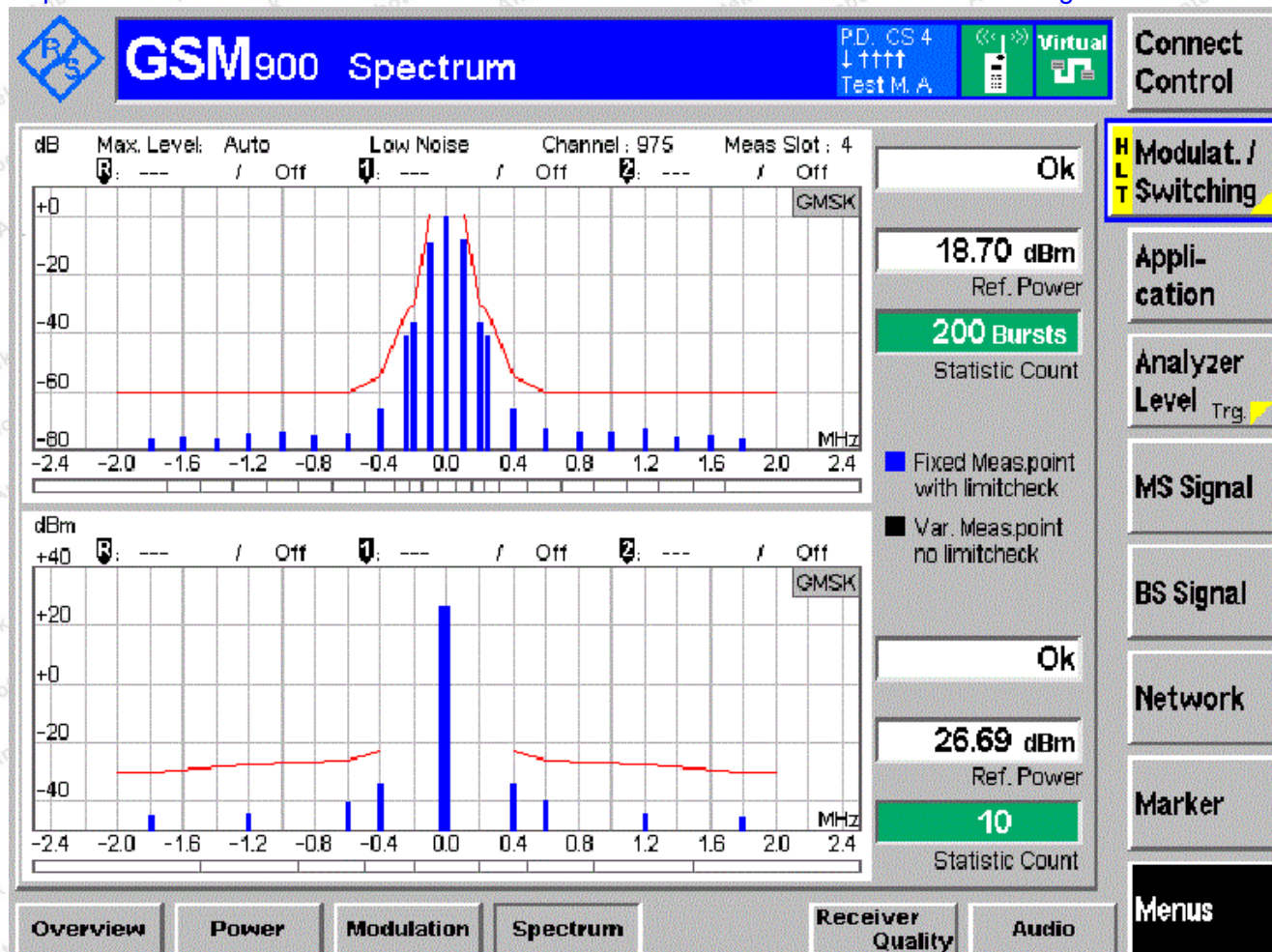
Channel LCH PCL 5

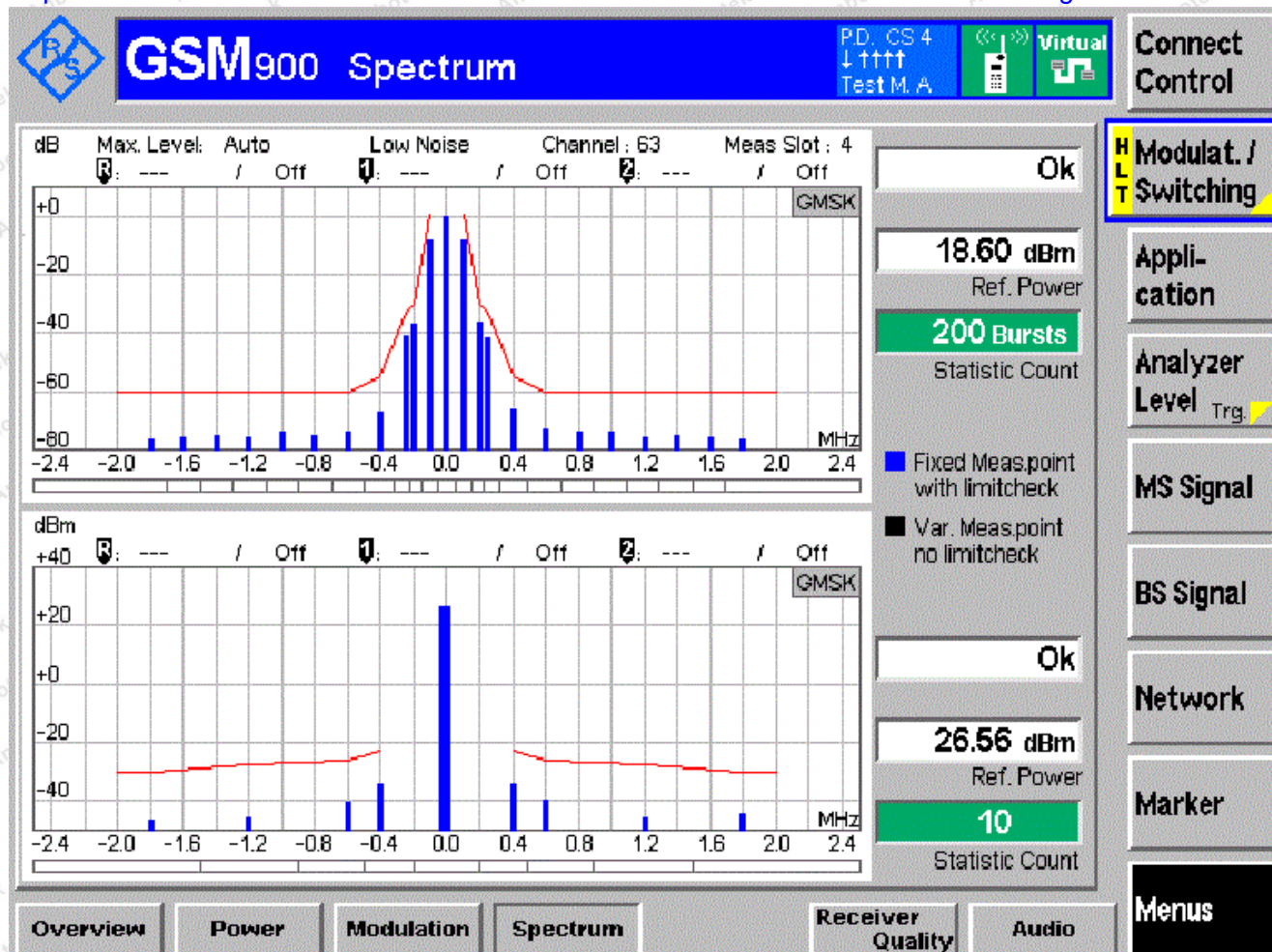


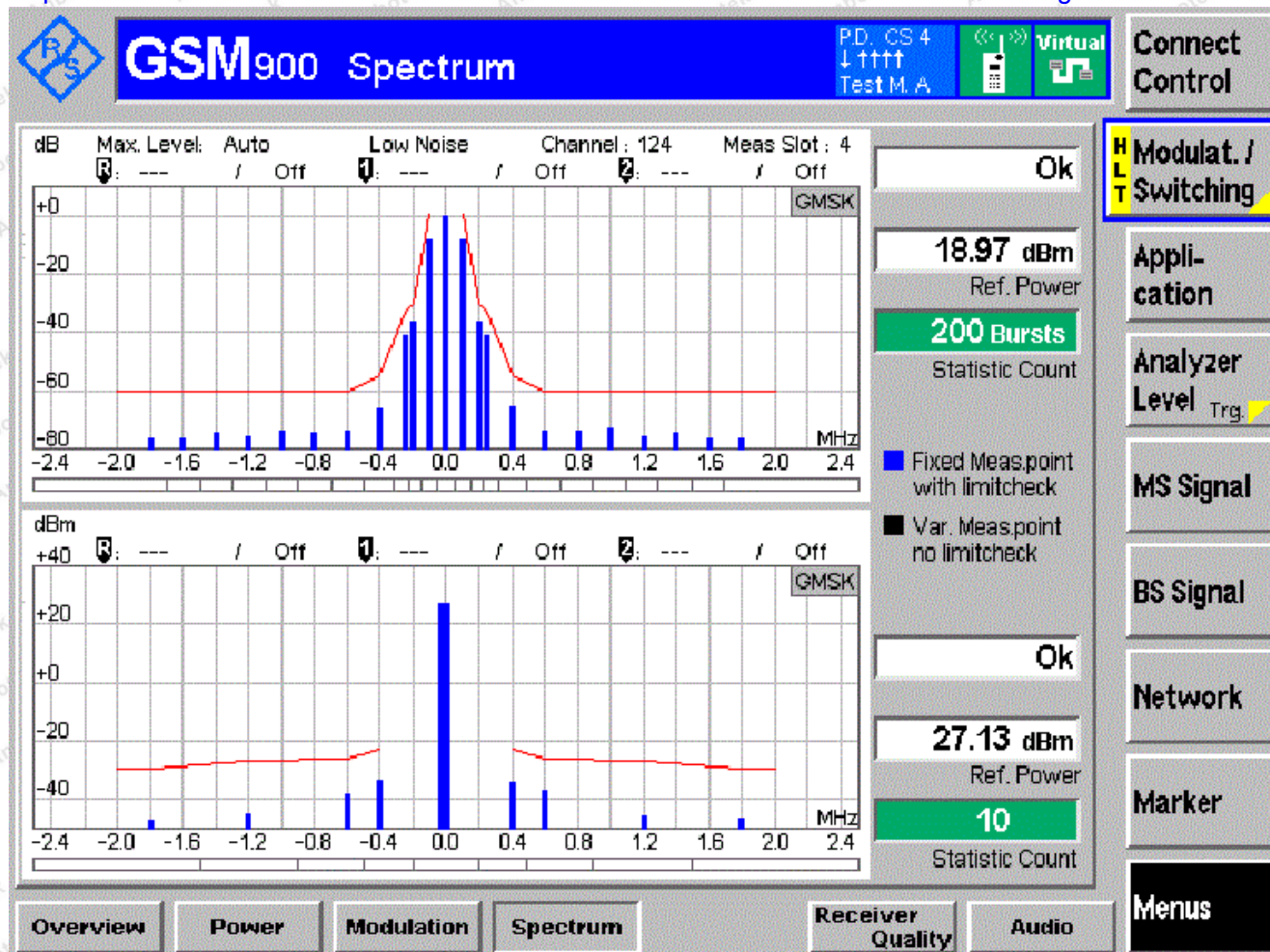
Channel MCH PCL 5



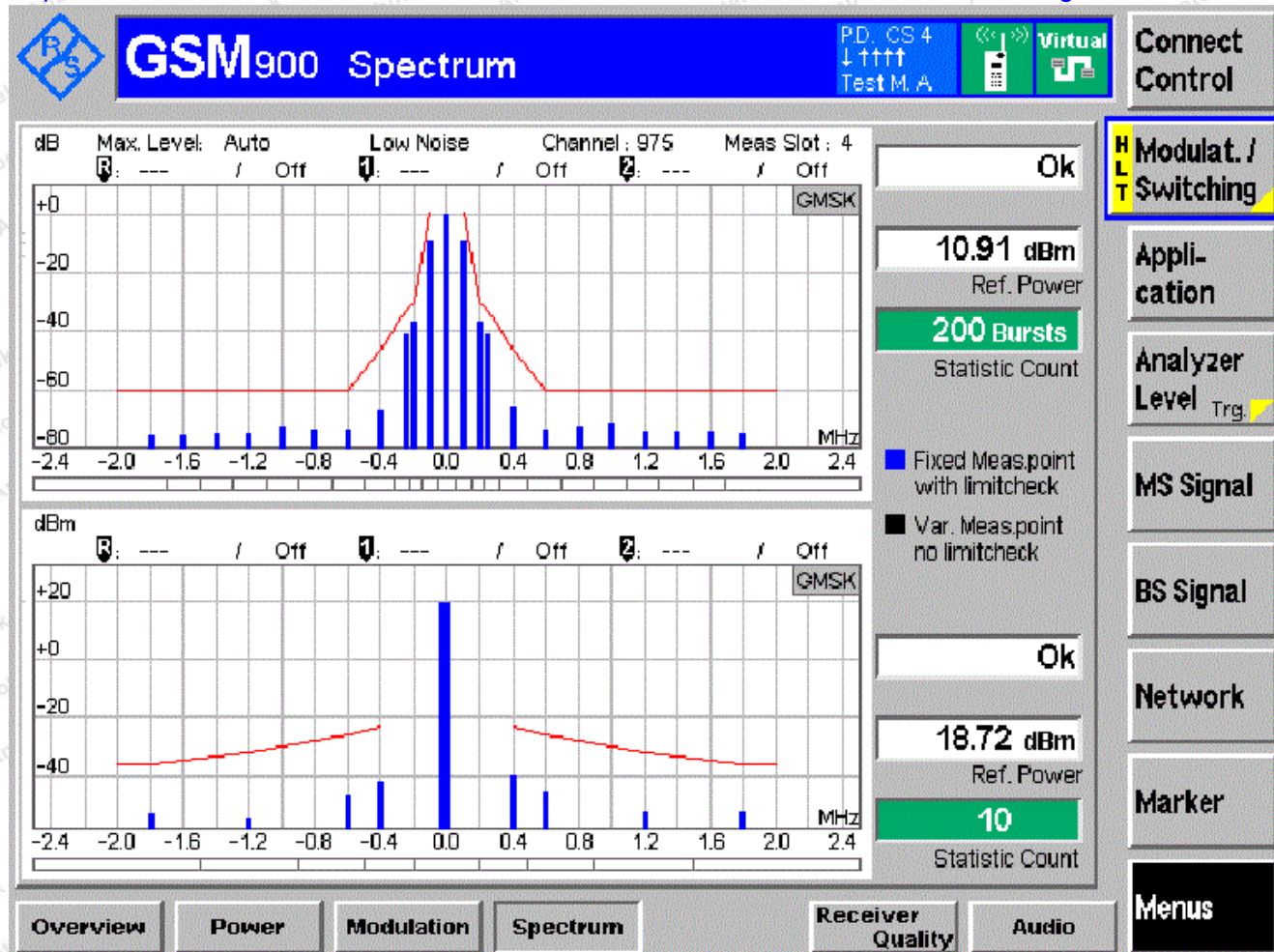


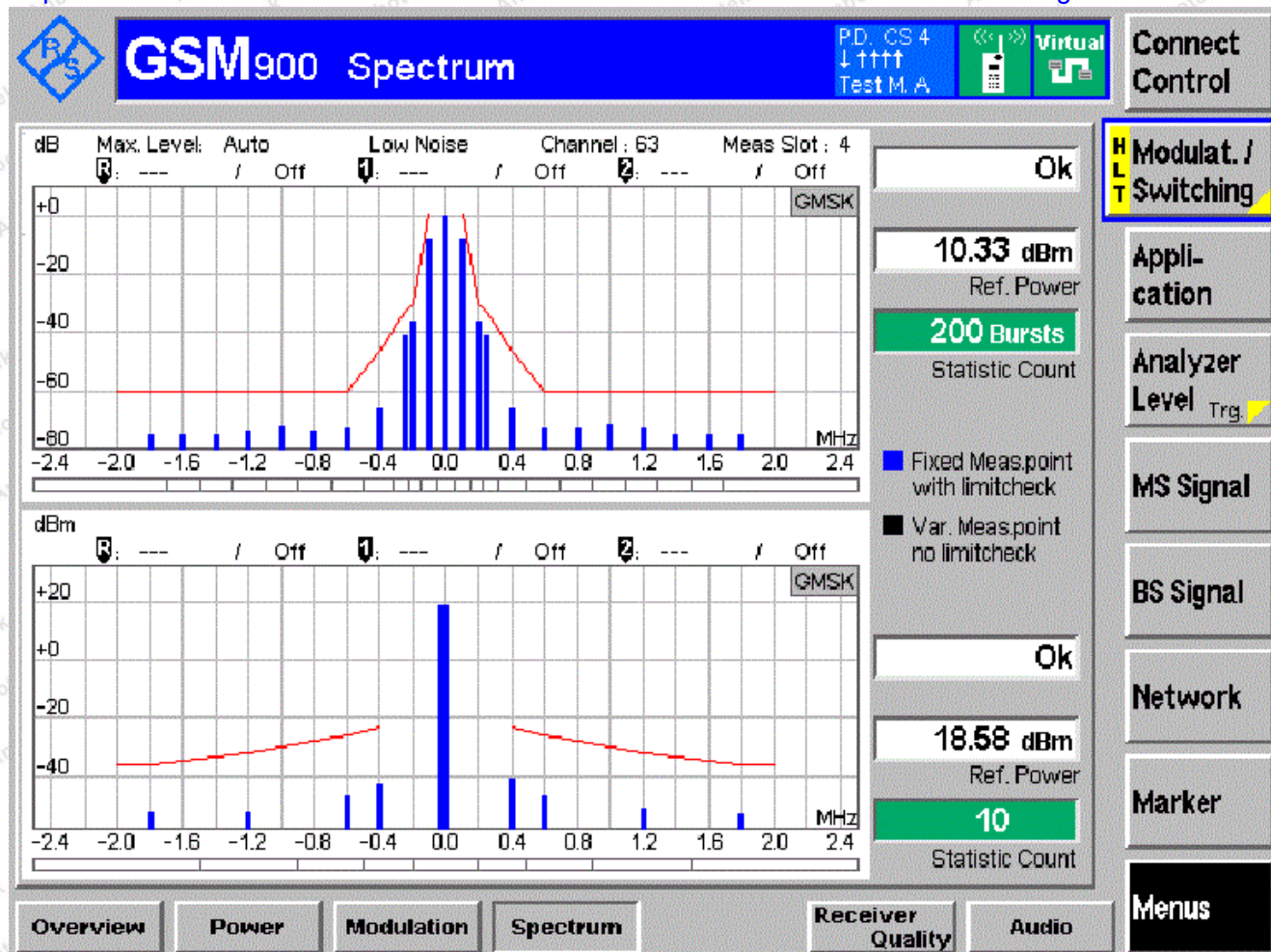


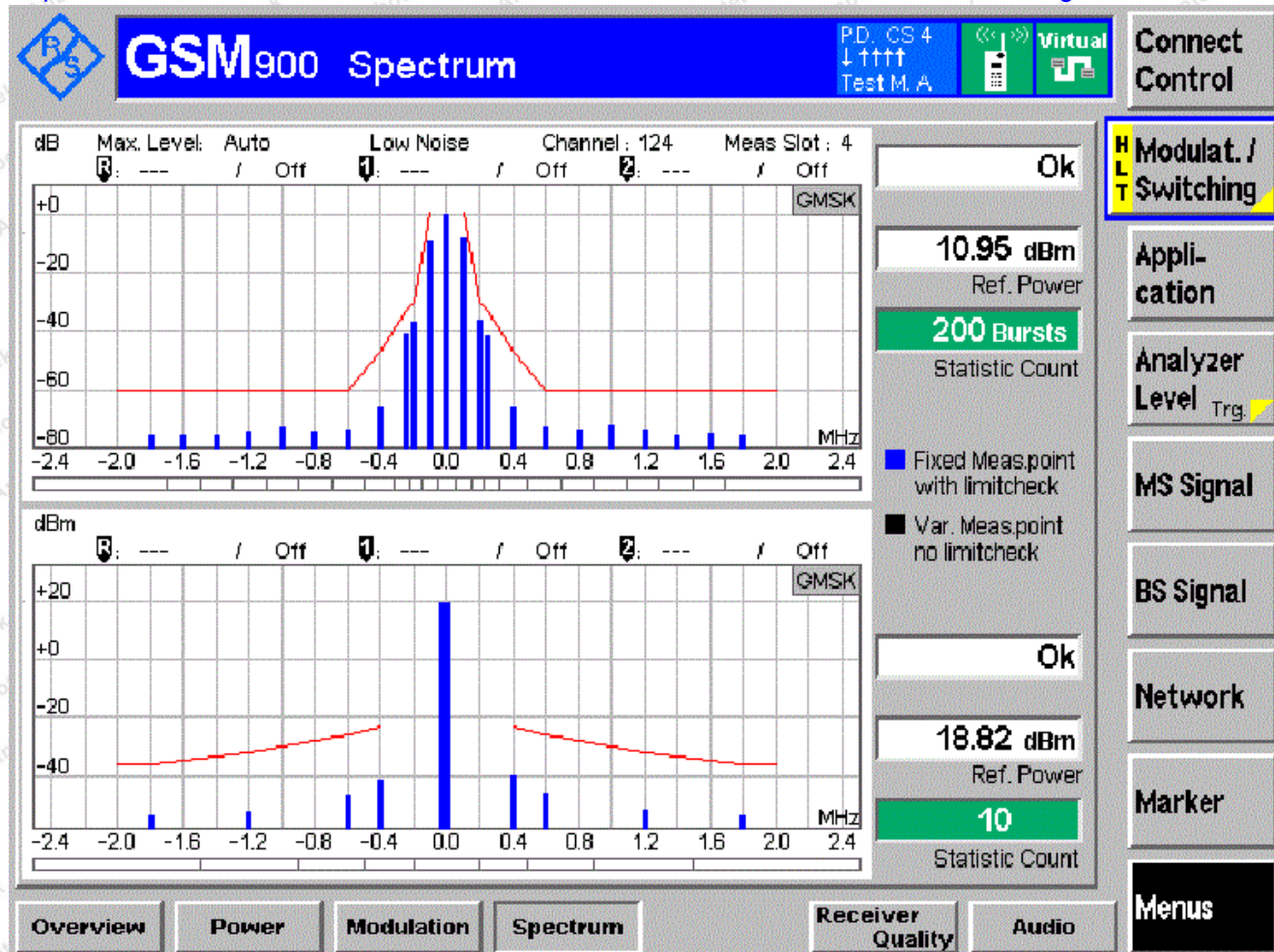


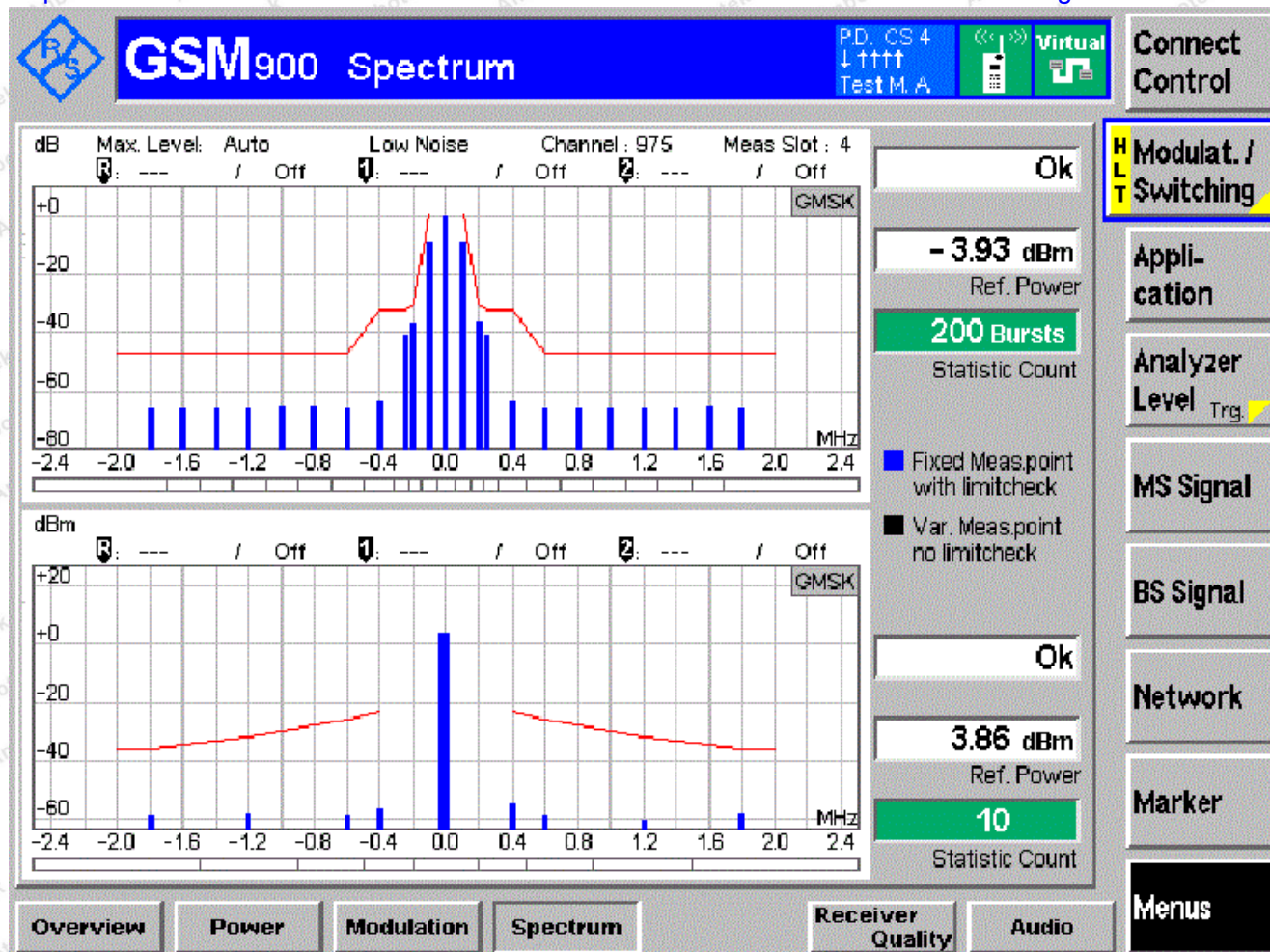


Channel LCH PCL 11

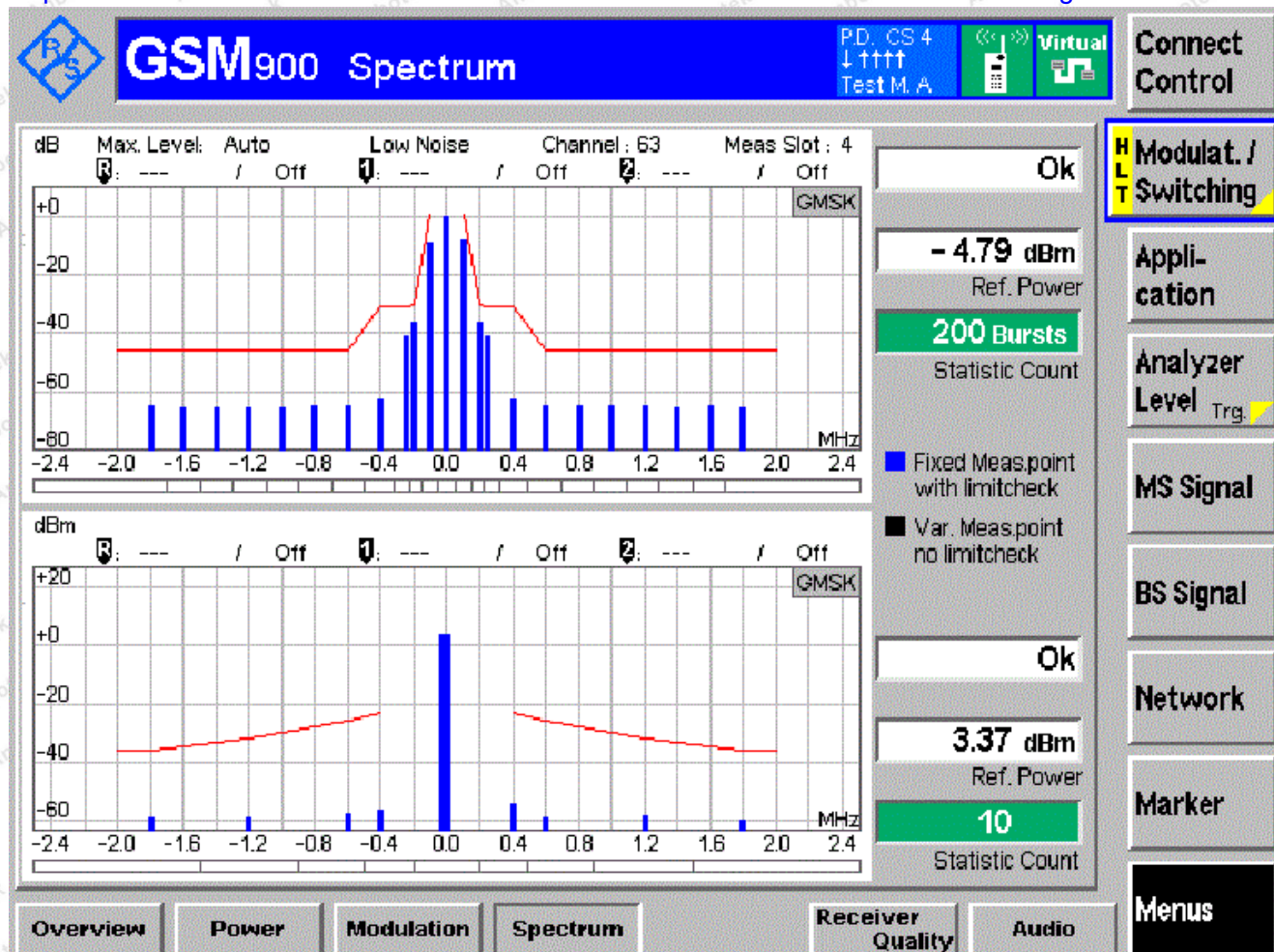








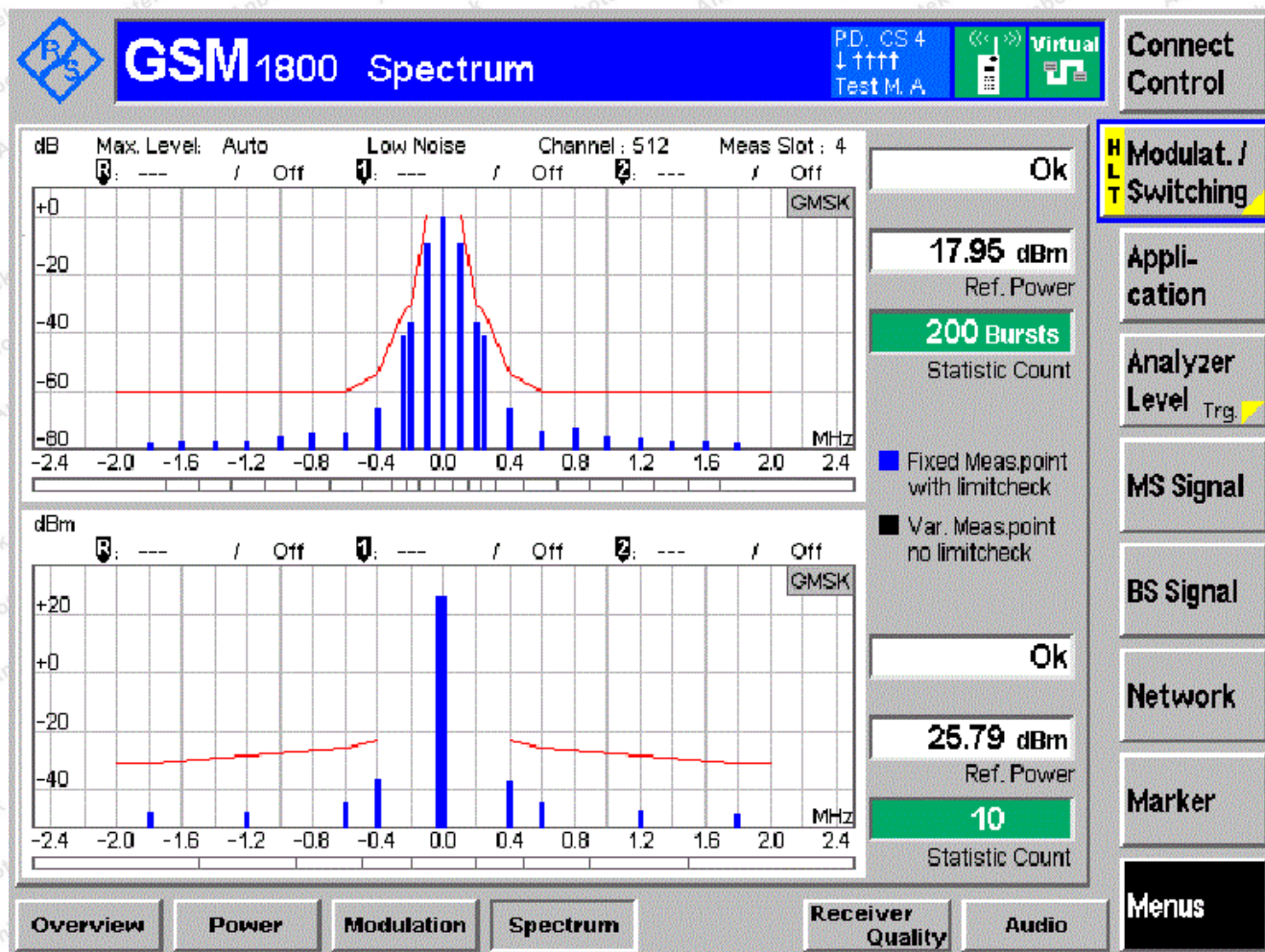
Channel MCH PCL 19



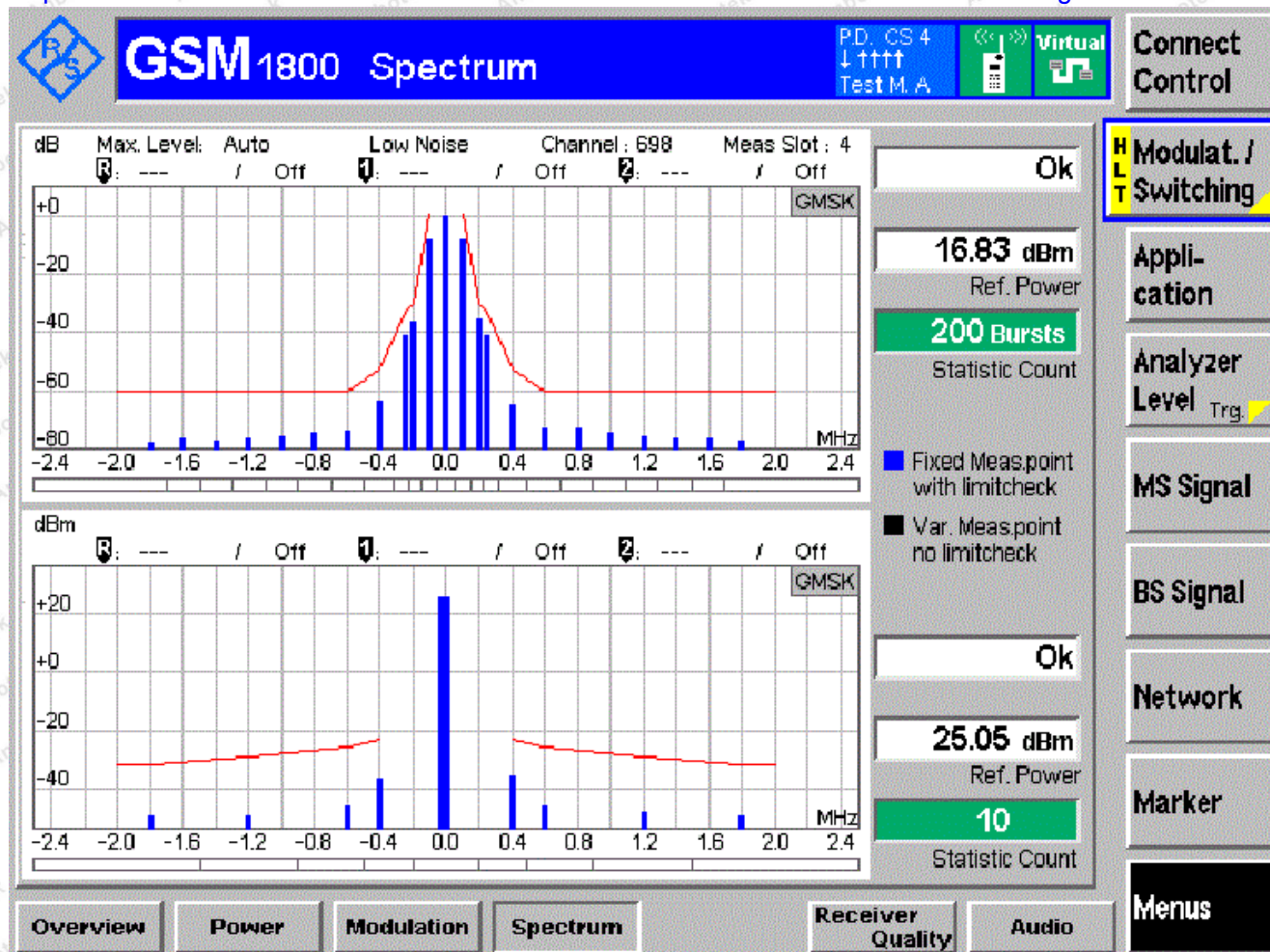


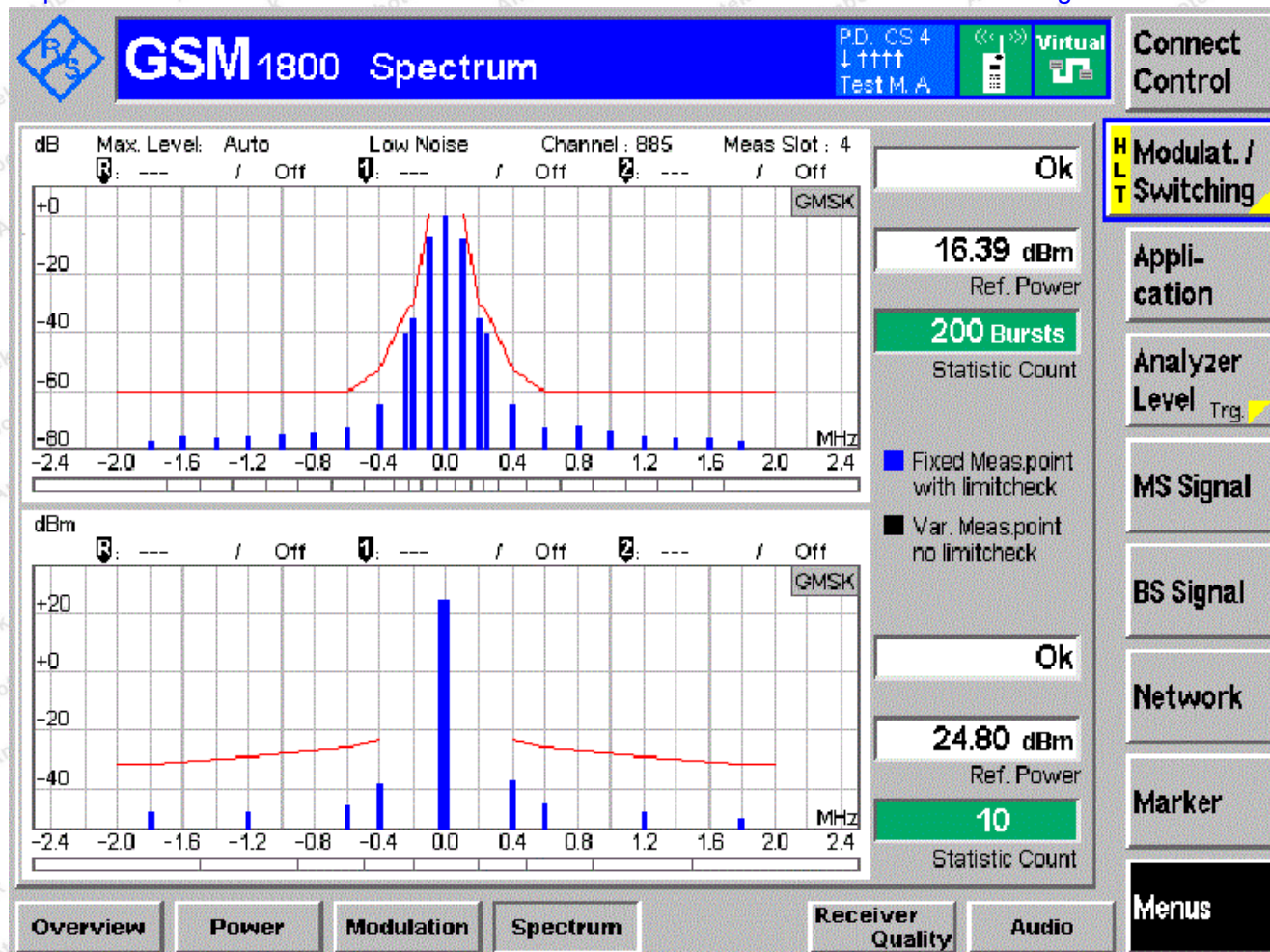
b) DCS1800 TN/VN

Channel LCH PCL 0

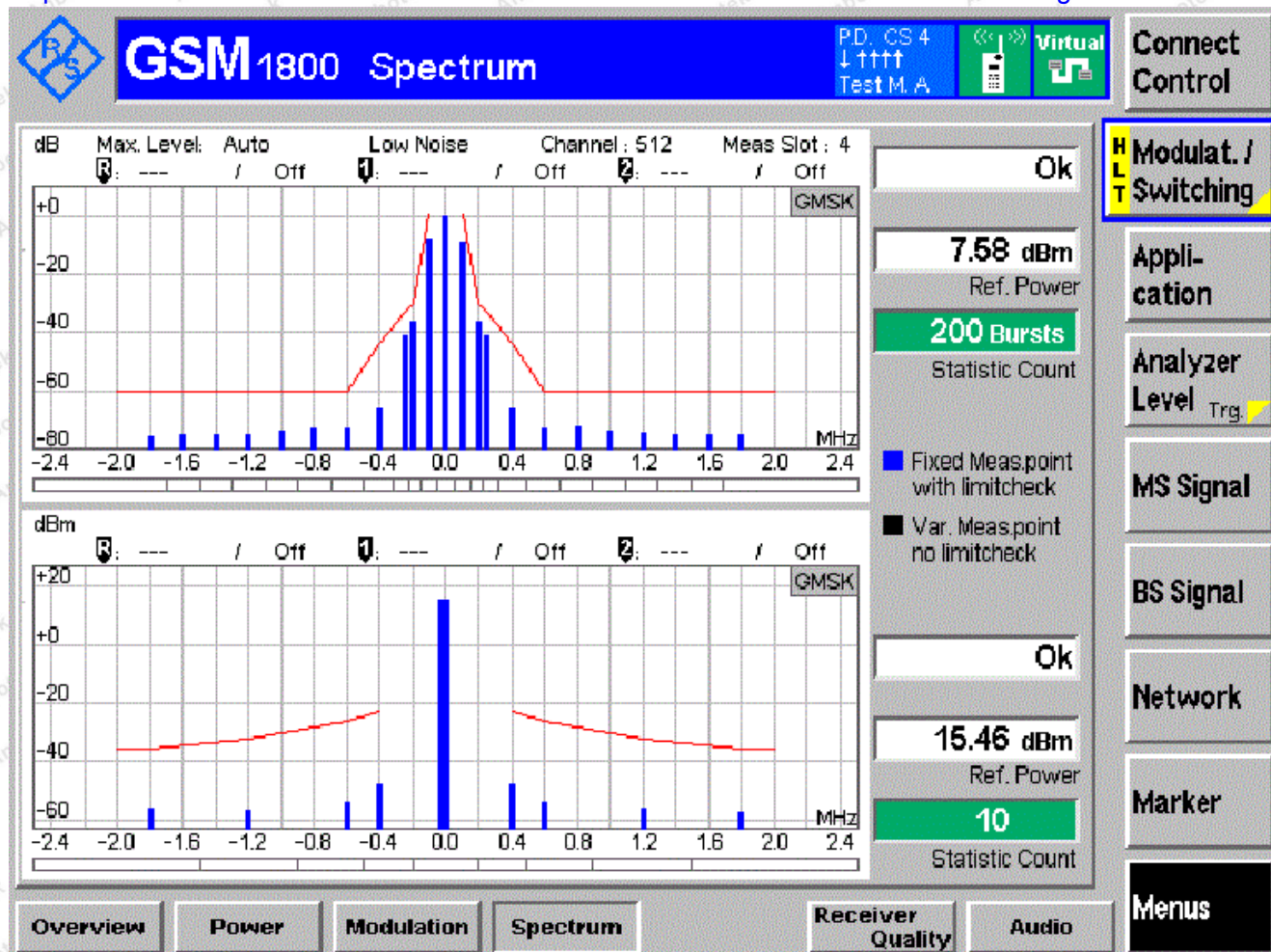


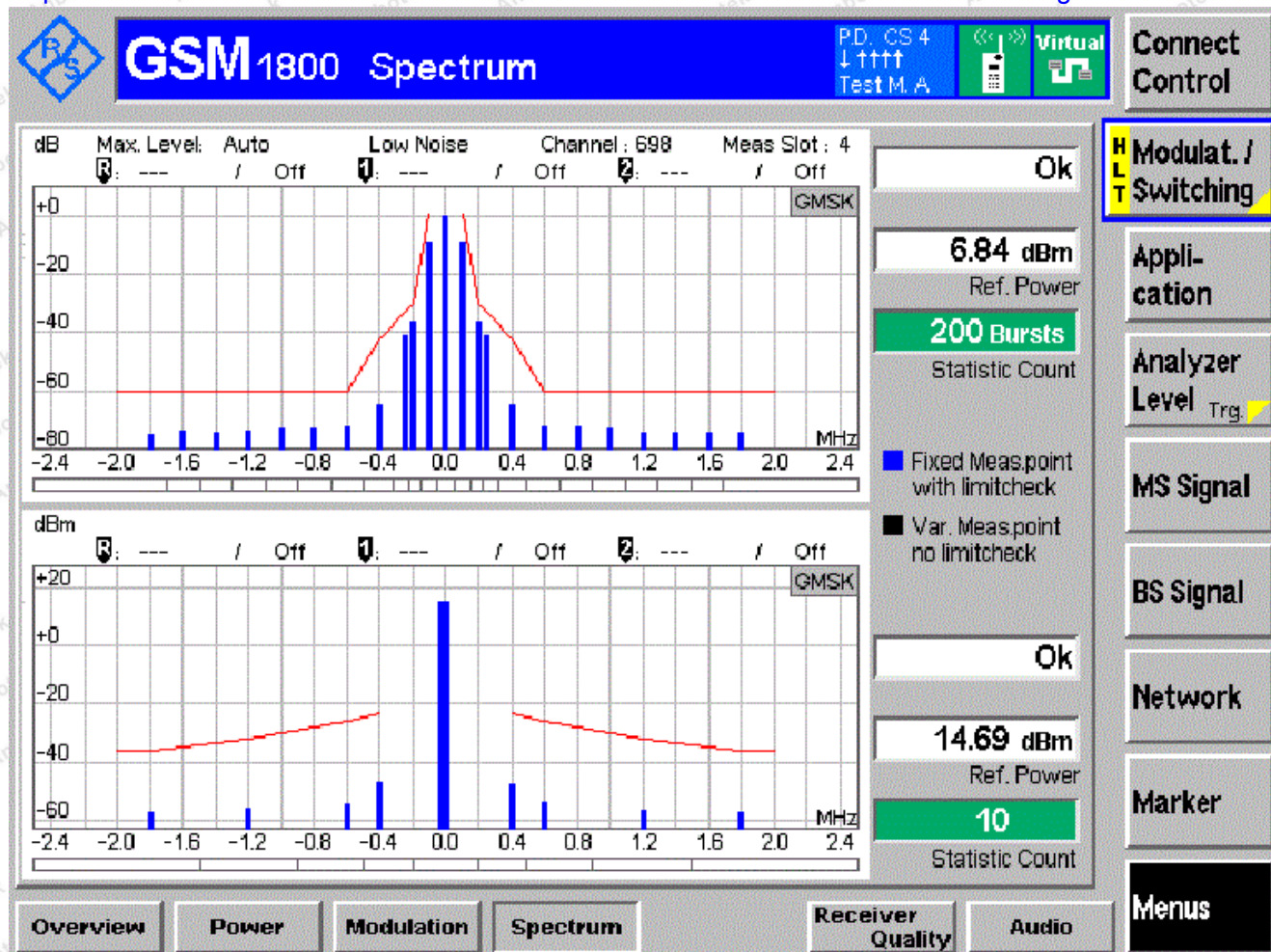
Channel MCH PCL 0

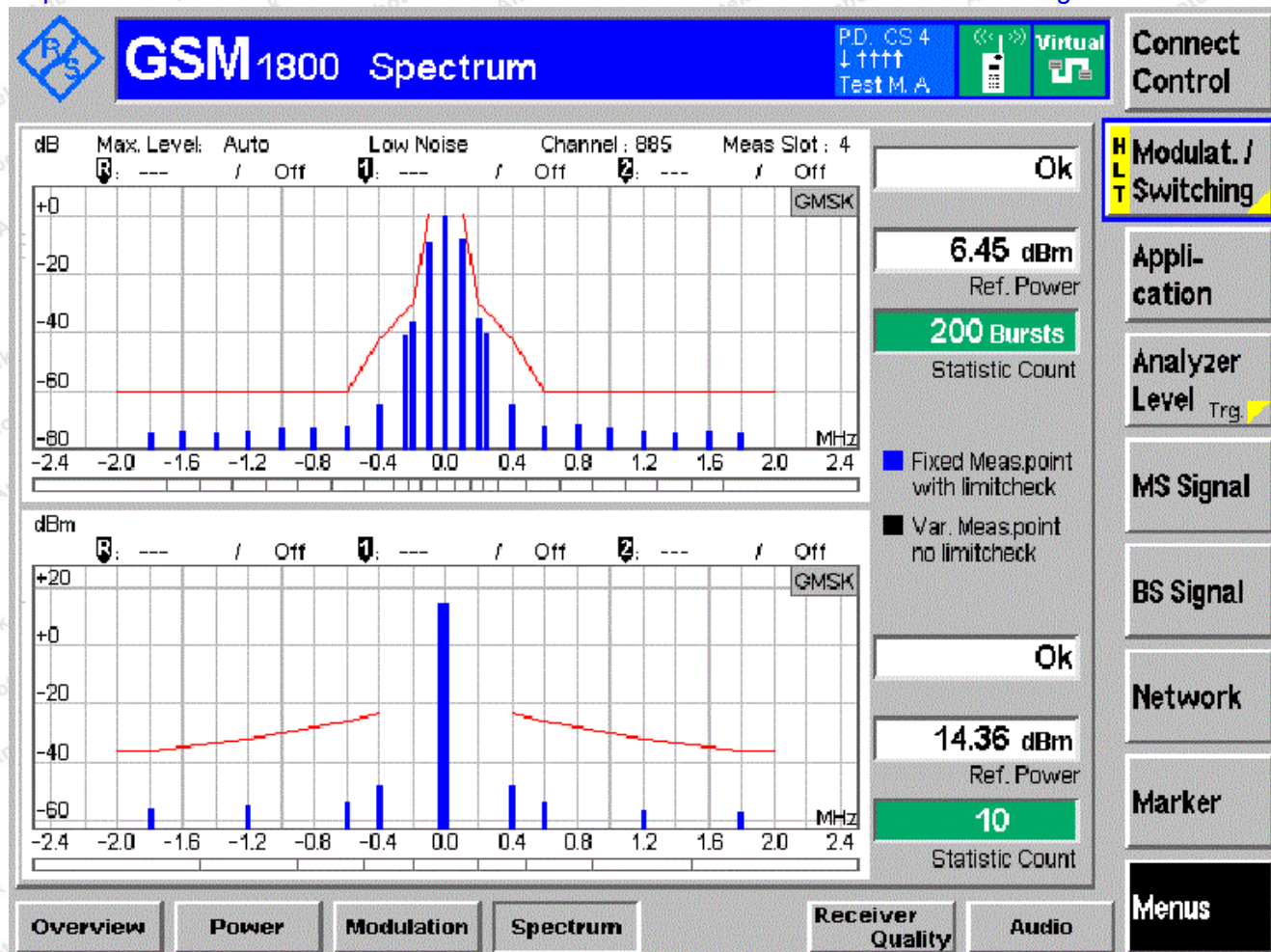


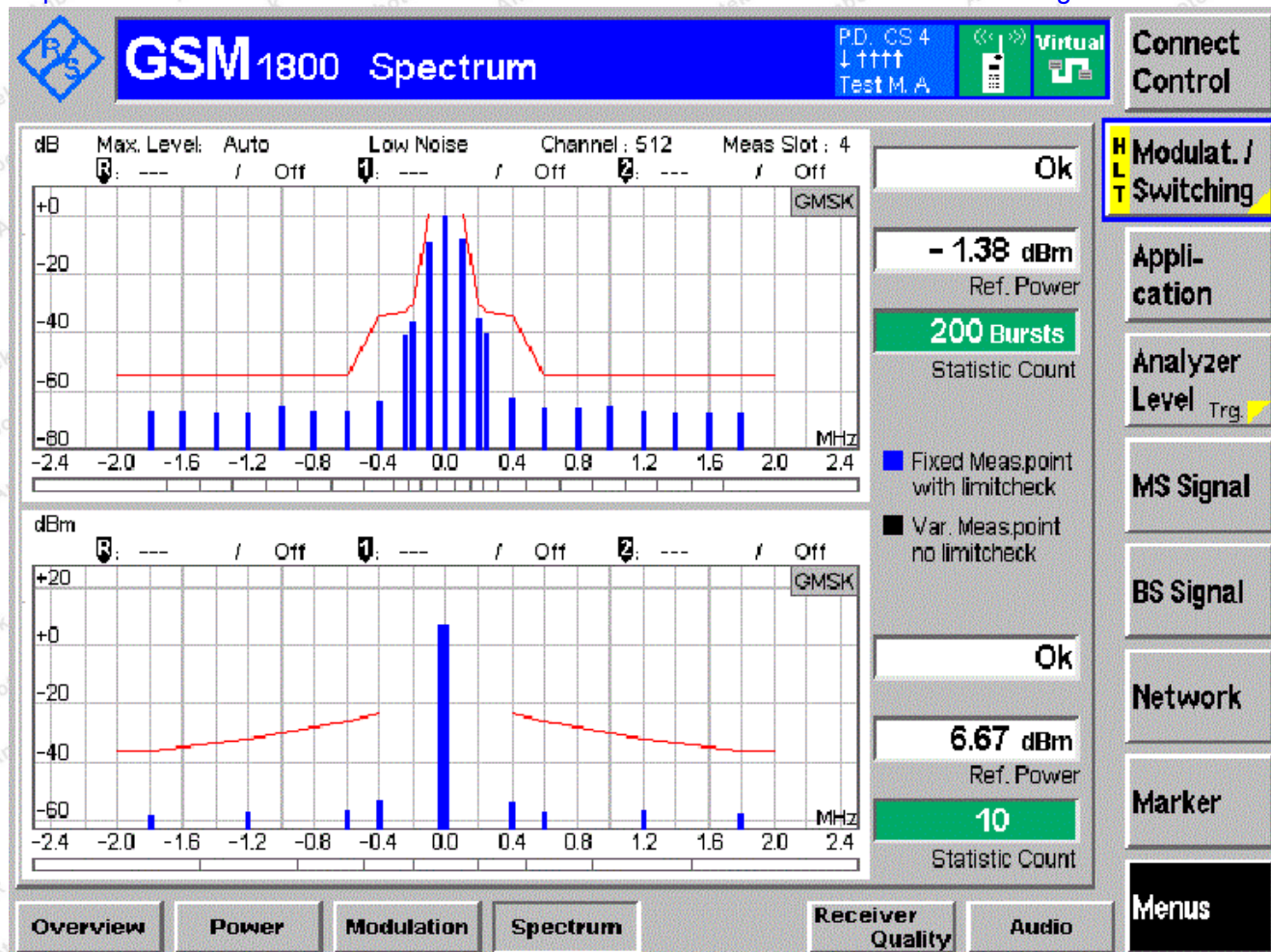


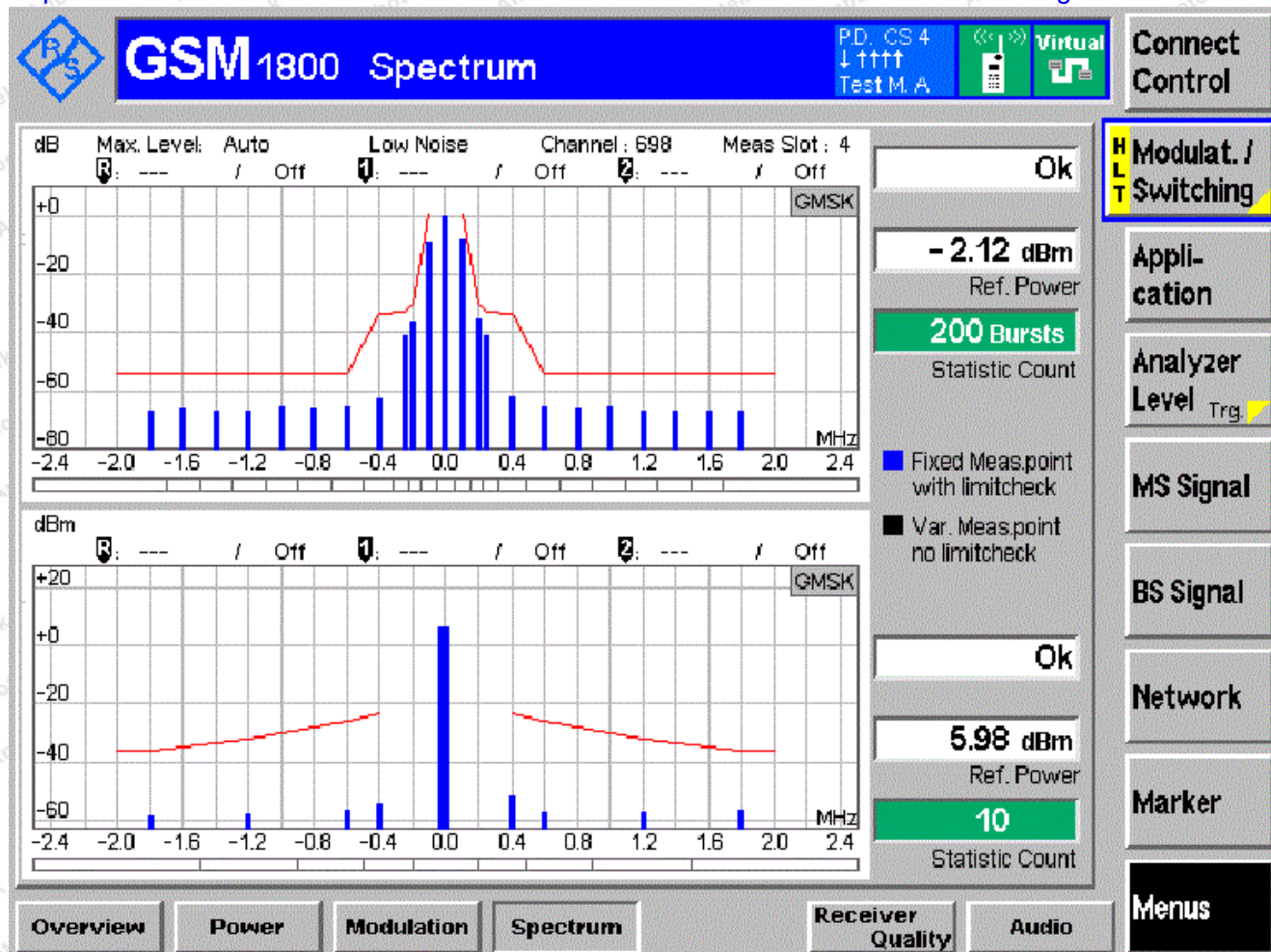
Channel LCH PCL 7



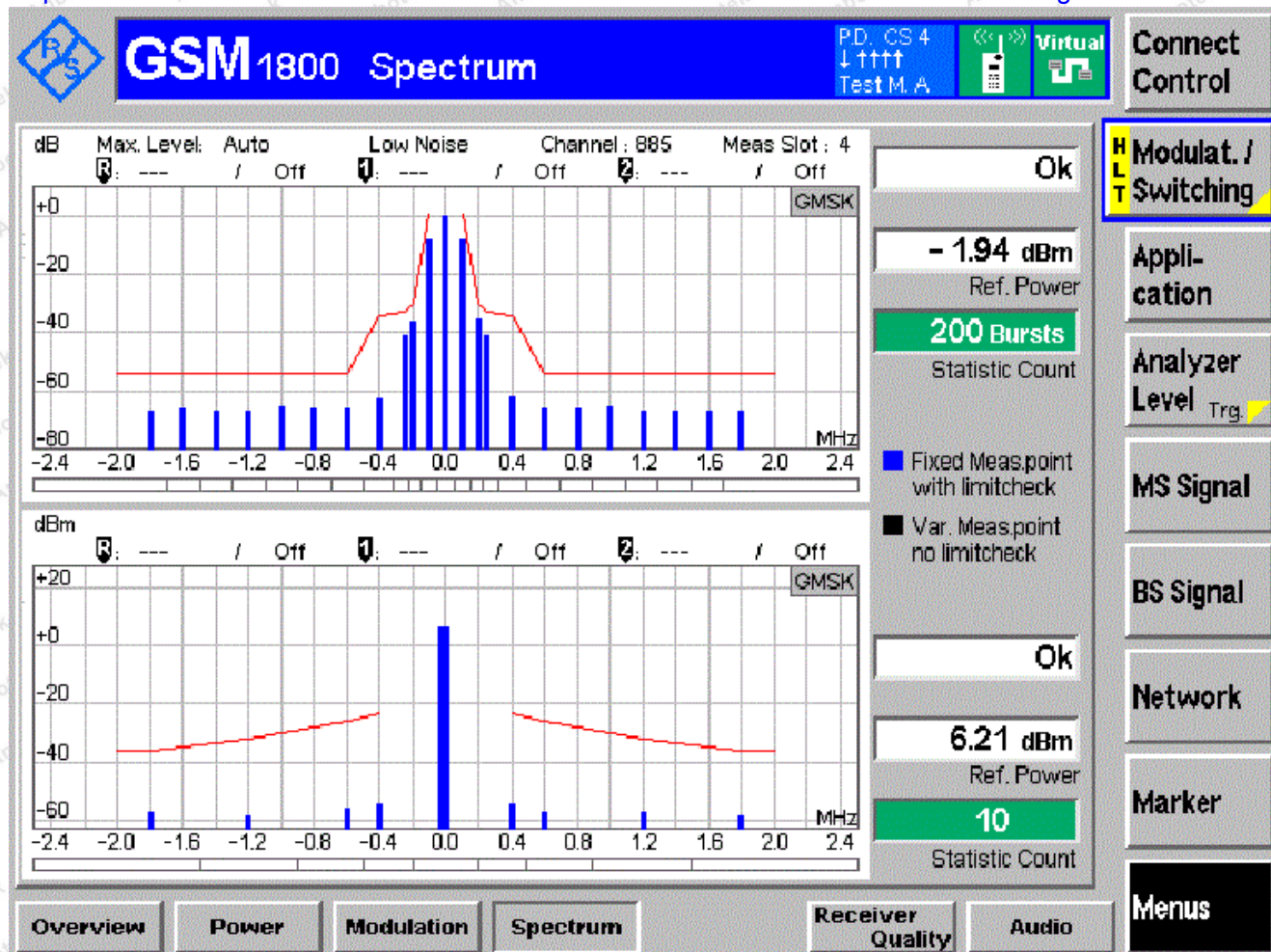


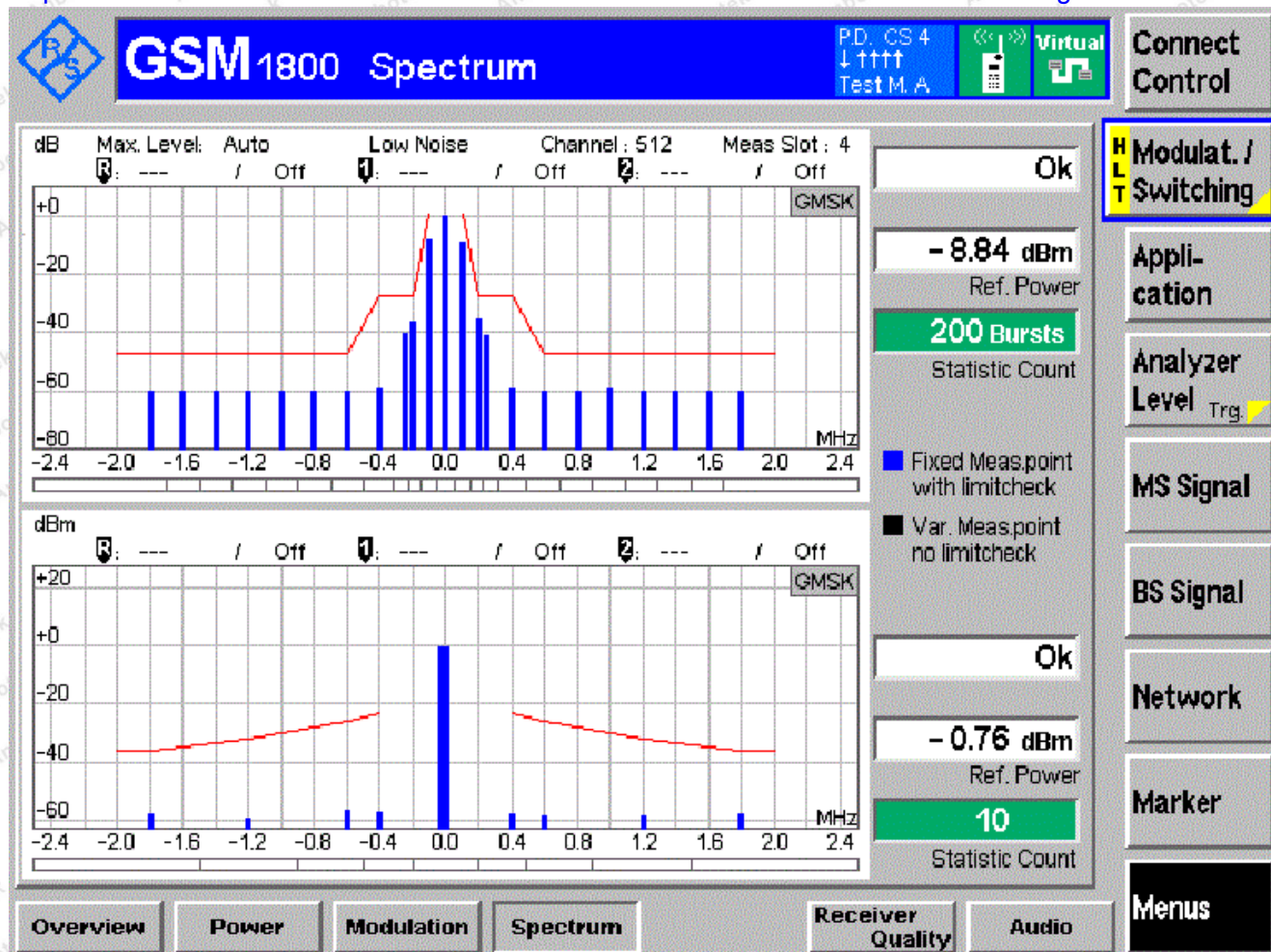




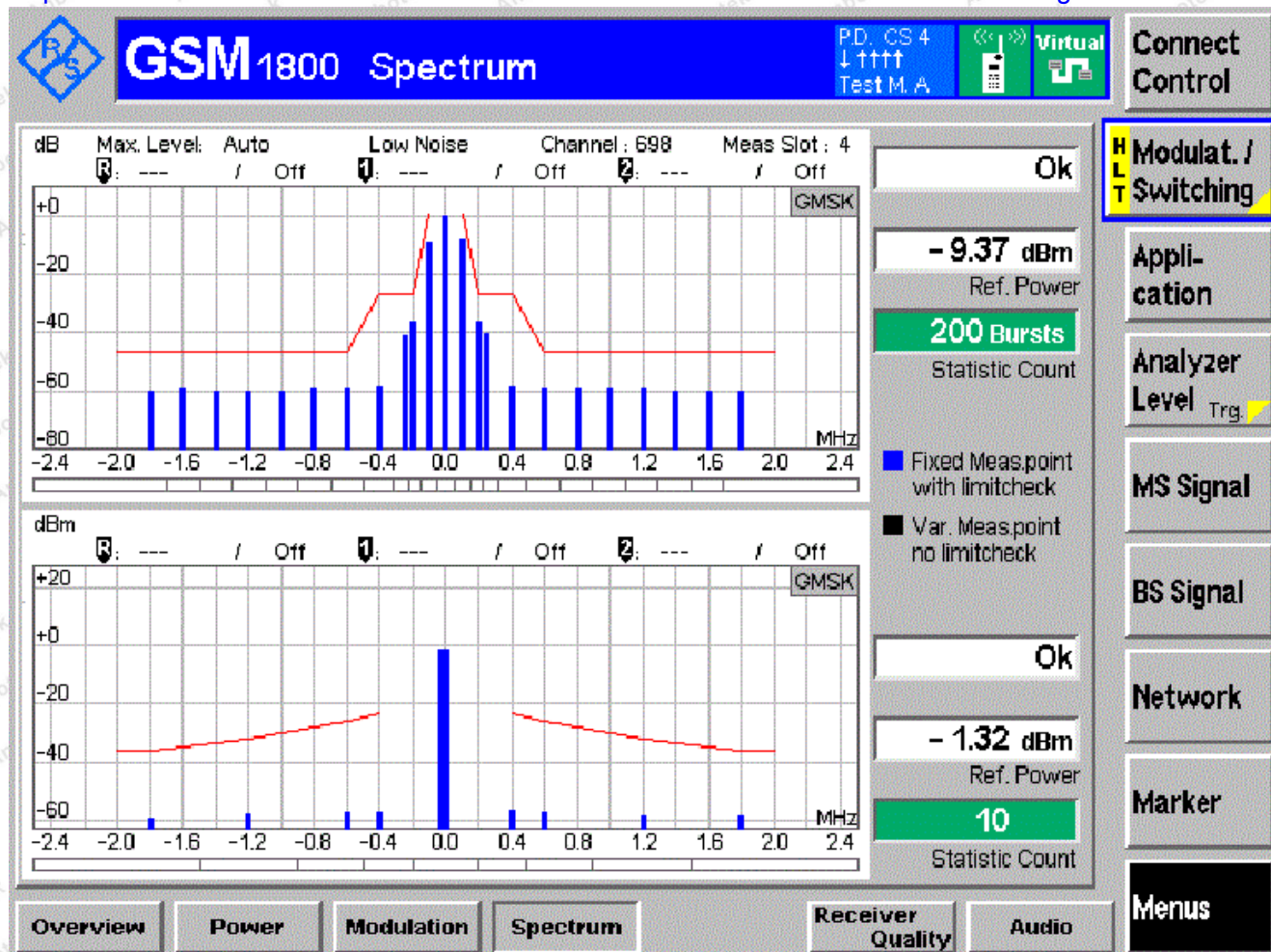


Channel HCH PCL 11

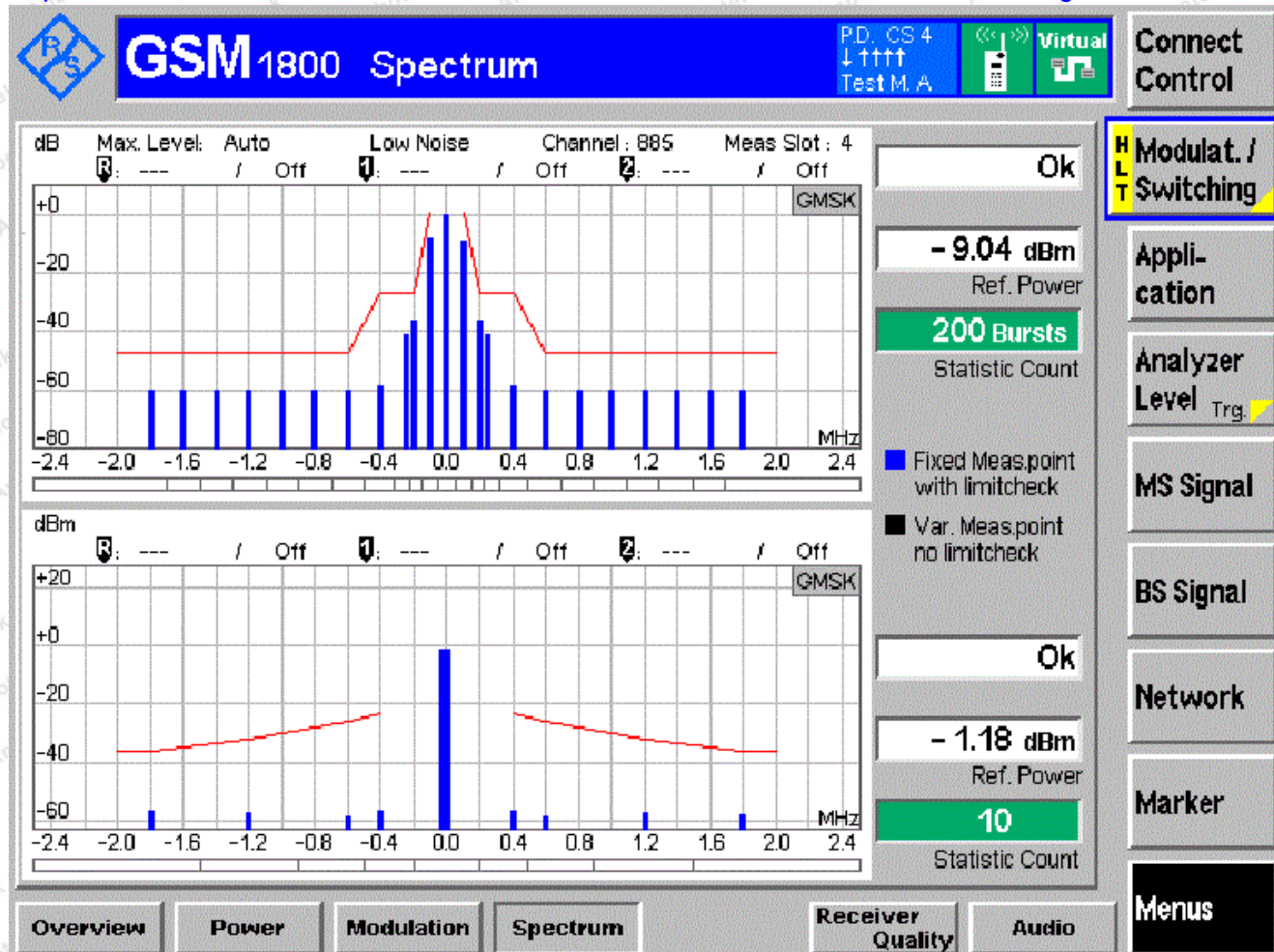




Channel MCH PCL 15



Channel HCH PCL 15



## 6. Conducted Spurious Emissions

### 6.1. Test Limit

The conducted spurious power emitted by the MS, when allocated a channel, shall be no more than the levels in below table under normal voltage and extrem voltage conditions:

Frequency range	Power level in dBm		
	GSM 400, GSM 700, T-GSM 810 GSM 850, GSM 900	DCS 1 800	PCS 1 900
9 kHz to 1 GHz	-36	-36	-36
1 GHz to 12,75 GHz	-30		-30
1 GHz to 1 710 MHz		-30	
1 710 MHz to 1 785 MHz		-36	
1 785 MHz to 12,75 GHz		-30	

MS in idle mode

Frequency range		Power level in dBm	
		GSM 400, T-GSM 810 GSM 900, DCS 1 800	GSM 700, GSM 850, PCS 1 900
100 kHz to	880 MHz	-57	-57
880 MHz to	915 MHz	-59	-57
915 MHz	1 000 MHz	-57	-57
1 GHz to	1 710 MHz	-47	
1 710 MHz to	1 785 MHz	-53	
1 785 MHz to	12,75 GHz	-47	
1 GHz to	1 850 MHz		-47
1 850 MHz to	1 910 MHz		-53
1 910 MHz to	12,75 GHz		-47

### 6.2. Test Setup

Refer to clause 1.6

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### 6.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 12.1.1.3&12.1.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 12.1.1.4&12.1.2.4 for the measurement method.


### 6.4. Test Result

#### MS allocated a channel:

Conducted spurious emissions	GSM900;MCH					
Frequency range	RBW(Hz)	VL(dBm)	VN(dBm)	VH(dBm)	Max.Limit(dBm)	Result
9kHz~100kHz	1k	-44.01	-43.96	-43.78	-36	PASS
100kHz~50MHz	10k	-48.19	-48.54	-48.29	-36	PASS
50MHz~500MHz	100k	-47.08	-46.92	-46.36	-36	PASS
500MHz~850MHz	3M	-43.22	-42.88	-42.82	-36	PASS
850MHz~863MHz	1M	-47.71	-47.47	-47.84	-36	PASS
863MHz~870MHz	300k	-52.59	-52.81	-52.89	-36	PASS
870MHz~880MHz	100k	-58.31	-58.15	-58.00	-36	PASS
915MHz~925MHz	100k	-57.65	-57.32	-56.75	-36	PASS
963MHz~1GHz	3M	-42.52	-42.27	-42.09	-36	PASS
1GHz~1805MHz	3M	-31.56	-31.78	-31.98	-30	PASS
1880MHz~12.75GHz	3M	-34.66	-34.41	-33.83	-30	PASS
896.6MHz~900.8MHz	30K	-55.52	-55.86	-56.05	-36	PASS
904.4MHz~908.6MHz	30K	-53.06	-53.67	-53.77	-36	PASS
880MHz~896.6MHz	100K	-57.24	-57.37	-57.24	-36	PASS
908.6MHz~915MHz	100K	-56.80	-56.90	-57.00	-36	PASS

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Conducted spurious emissions	DCS1800;MCH					
Frequency range	RBW(Hz)	VL(dBm)	VN(dBm)	VH(dBm)	Max.Limit(dBm)	Result
9kHz~100kHz	1k	-43.69	-43.91	-43.70	-36	PASS
100kHz~50MHz	10k	-55.76	-55.38	-55.69	-36	PASS
50MHz~500MHz	100k	-60.36	-60.43	-60.68	-36	PASS
500MHz~925MHz	3M	-42.46	-42.90	-43.22	-36	PASS
963MHz~1GHz	3M	-45.67	-45.49	-44.92	-36	PASS
1GHz~1680MHz	3M	-37.89	-37.98	-37.36	-30	PASS
1680MHz~1690MHz	1M	-43.97	-43.94	-43.70	-30	PASS
1690MHz~1700MHz	300k	-47.30	-47.51	-47.03	-30	PASS
1700MHz~1710MHz	100k	-52.39	-52.64	-52.02	-30	PASS
1785MHz~1795MHz	100K	-52.94	-53.06	-52.85	-30	PASS
1795MHz~1805MHz	300k	-48.10	-47.80	-47.96	-30	PASS
1880MHz~12.75GHz	3M	-41.02	-41.00	-40.91	-30	PASS
1741.4MHz~1745.6GHz	30K	-56.82	-56.43	-56.37	-36	PASS
1749.2MHz~1753.4MHz	30K	-57.21	-56.94	-56.37	-36	PASS
1710MHz~1741.4MHz	100K	-52.75	-52.75	-52.92	-36	PASS
1753.4MHz~1785MHz	100K	-53.47	-53.23	-52.94	-36	PASS

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**MS in idle mode:**

Conducted spurious	GSM900;VN			
Frequency range	RBW(Hz)	Max.Limit(dBm)	MCH(dBm)	Result
9kHz~100kHz	1k	-57	-59.20	PASS
100kHz~50MHz	10k	-57	-73.44	PASS
50MHz~880MHz	100k	-57	-74.46	PASS
880MHz~915MHz	100k	-59	-58.57	PASS
915MHz~1000MHz	100k	-57	-58.33	PASS
1GHz~1710MHz	100k	-47	-66.73	PASS
1710MHz~1785MHz	100k	-53	-72.04	PASS
1785MHz~12.75GHz	100k	-47	-67.12	PASS

Conducted spurious	GSM900;VL			
Frequency range	RBW(Hz)	Max.Limit(dBm)	MCH(dBm)	Result
9kHz~100kHz	1k	-57	-59.43	PASS
100kHz~50MHz	10k	-57	-73.56	PASS
50MHz~880MHz	100k	-57	-73.48	PASS
880MHz~915MHz	100k	-59	-58.26	PASS
915MHz~1000MHz	100k	-57	-58.50	PASS
1GHz~1710MHz	100k	-47	-66.69	PASS
1710MHz~1785MHz	100k	-53	-71.59	PASS
870MHz~880MHz	100k	-36	-66.69	PASS

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Conducted spurious emissions	GSM900;VH			
Frequency range	RBW(Hz)	Max.Limit(dBm)	MCH(dBm)	Result
915MHz~925MHz	100k	-36	-60.13	PASS
963MHz~1GHz	3M	-36	-73.60	PASS
1GHz~1805MHz	3M	-30	-73.84	PASS
1880MHz~12.75GHz	3M	-30	-58.14	PASS
896.4MHz~900.6MHz	30K	-36	-58.47	PASS
904.2MHz~908.4MHz	30K	-36	-66.28	PASS
880MHz~896.4MHz	100K	-36	-71.75	PASS
908.4MHz~915MHz	100K	-36	-66.55	PASS

Conducted spurious emissions	DCS1800;VN			
Frequency range	RBW(Hz)	Max.Limit(dBm)	MCH(dBm)	Result
9kHz~100kHz	1k	-57	-72.08	PASS
100kHz~50MHz	10k	-57	-57.73	PASS
50MHz~880MHz	100k	-57	-63.83	PASS
880MHz~915MHz	100k	-59	-63.24	PASS
915MHz~1000MHz	100k	-57	-57.46	PASS
1GHz~1710MHz	100k	-47	-66.48	PASS
1710MHz~1785MHz	100k	-53	-55.81	PASS
1785MHz~12.75GHz	100k	-47	-65.44	PASS

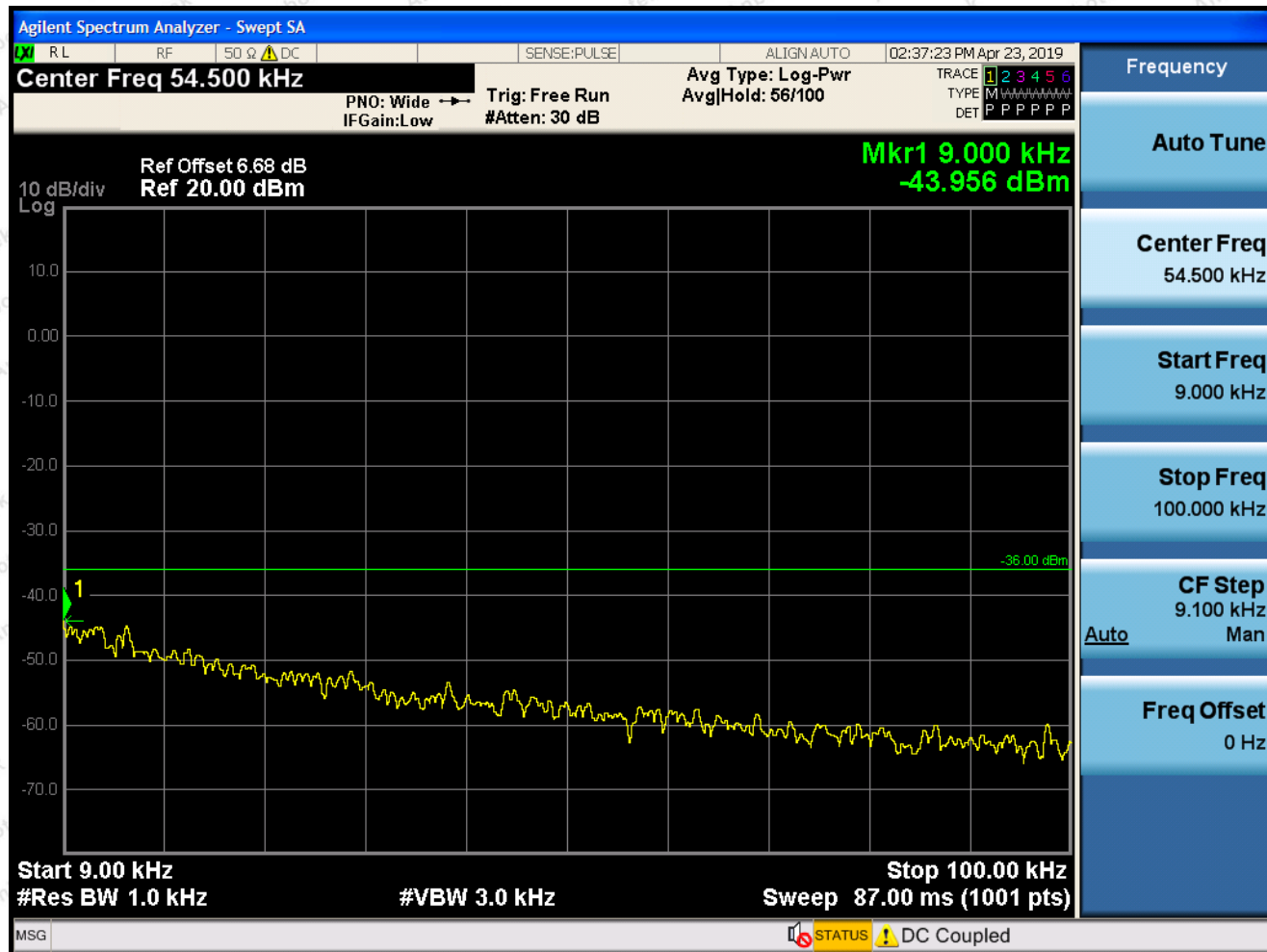
Conducted spurious emissions	DCS1800;VL			
Frequency range	RBW(Hz)	Max.Limit(dBm)	MCH(dBm)	Result
9kHz~100kHz	1k	-57	-72.64	PASS
100kHz~50MHz	10k	-57	-58.32	PASS
50MHz~880MHz	100k	-57	-63.05	PASS
880MHz~915MHz	100k	-59	-63.00	PASS
915MHz~1000MHz	100k	-57	-57.12	PASS
1GHz~1710MHz	100k	-47	-66.15	PASS
1710MHz~1785MHz	100k	-53	-55.71	PASS
1785MHz~12.75GHz	100k	-47	-65.00	PASS

Conducted spurious emissions	DCS1800;VH			
Frequency range	RBW(Hz)	Max.Limit(dBm)	MCH(dBm)	Result
9kHz~100kHz	1k	-57	-72.24	PASS
100kHz~50MHz	10k	-57	-58.23	PASS
50MHz~880MHz	100k	-57	-63.67	PASS
880MHz~915MHz	100k	-59	-62.87	PASS
915MHz~1000MHz	100k	-57	-57.13	PASS
1GHz~1710MHz	100k	-47	-66.73	PASS
1710MHz~1785MHz	100k	-53	-56.44	PASS
1785MHz~12.75GHz	100k	-47	-65.47	PASS

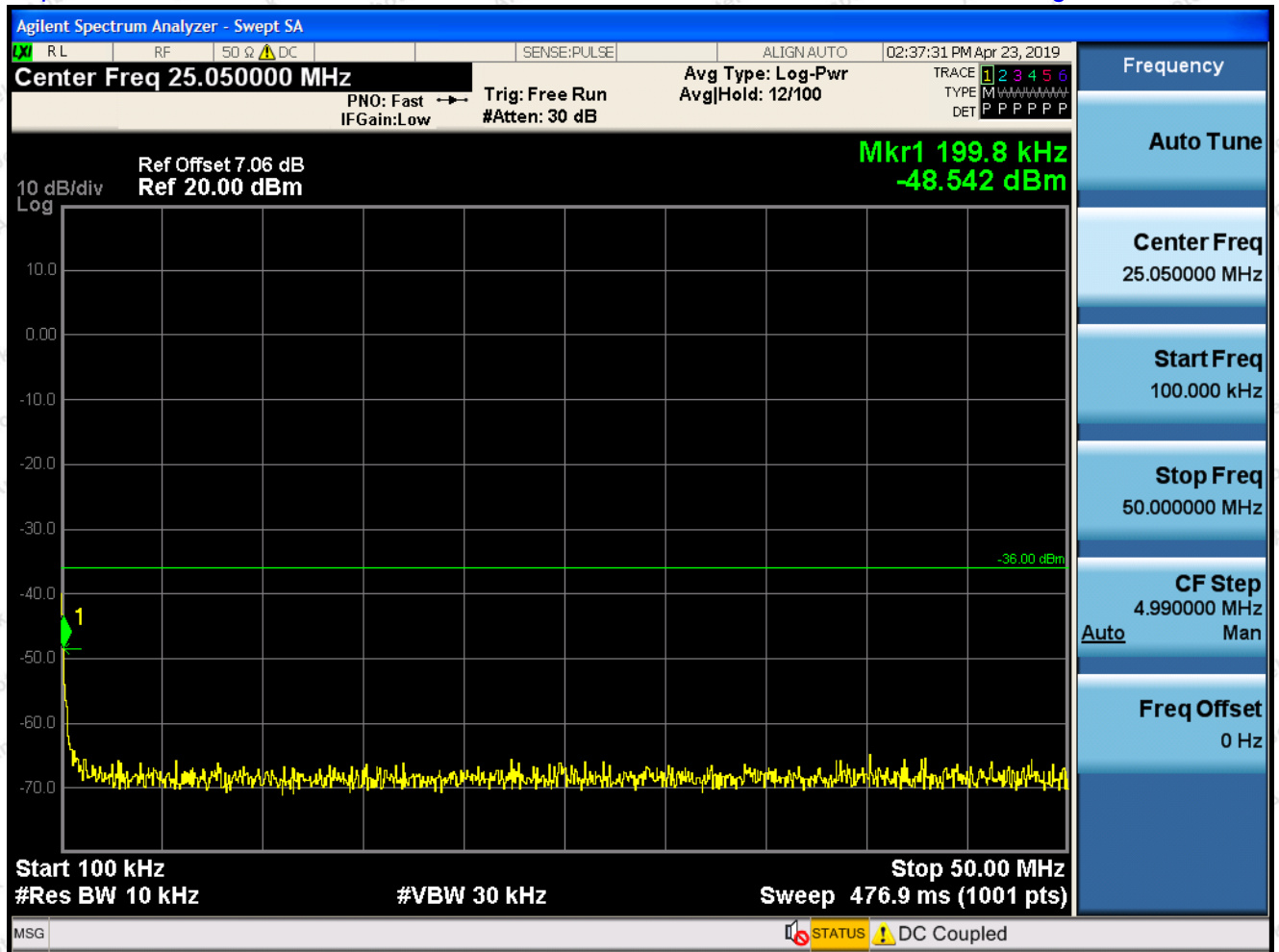
Graphs of conducted spurious emission-MS allocated a channel

a) GSM900: channel MCH VN

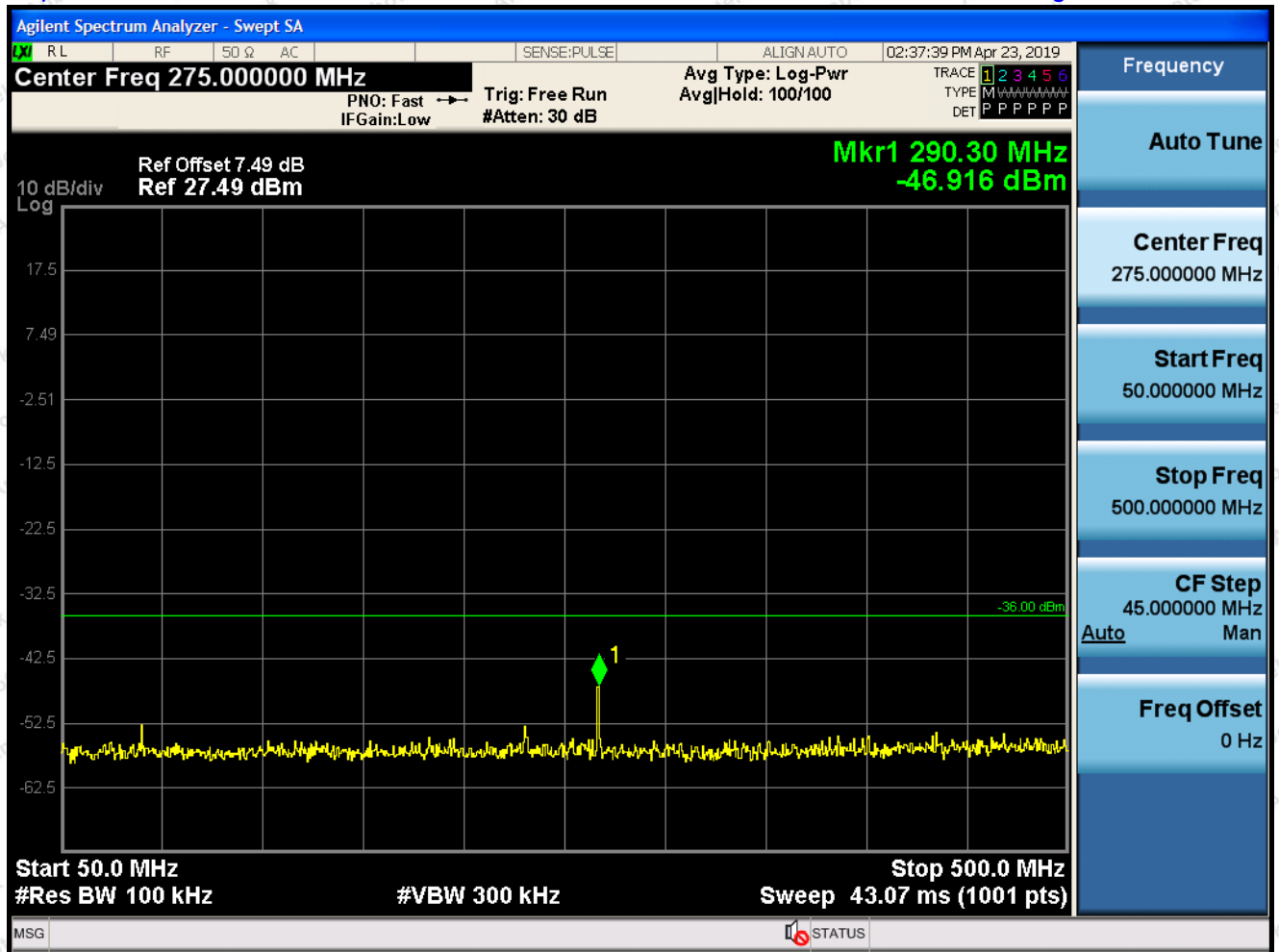
9kHz~100kHz



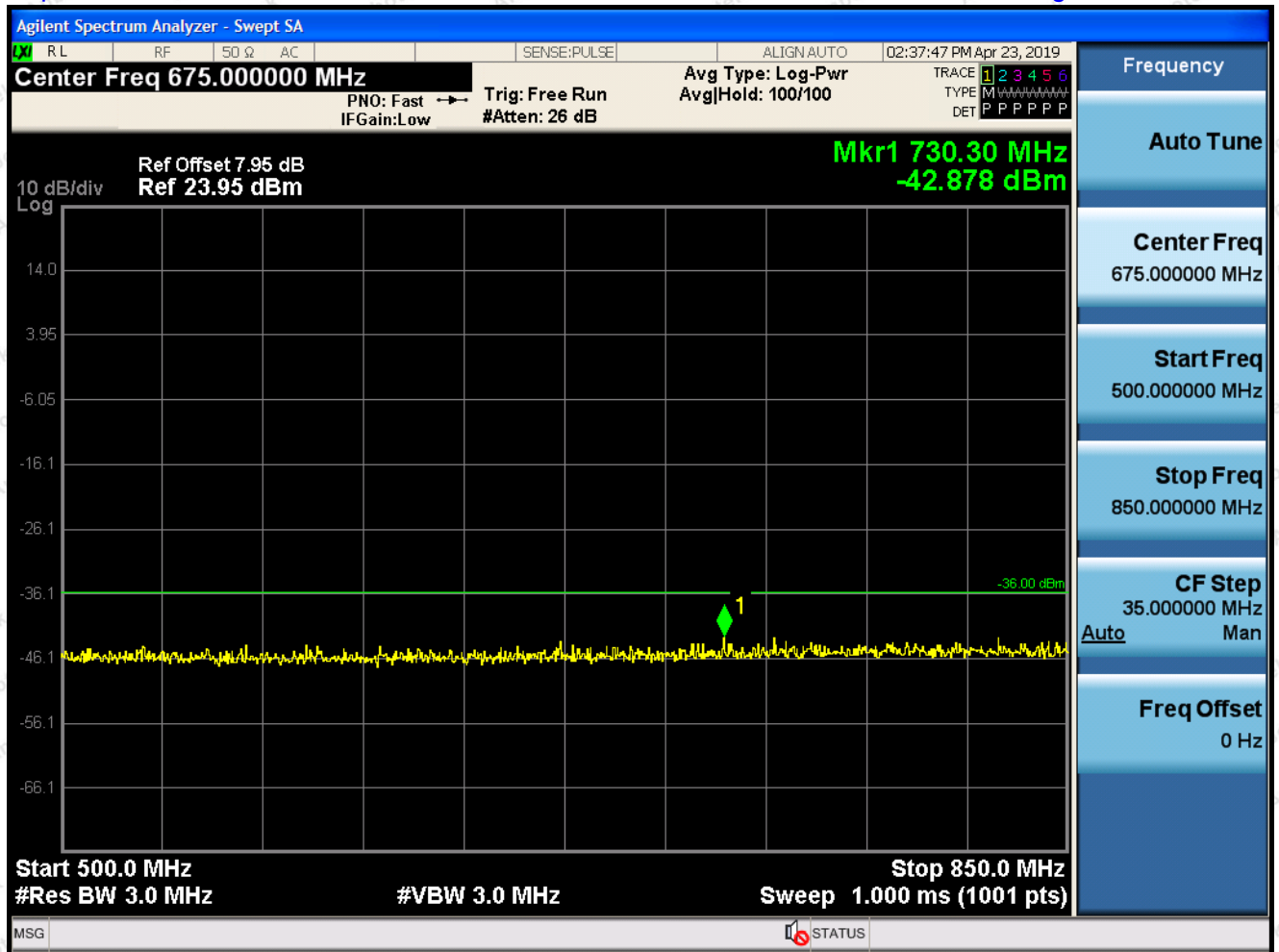
100kHz~50MHz



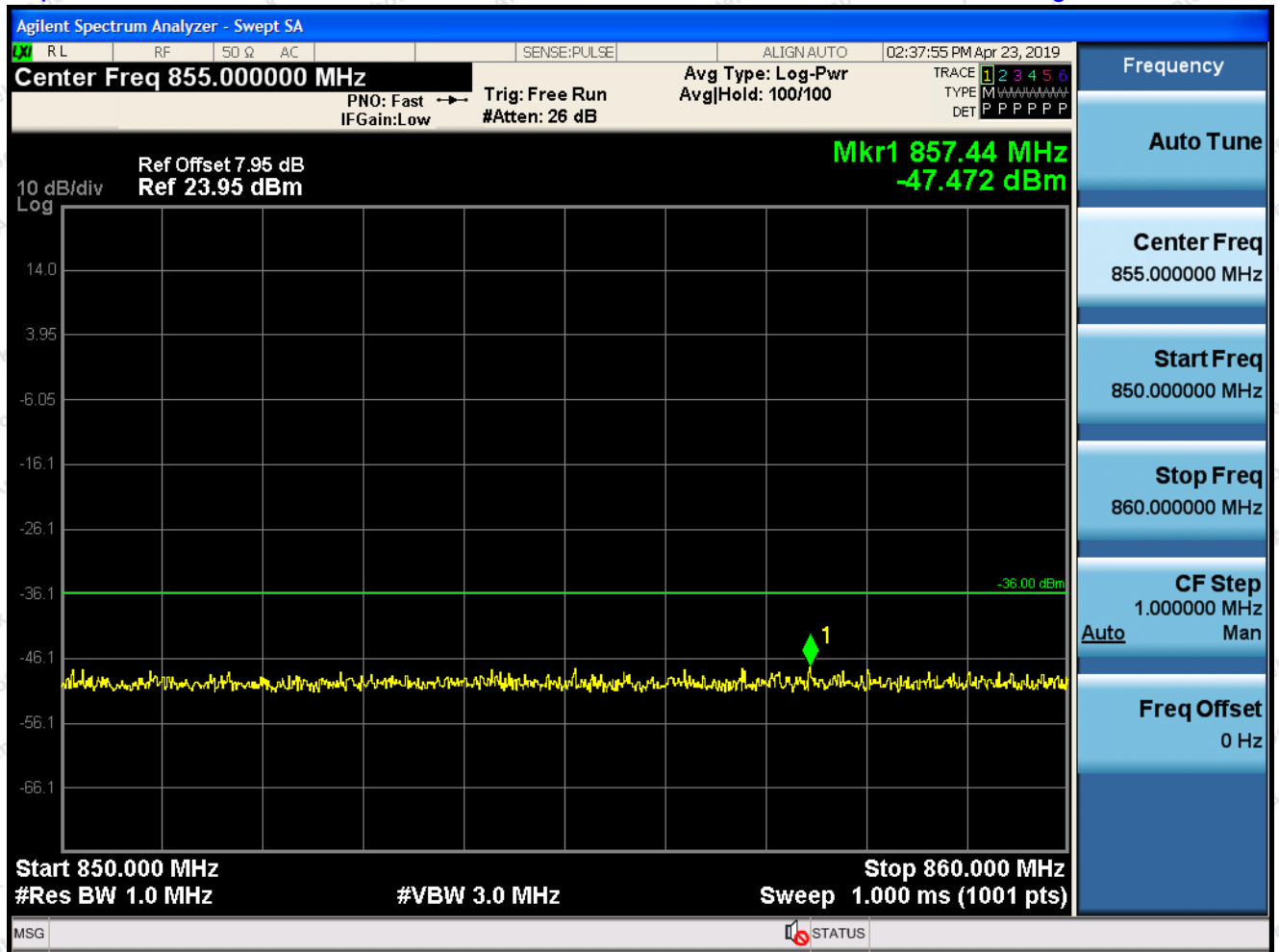
50MHz~500MHz



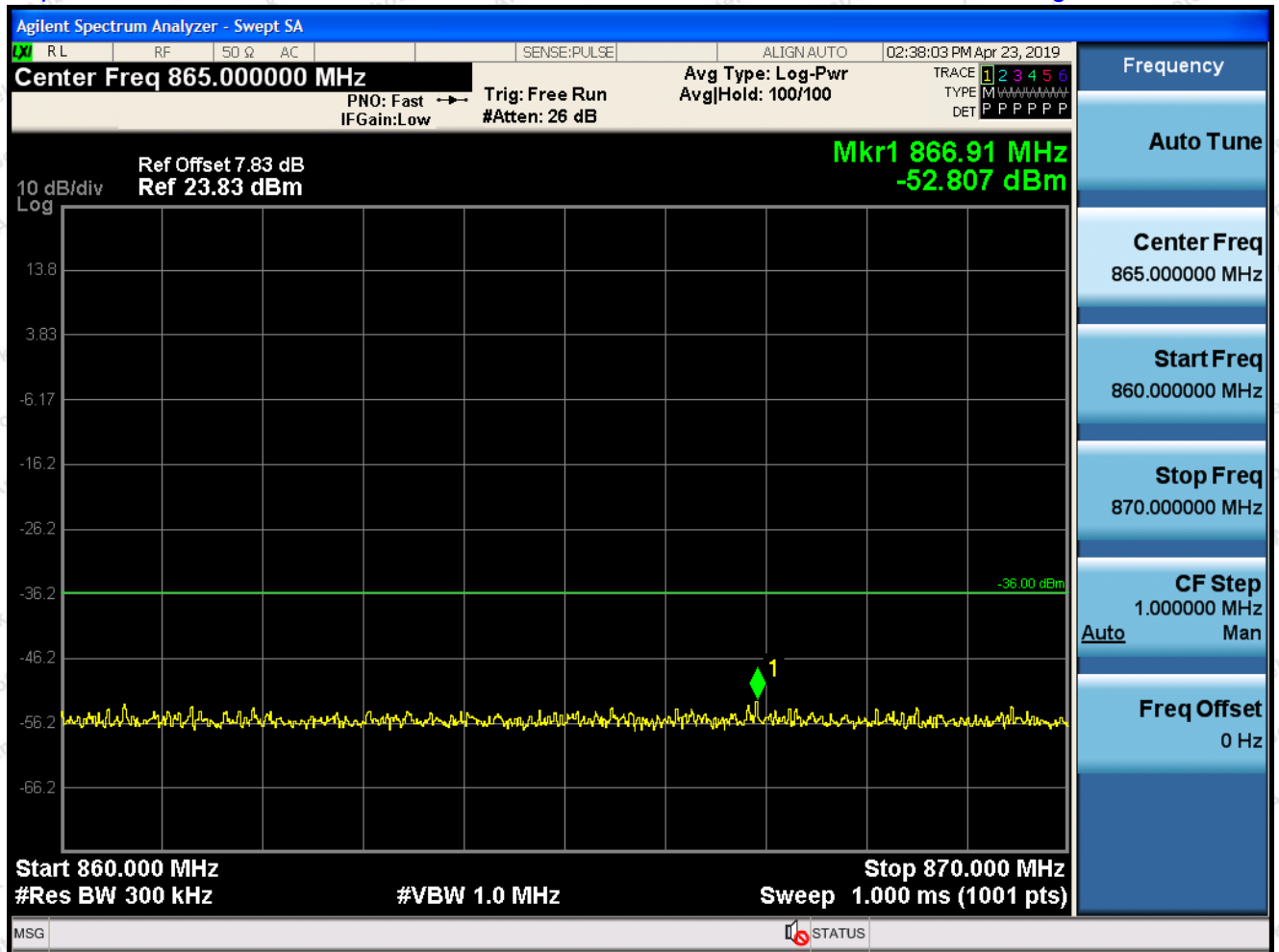
500MHz~850MHz



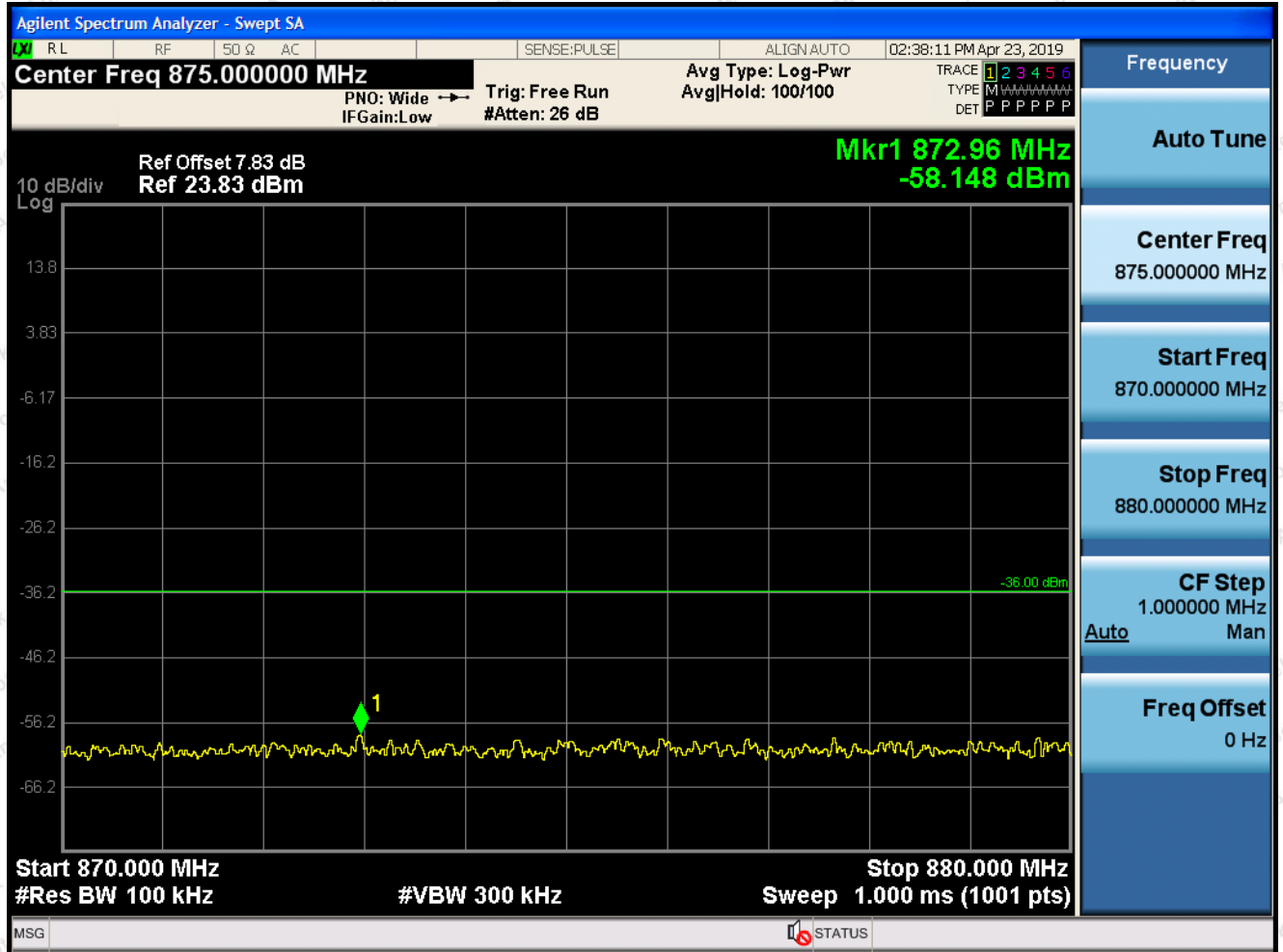
850MHz~860MHz



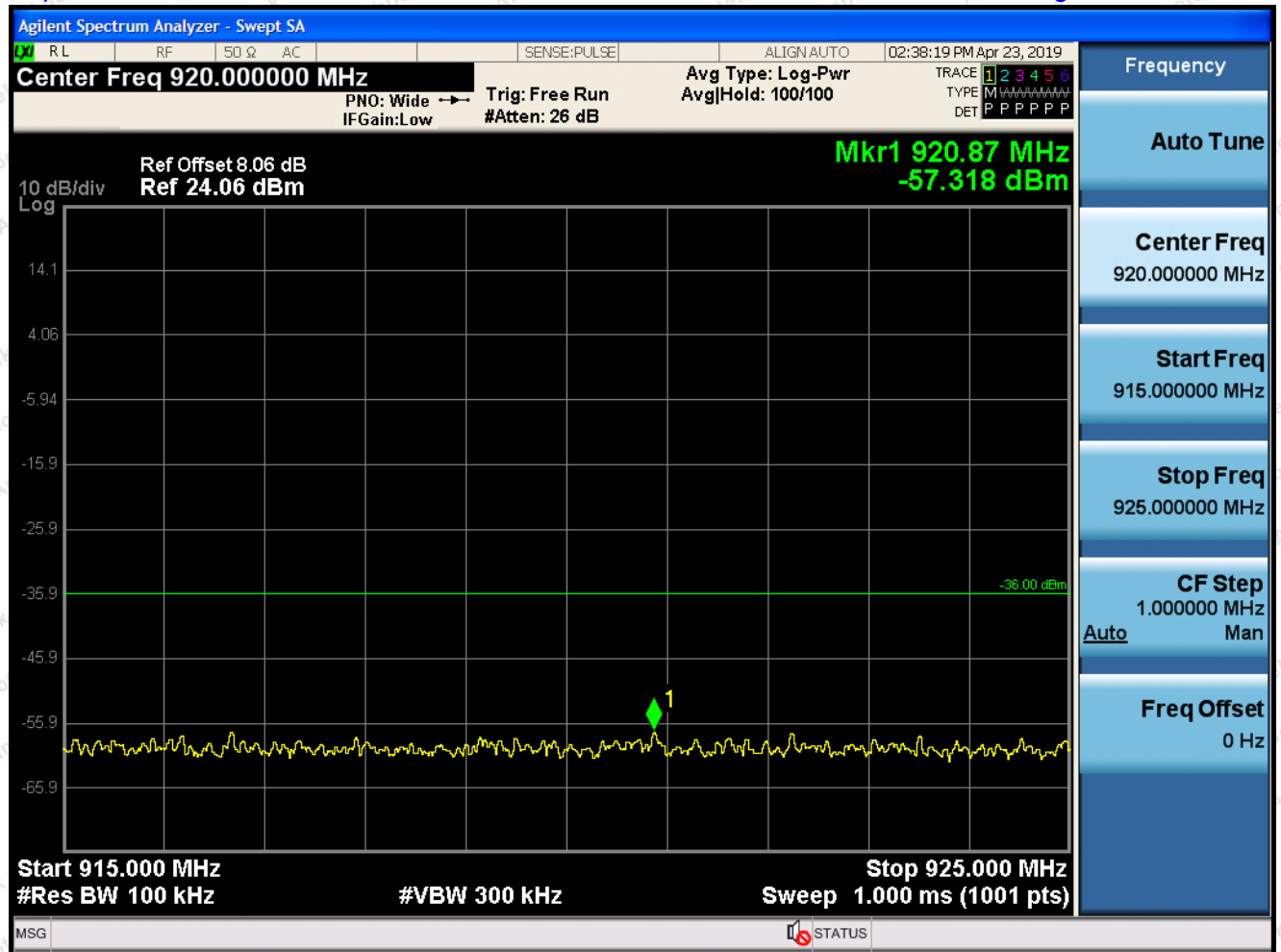
860MHz~870MHz



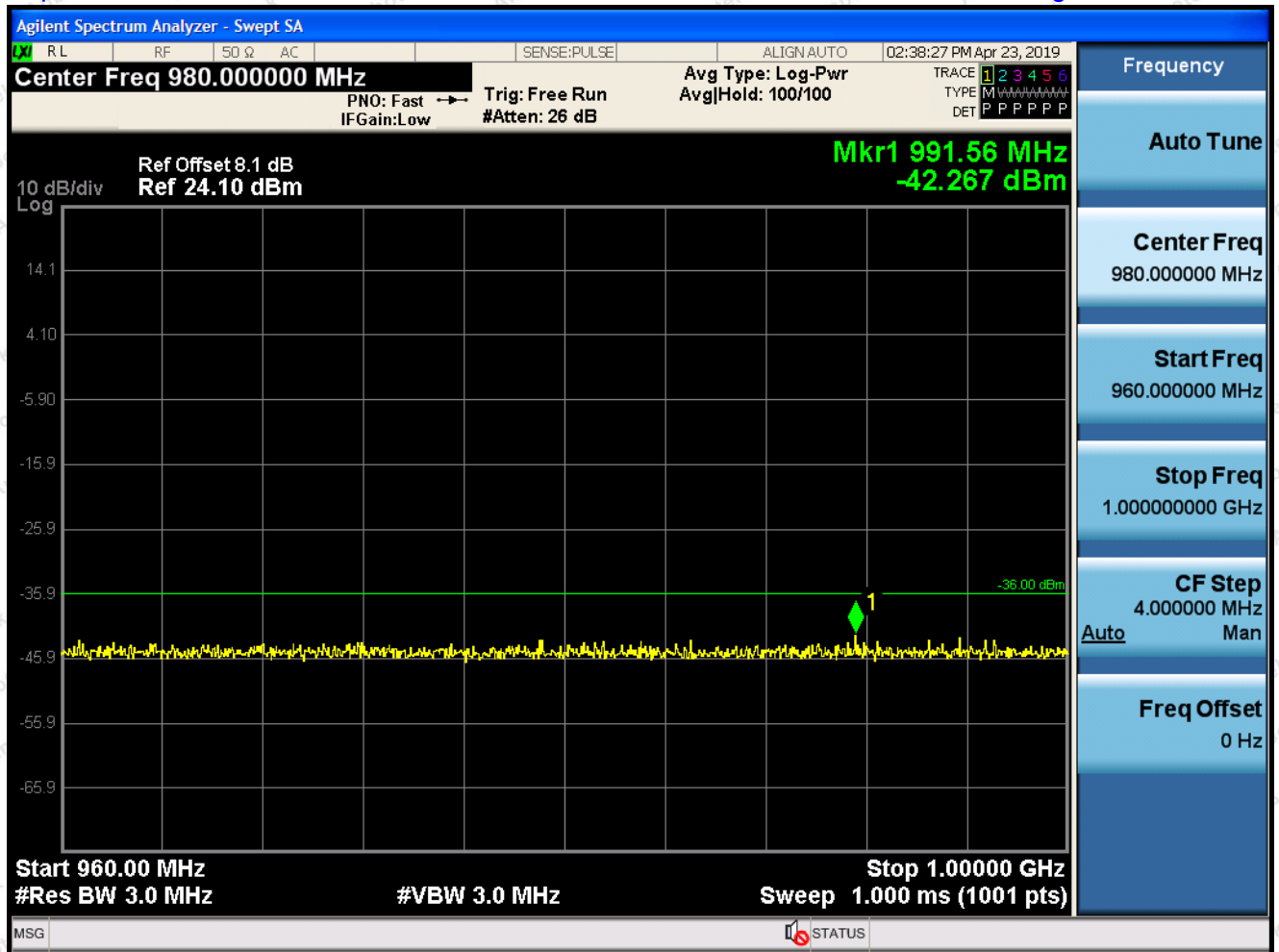
870MHz~880MHz



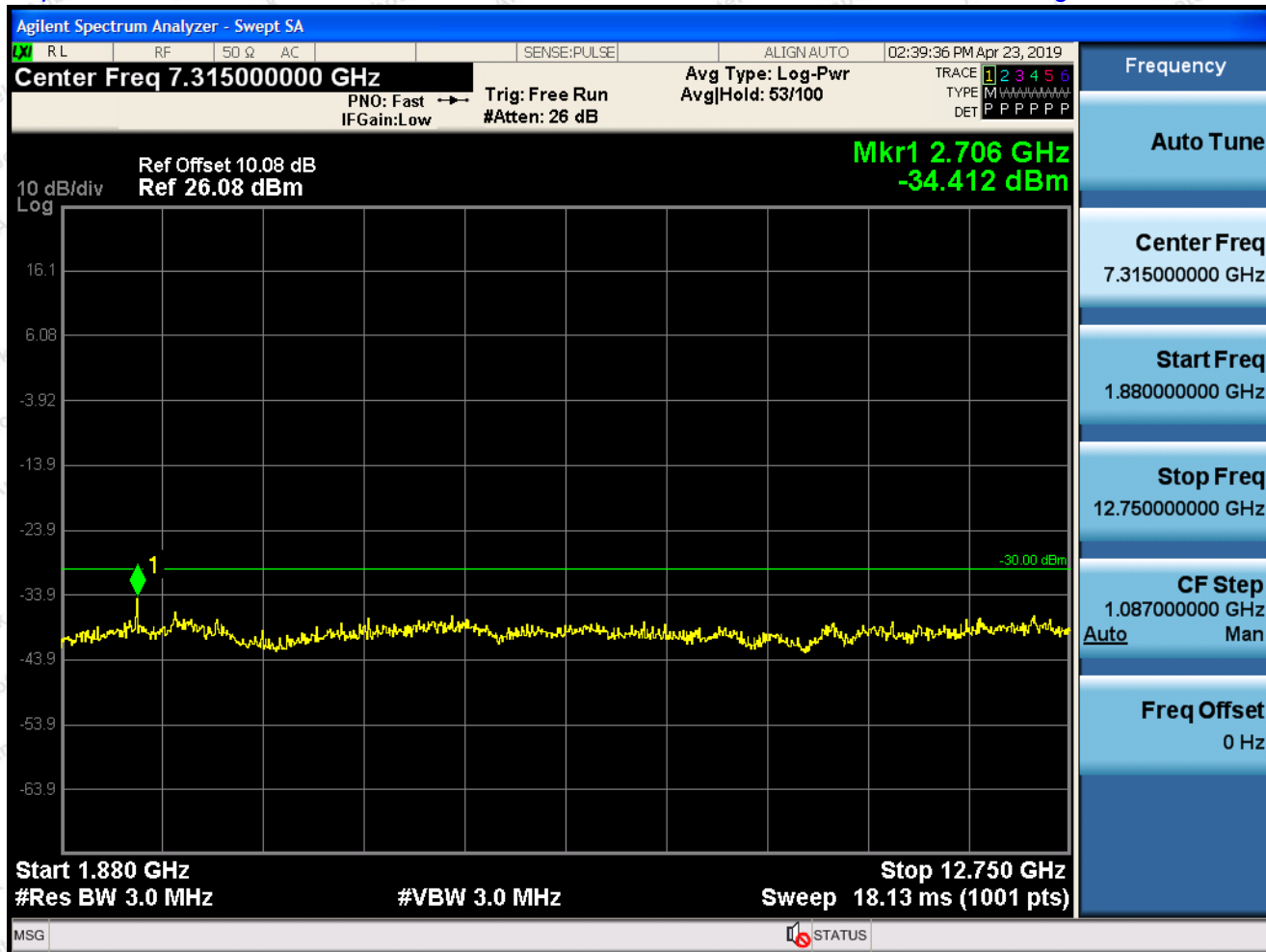
915MHz~925MHz



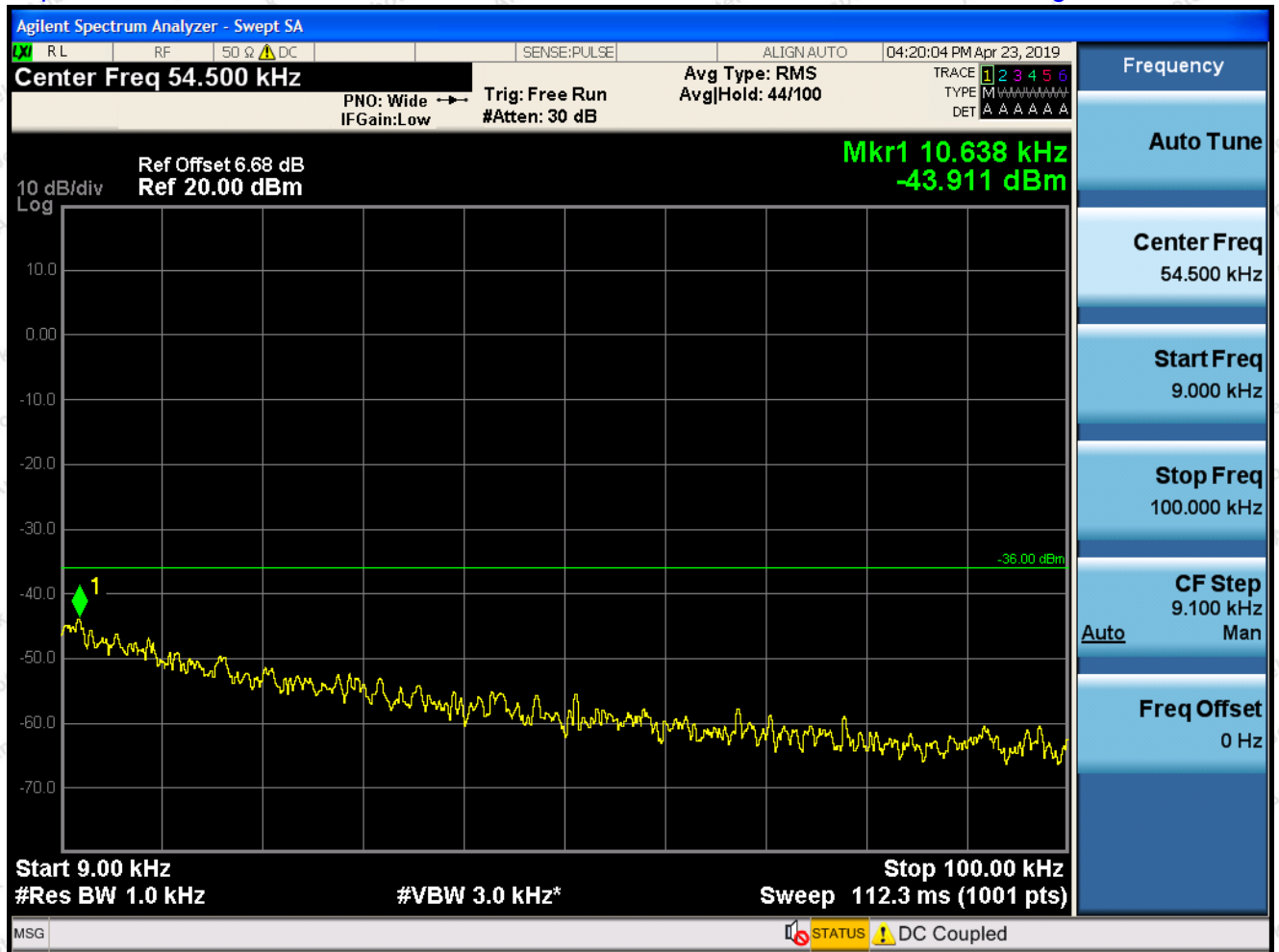
960MHz~1GHz



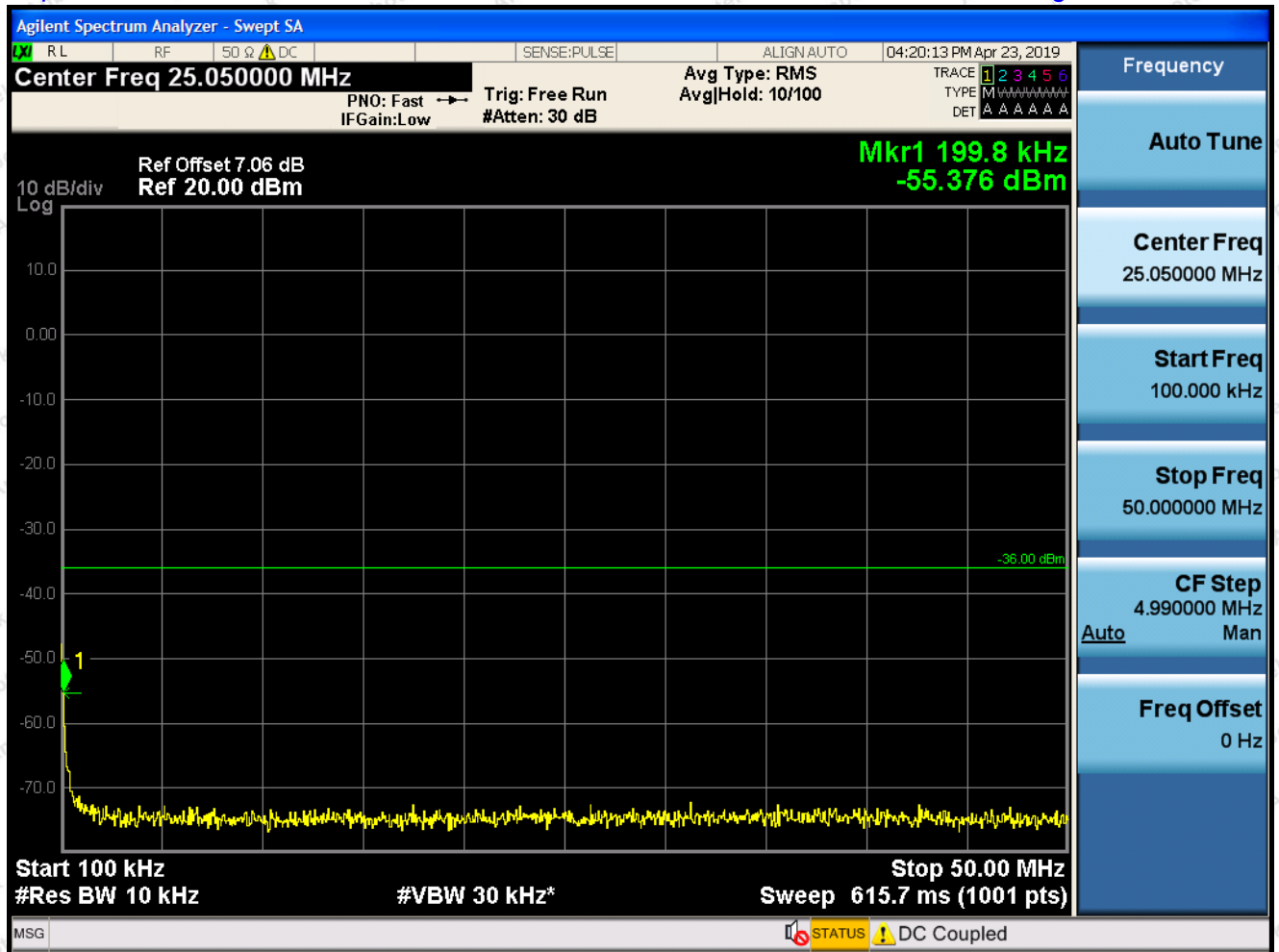
1880MHz~12.75GHz



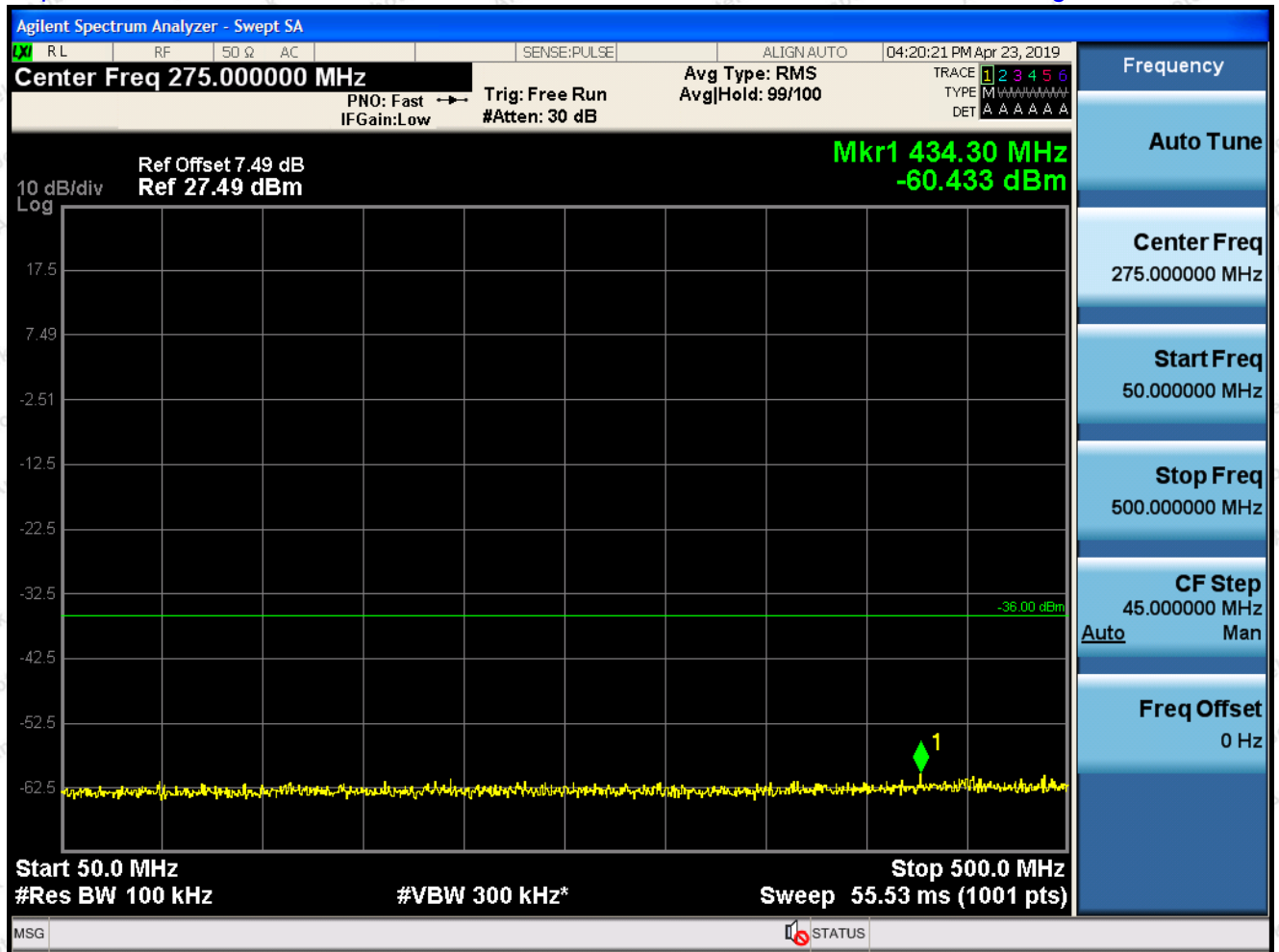
a) DCS1800: channel MCH VN  
9kHz~100kHz



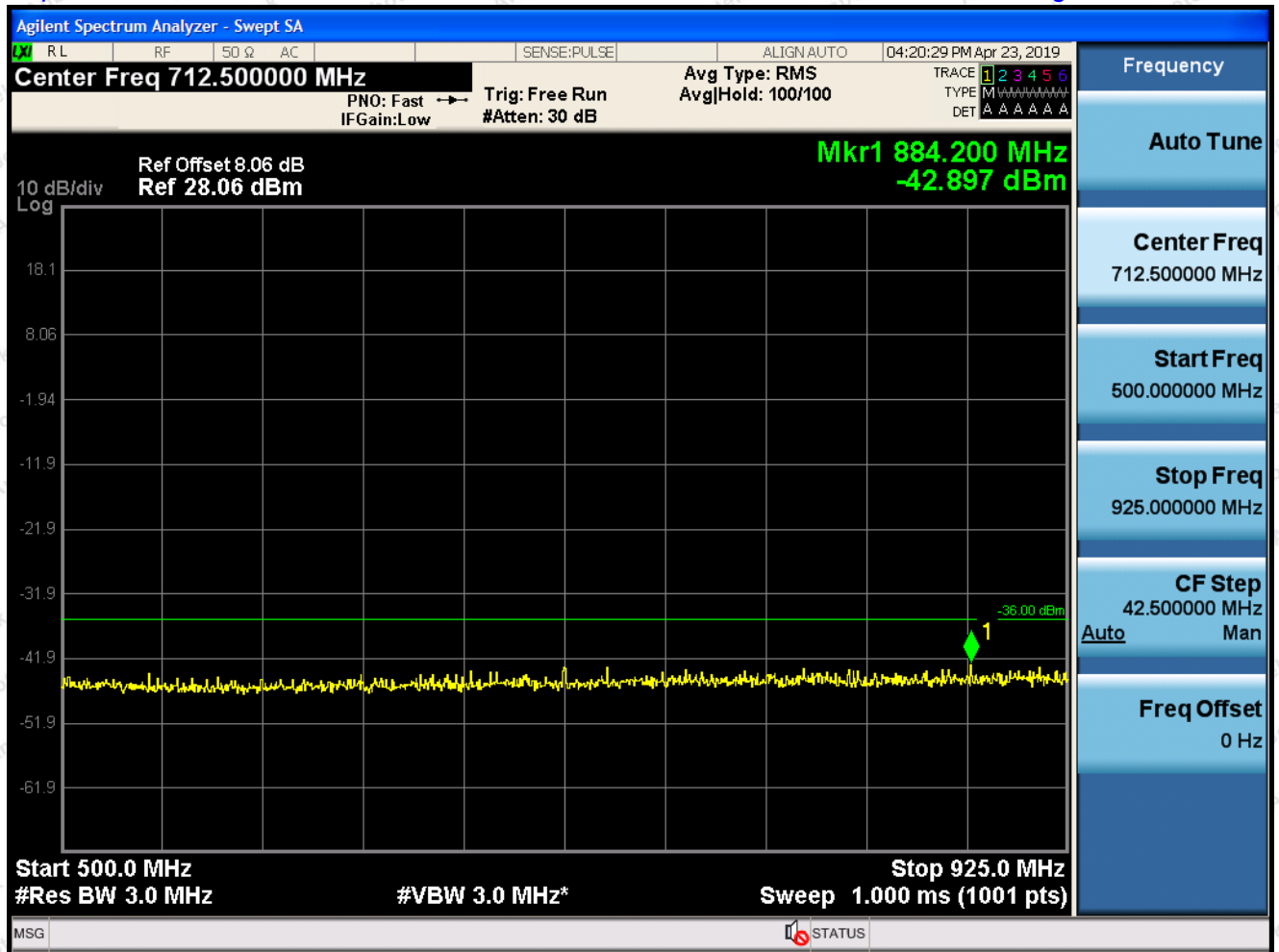
100kHz~50MHz



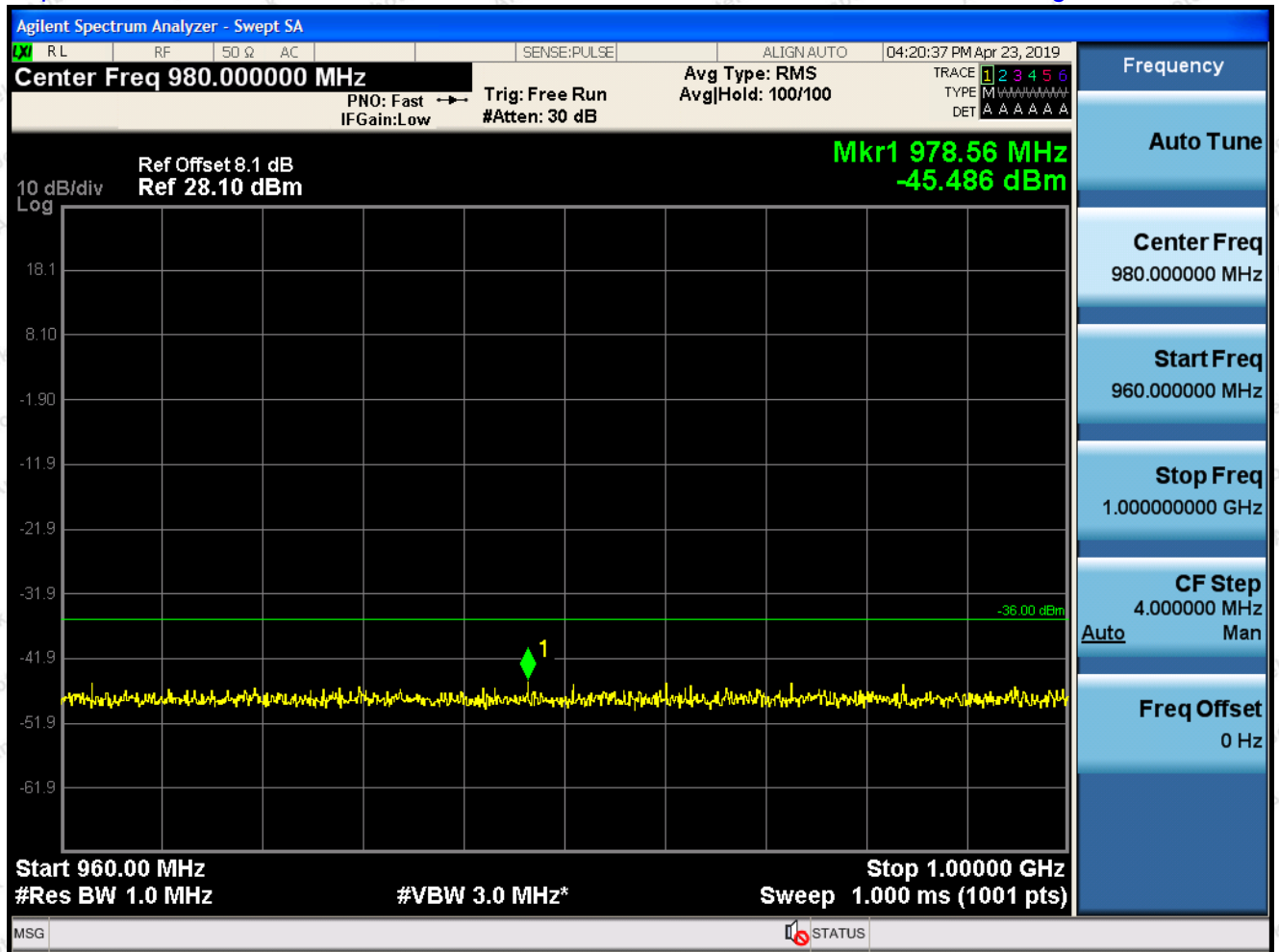
50MHz~500MHz



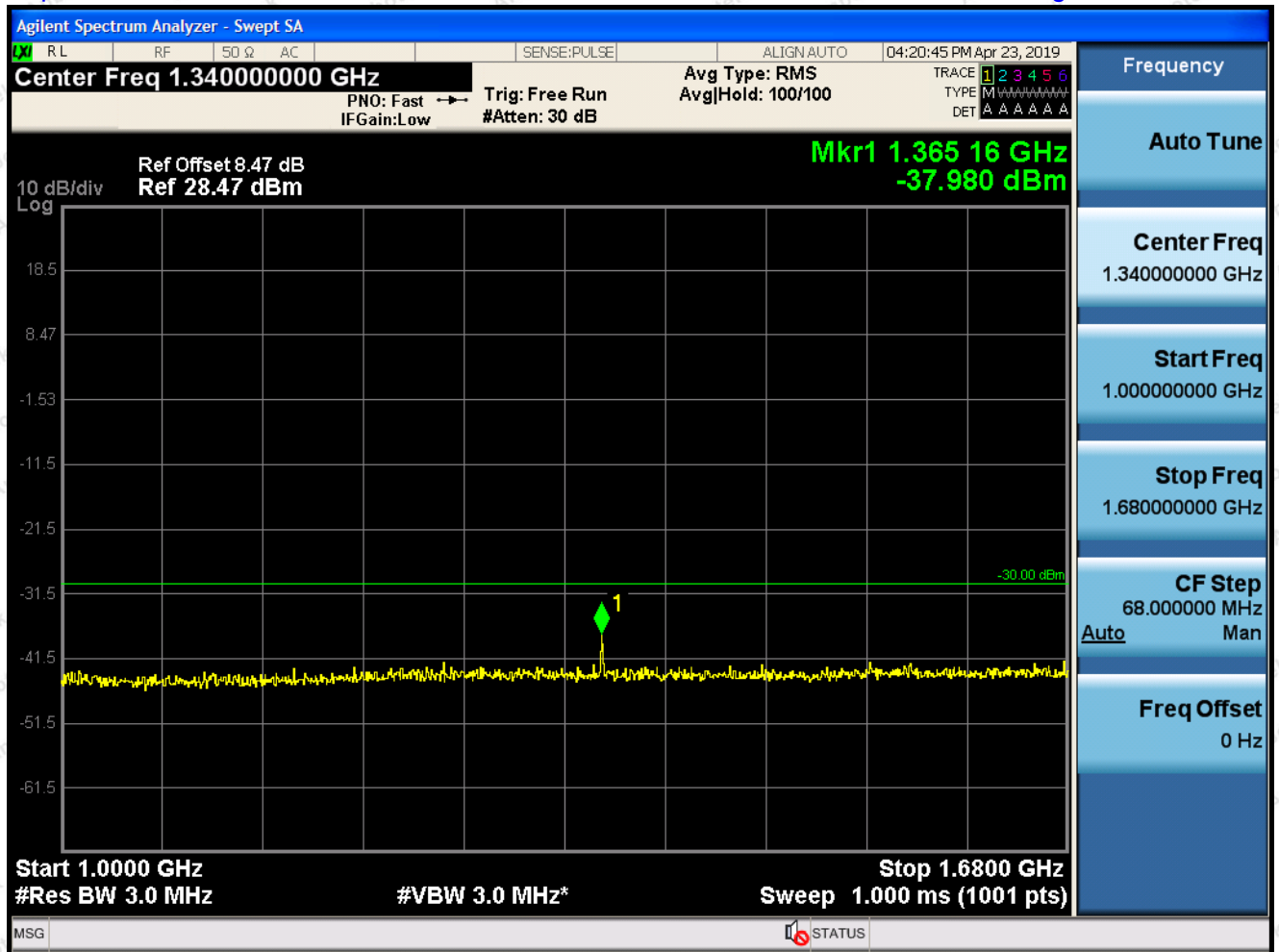
500MHz~925MHz



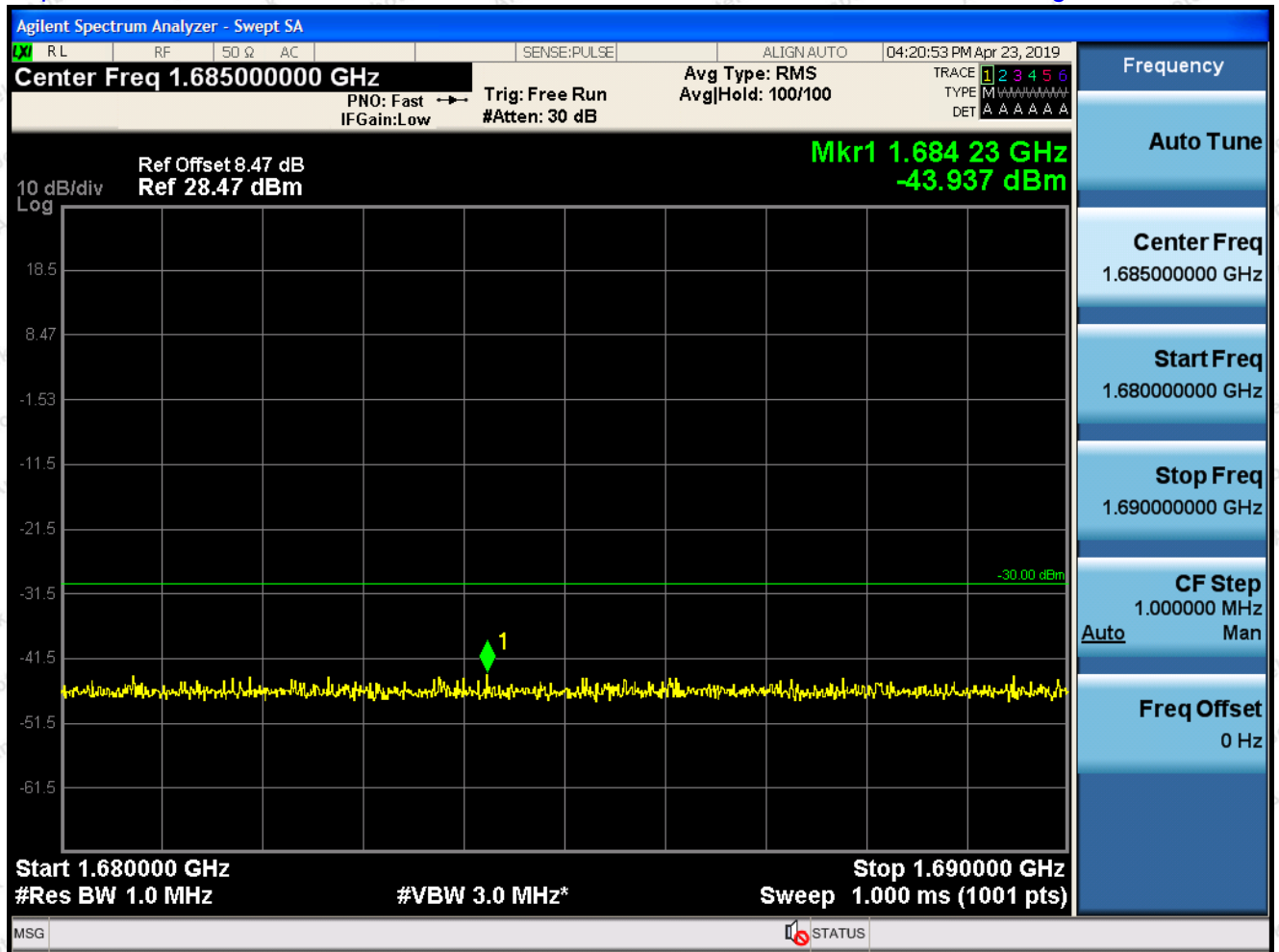
960MHz~1GHz



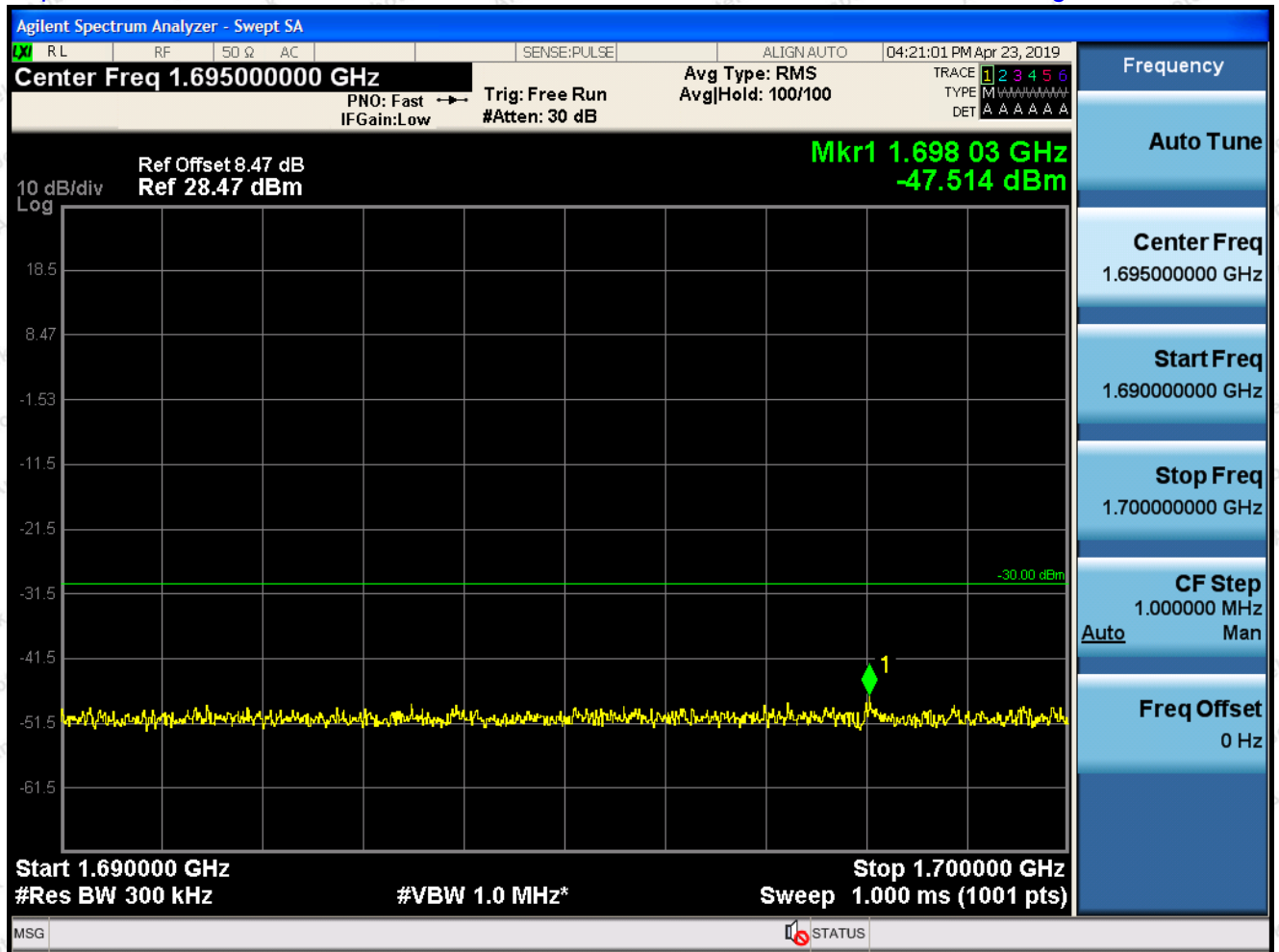
1GHz~1680MHz



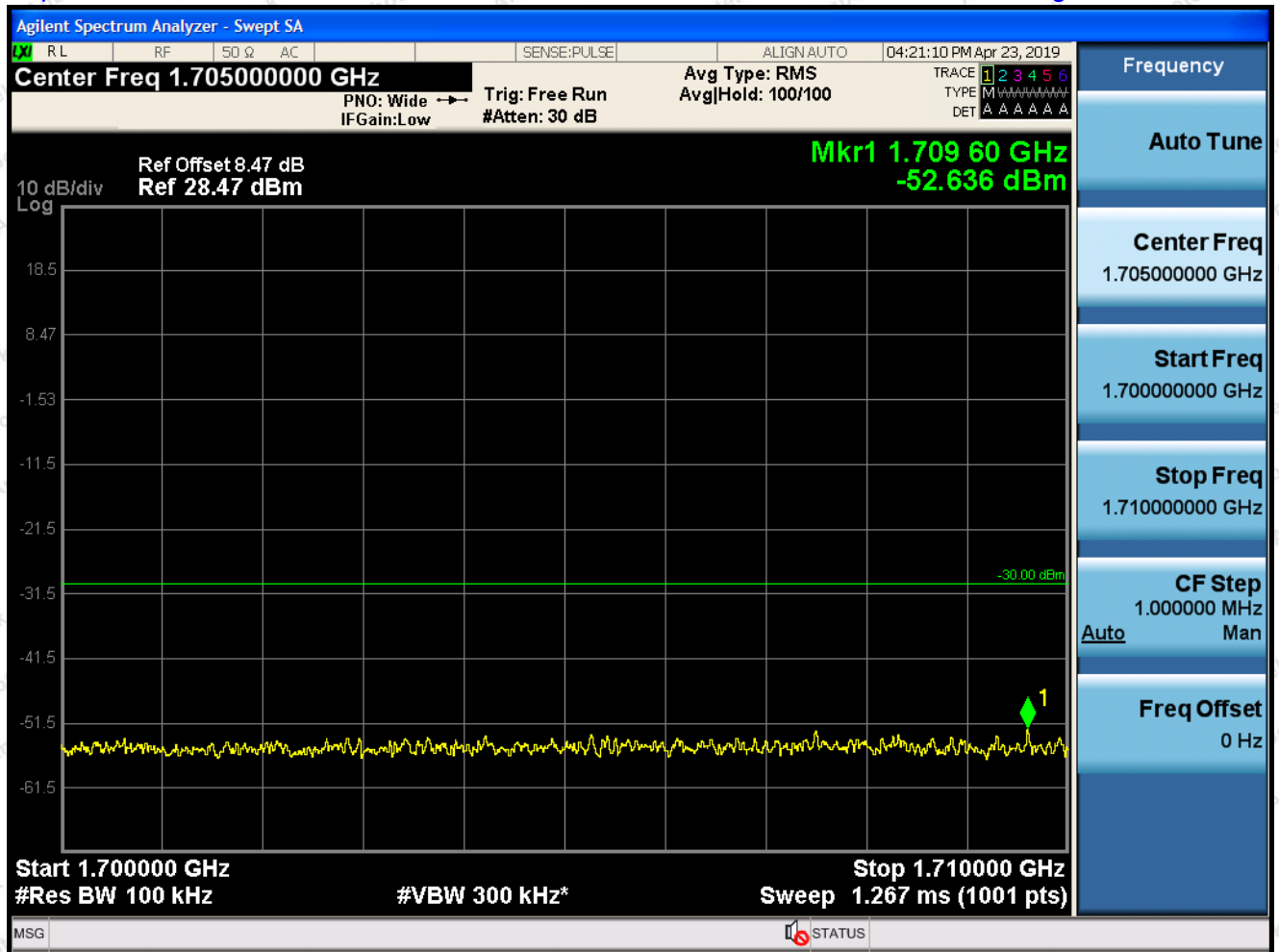
1680MHz~1690MHz



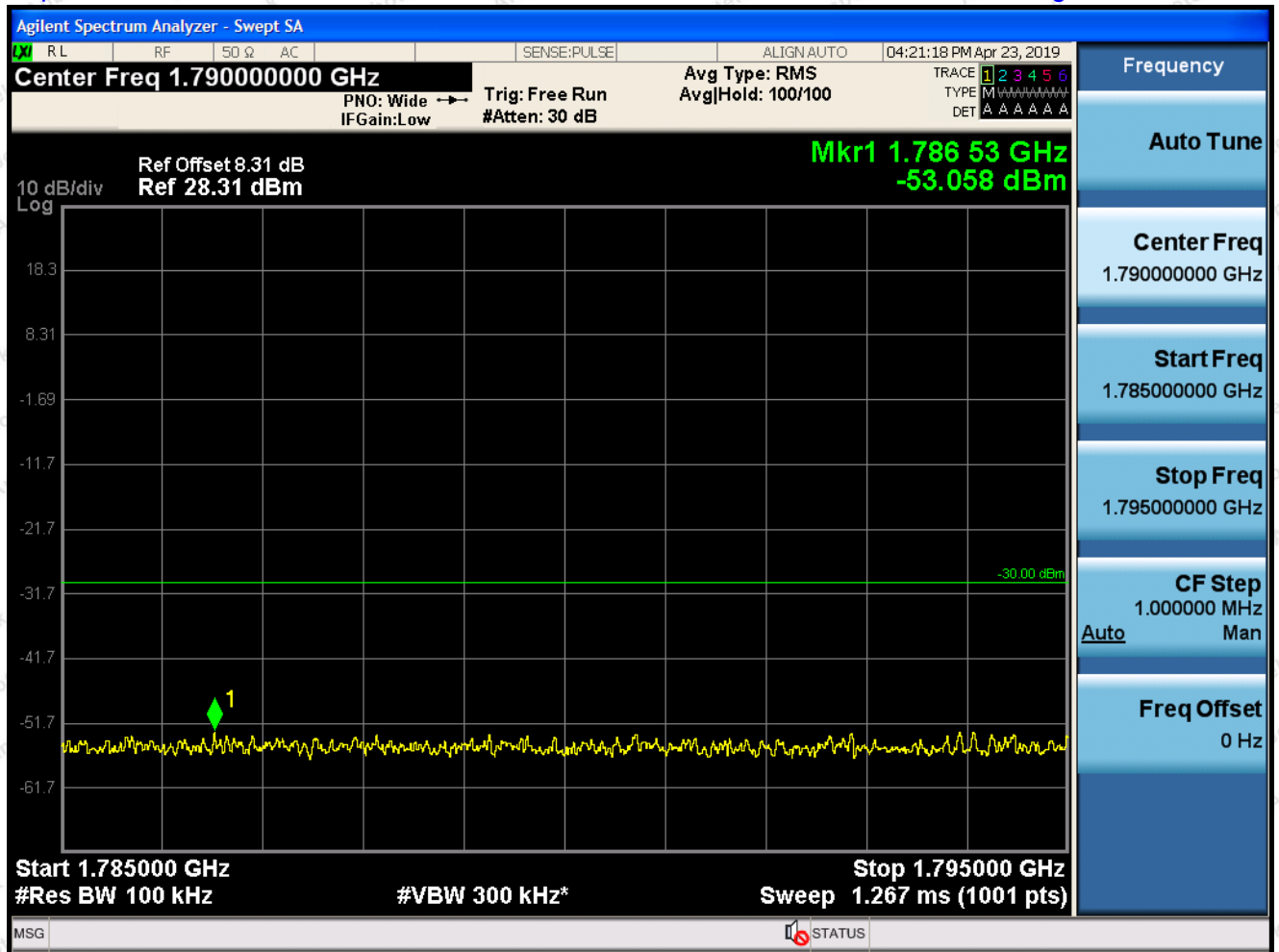
1690MHz~1700MHz



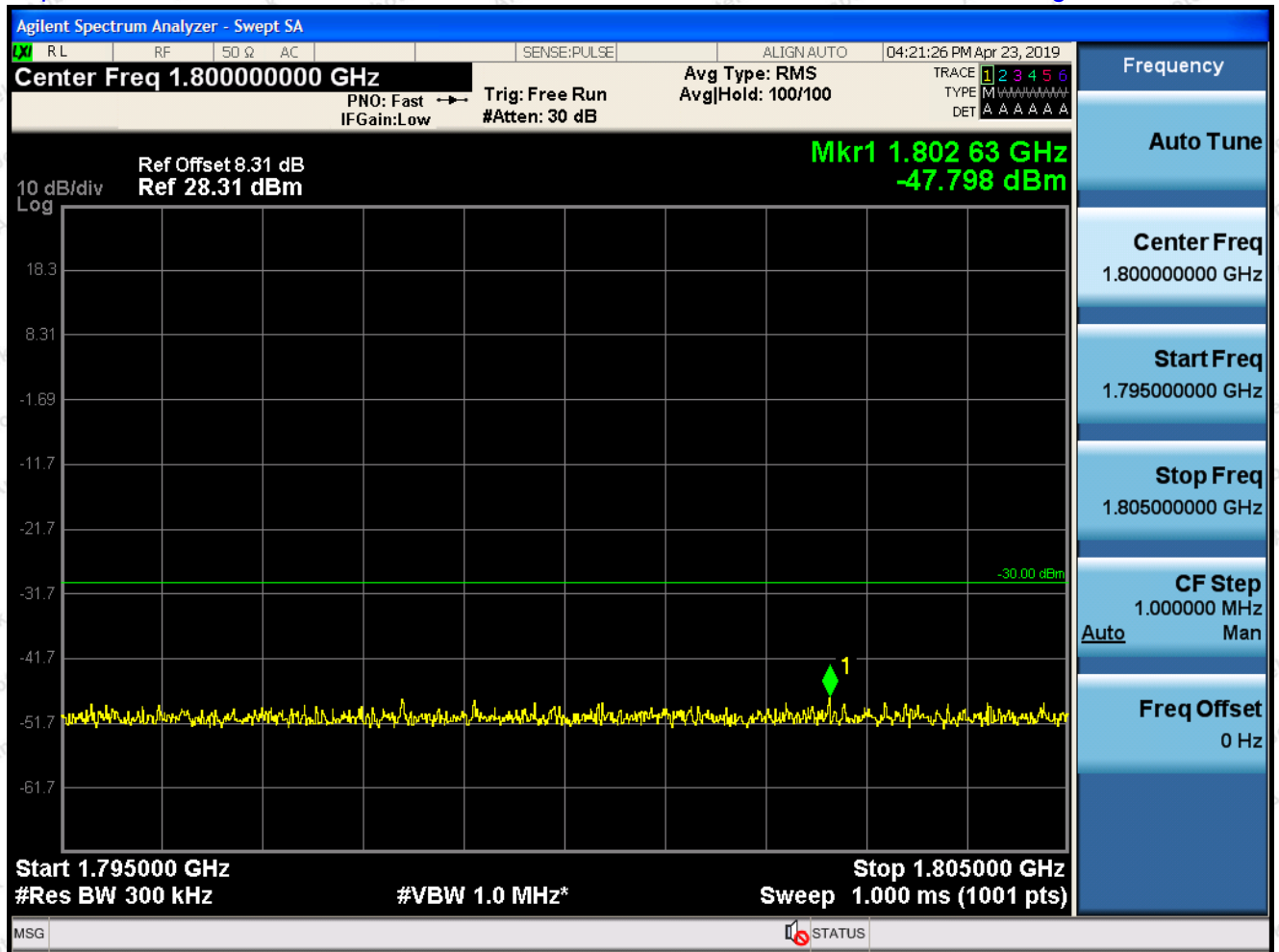
1700MHz~1710MHz



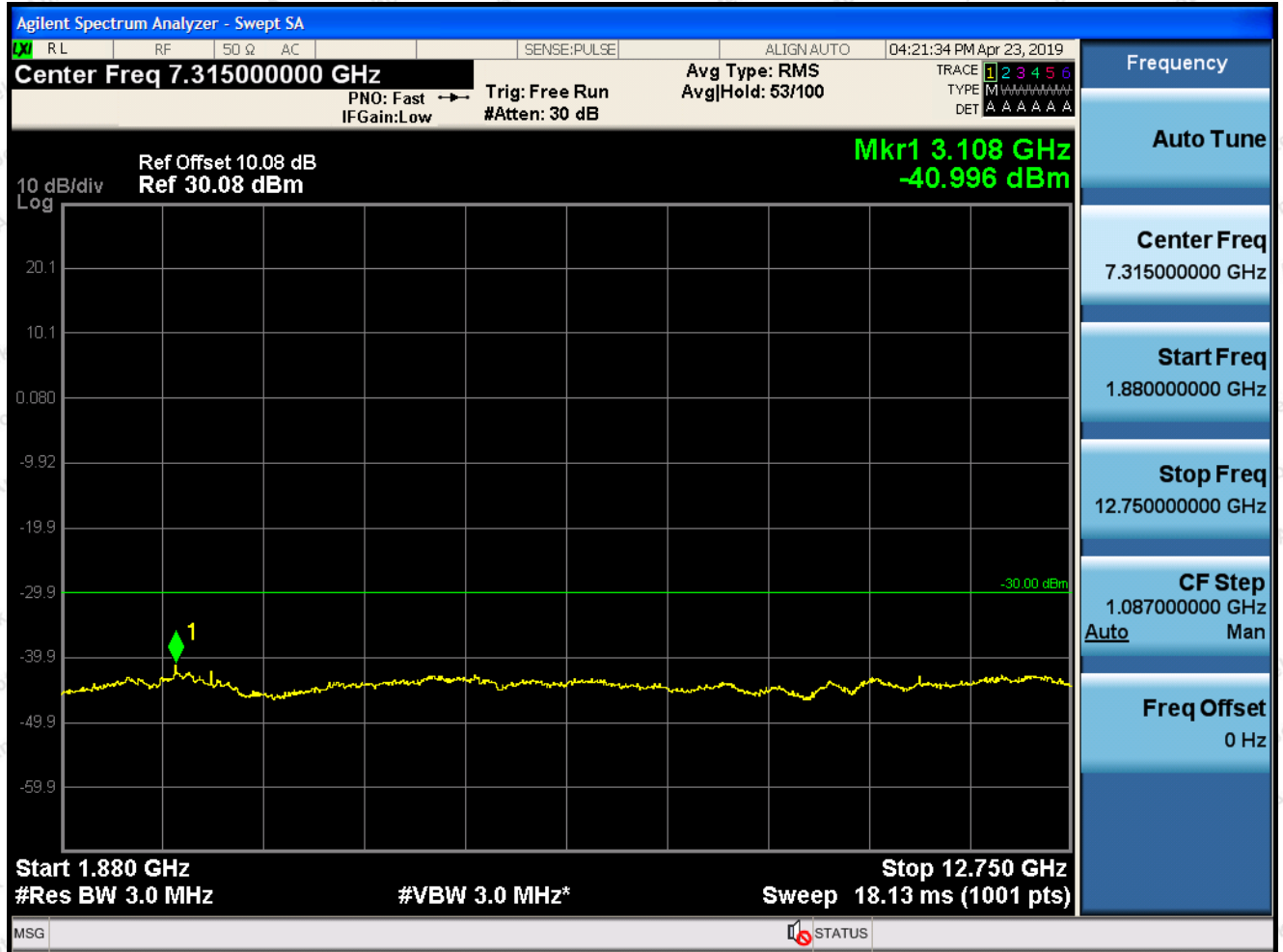
1785MHz~1795MHz



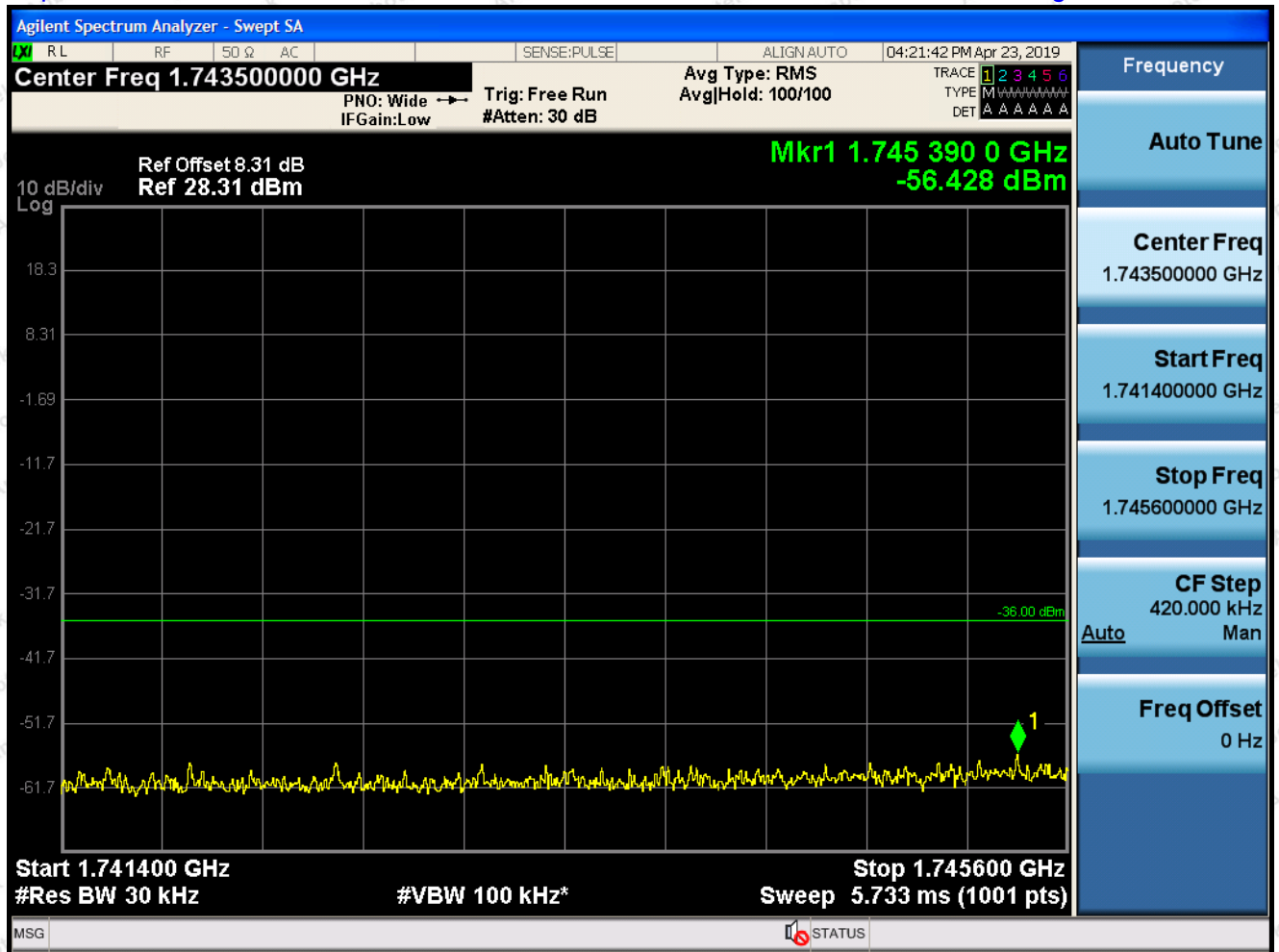
1795MHz~1805MHz



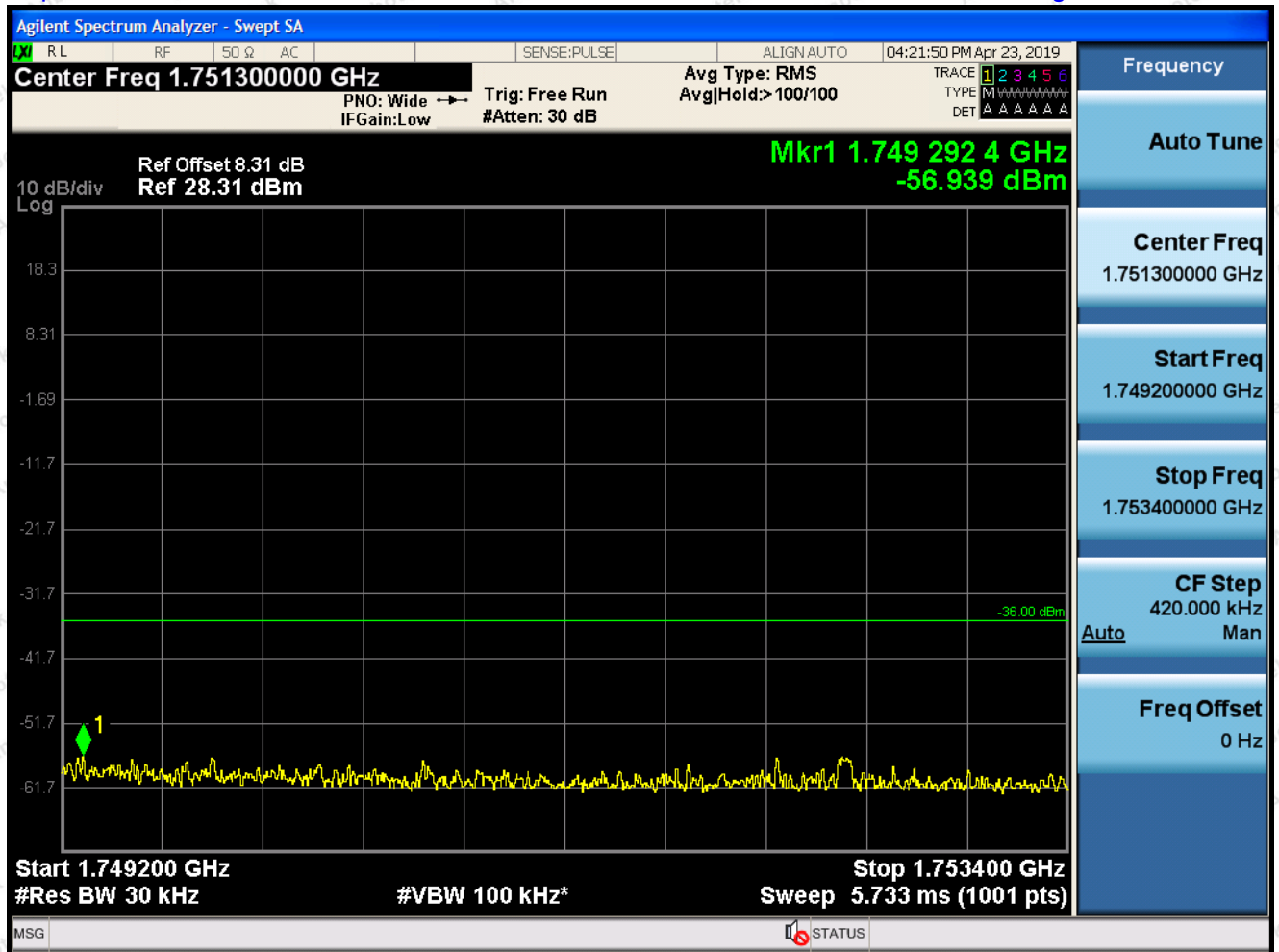
1880MHz~12.75GHz



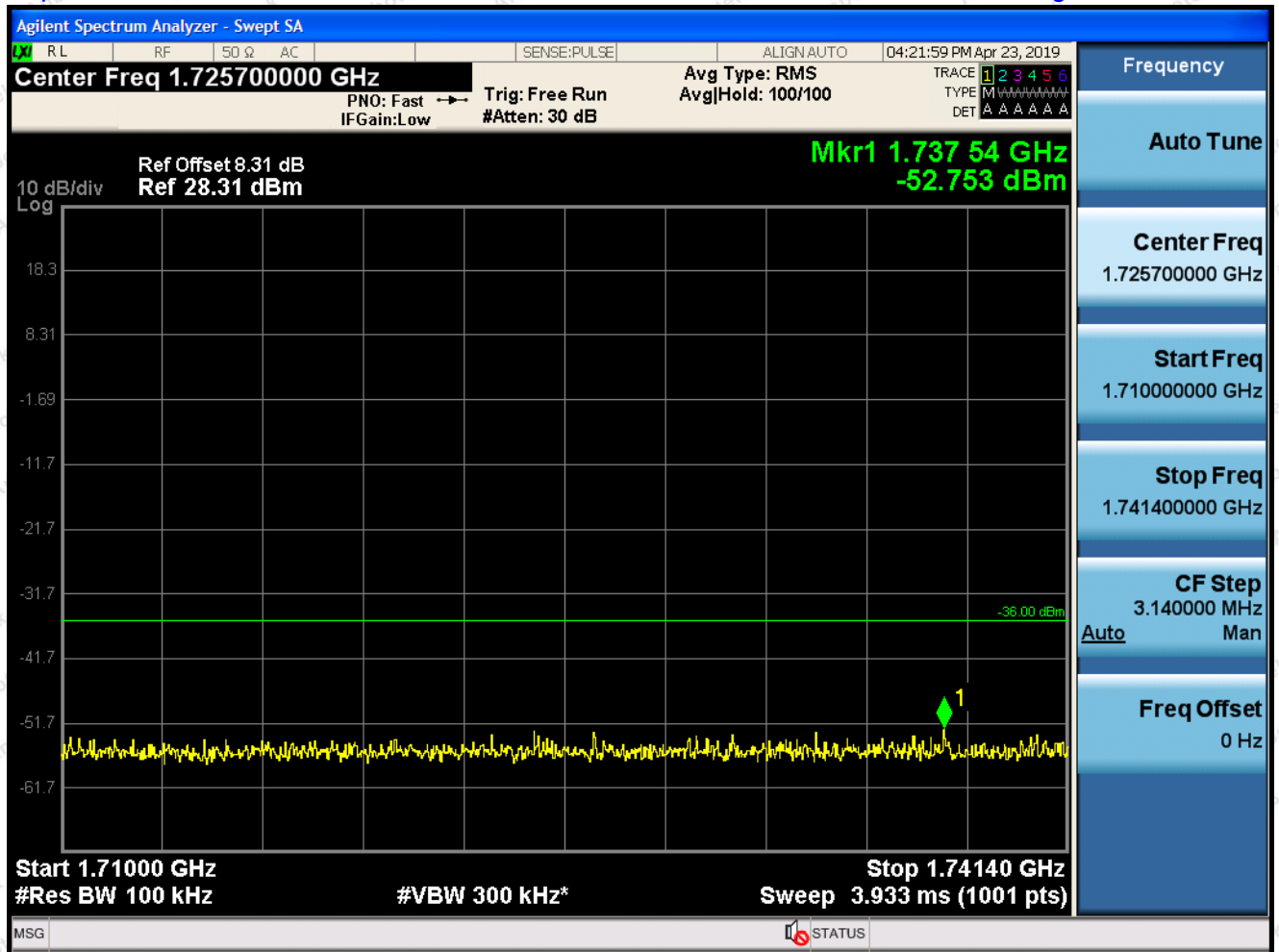
1741.4MHz~1745.6MHz



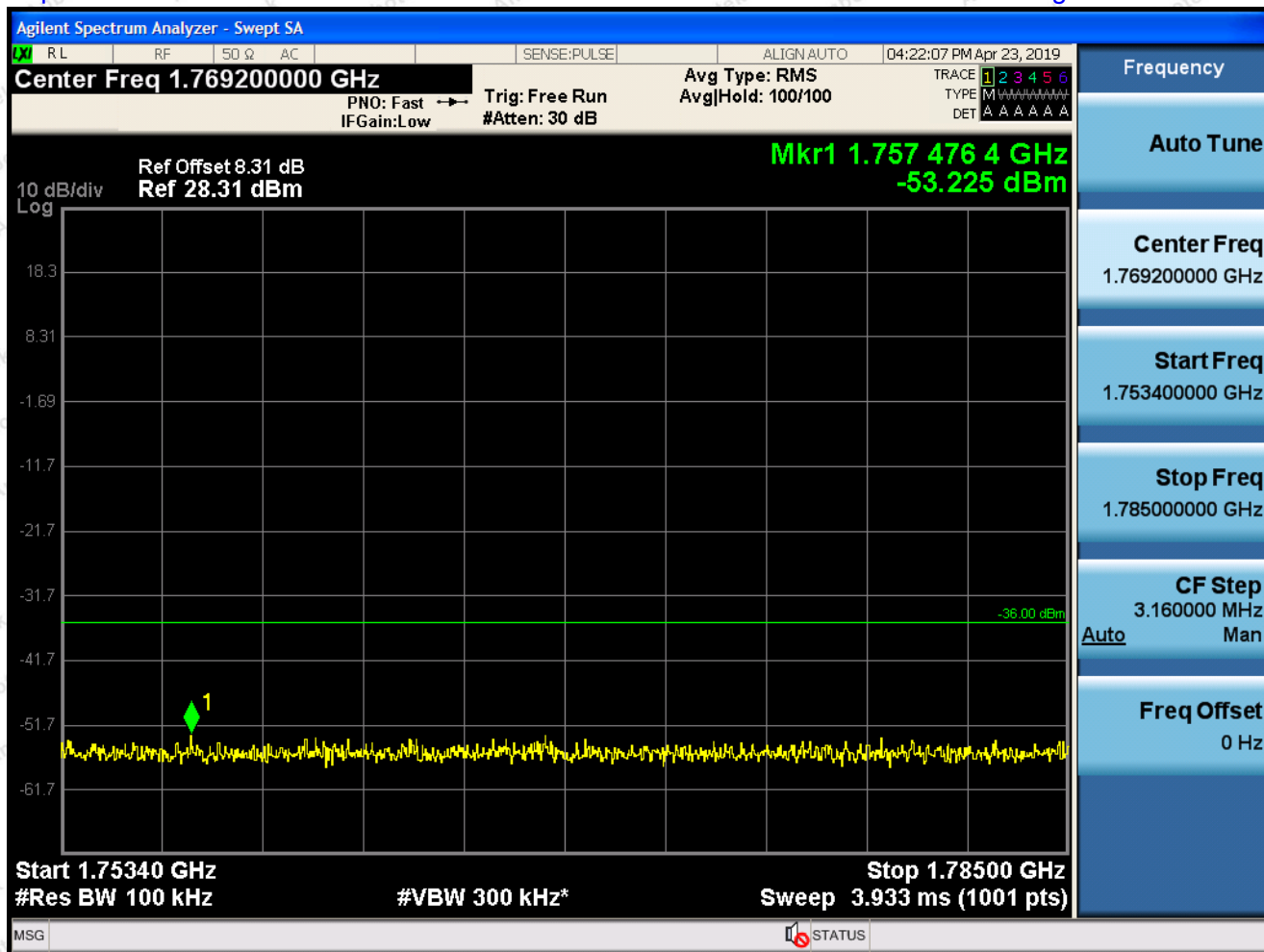
1749.2MHz~1753.4MHz



1710MHz~1741.4MHz



1753.4MHz~1785MHz



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## 7. Radiated Spurious Emissions

### 7.1. Test Limit

The power of any spurious emission shall not exceed the levels given in below table  
MS allocated a channel

Frequency range	Power level in dBm		
	GSM 400, GSM 700, T-GSM 810 GSM 850, GSM 900	DCS 1 800	PCS 1 900
30 MHz to 1 GHz	-36	-36	-36
1 GHz to 4 GHz	-30	-30	-30
1 GHz to 1 710 MHz		-30	
1 710 MHz to 1 785 MHz		-36	
1 785 MHz to 4GHz		-30	

MS in idle mode

Frequency range		Power level in dBm	
		GSM 400, T-GSM 810 GSM 900, DCS 1 800	GSM 700, GSM 850, PCS 1 900
30 MHz to 880 MHz	880 MHz	-57	-57
880 MHz to 915 MHz	915 MHz	-59	-57
915 MHz to 1 000 MHz	1 000 MHz	-57	-57
1 GHz to 1 710 MHz	1 710 MHz	-47	
1 710 MHz to 1 785 MHz	1 785 MHz	-53	
1 785 MHz to 4 GHz	4 GHz	-47	
1 GHz to 1 850 MHz	1 850 MHz		-47
1 850 MHz to 1 910 MHz	1 910 MHz		-53
1 910 MHz to 4 GHz	4 GHz		-47

### 7.2. Test Setup

Refer to clause 3

### 7.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 12.2.1.3&12.2.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 12.2.1.4&12.2.2.4 for the measurement method.
3. All supported bands(GSM900 and DCS1800) have been tested, only worst data listed.

### 7.4. Test Result

Test Mode: GSM 900 Middle Channel CH63:902.6MHz Normal power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-51.71	-36	15.71
460.0	V	-63.66	-36	27.66
715.4	V	-57.35	-36	21.35
1805.2	V	-42.06	-30	12.06
308.4	H	-57.45	-36	21.45
436.7	H	-53.65	-36	17.65
509.5	H	-53.41	-36	17.41
1805.2	H	-43.54	-30	13.54

Test Mode: DCS 1800 Middle Channel CH698:1747.4MHz Normal power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-54.03	-36	18.03
460.0	V	-58.13	-36	22.13
715.4	V	-57.66	-36	21.66
3494.8	V	-44.08	-30	14.08
308.4	H	-59.68	-36	23.68
436.7	H	-63.54	-36	27.54
509.5	H	-58.57	-36	22.57
3494.8	H	-40.18	-30	10.18

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## 7.5. Test Results for MS in idle mode

Test result (GSM900)				
Test Mode: Idle mode Normal power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-73.22	-57	16.22
459.6	V	-72.58	-57	15.58
714.9	V	-76.13	-57	19.13
308.3	H	-76.85	-57	19.85
437.0	H	-76.16	-57	19.16
509.2	H	-74.05	-57	17.05

## 8.Receiver Blocking and Spurious Response

### 8.1. Test Limit

The fixed testing of the conformance requirement is done using the minimum number of samples and the limit RBER given in table

Channel	Type of measurement	Test limit error rate %	Minimum number of samples
TCH/FS Class II	RBER	2,439	8 200

Statistical test limits for blocking performance of EGPRS mobiles

Blocking and spurious response for EGPRS mobiles						
	blocks per s	Orig. BLER requireme nt	Derived test limit	Target number of samples	Target test time (s)	Target test time (hh:mm:ss)
One time slot:						
PDTCH/MC S-4	50	0,100000	0,125100	3221	64	00:01:04
USF/MCS-4	50	0,010000	0,012510	32214	644	00:10:44
PDTCH/MC S-9	50	0,100000	0,125100	3221	64	00:01:04
USF/MCS-9	50	0,010000	0,012510	32214	644	00:10:44
Two time slots:						
PDTCH/MC S-4	100	0,100000	0,125100	3221	32	00:00:32
USF/MCS-4	100	0,010000	0,012510	32214	322	00:05:22
PDTCH/MC S-9	100	0,100000	0,125100	3221	32	00:00:32
USF/MCS-9	100	0,010000	0,012510	32214	322	00:05:22
Three time slots						
PDTCH/MC S-4	150	0,100000	0,125100	3221	21	00:00:21
USF/MCS-4	150	0,010000	0,012510	32214	215	00:03:35
PDTCH/MC S-9	150	0,100000	0,125100	3221	21	00:00:21

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S-9						
USF/MCS-9	150	0,010000	0,012510	32214	215	00:03:35
Four time slots						
PDTCH/MC S-4	200	0,100000	0,125100	3221	16	00:00:16
USF/MCS-4	200	0,010000	0,012510	32214	161	00:02:41
PDTCH/MC S-9	200	0,100000	0,125100	3221	16	00:00:16
USF/MCS-9	200	0,010000	0,012510	32214	161	00:02:41

### Statistical test limits for blocking performance of EGPRS mobiles

Blocking and spurious response for EGPRS mobiles						
	blocks per s	Orig. BLER requirement	Derived test limit	Target number of samples	Target test time (s)	Target test time (hh:mm:ss)
One time slot:						
PDTCH/MC S-4	50	0,100000	0,125100	3221	64	00:01:04
USF/MCS-4	50	0,010000	0,012510	32214	644	00:10:44
PDTCH/MC S-9	50	0,100000	0,125100	3221	64	00:01:04
USF/MCS-9	50	0,010000	0,012510	32214	644	00:10:44
Two time slots:						
PDTCH/MC S-4	100	0,100000	0,125100	3221	32	00:00:32
USF/MCS-4	100	0,010000	0,012510	32214	322	00:05:22
PDTCH/MC S-9	100	0,100000	0,125100	3221	32	00:00:32
USF/MCS-9	100	0,010000	0,012510	32214	322	00:05:22
Three time slots:						
PDTCH/MC S-4	150	0,100000	0,125100	3221	21	00:00:21
USF/MCS-4	150	0,010000	0,012510	32214	215	00:03:35
PDTCH/MC S-9	150	0,100000	0,125100	3221	21	00:00:21

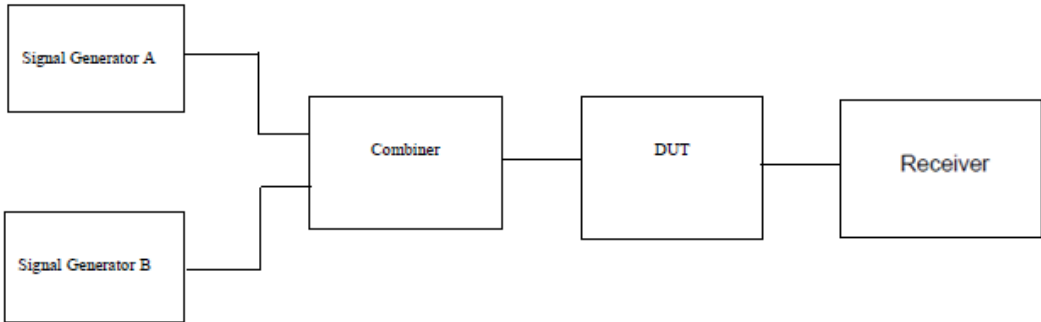
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S-9						
USF/MCS-9	150	0,010000	0,012510	32214	215	00:03:35
Four time slots						
PDTCH/MC S-4	200	0,100000	0,125100	3221	16	00:00:16
USF/MCS-4	200	0,010000	0,012510	32214	161	00:02:41
PDTCH/MC S-9	200	0,100000	0,125100	3221	16	00:00:16
USF/MCS-9	200	0,010000	0,012510	32214	161	00:02:41

8.2. Test Setup



8.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 14.7.1.5&14.18.5.5 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 14.7.1.4&14.18.5.4 for the measurement method.

8.4. Test Result

GPRS900						
Channel(MHz)	Test condition		number of samples	RBER(%)	Limit(%)	Result
880.2	normal		10000	1.506	2.439	PASS
902.6			10000	0.905		
914.8			10000	0.605		
EGPRS900						
Channel (MHz)	Test condition	time slot	number of samples	BLER(%)	Limit(%)	Result

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880.2	normal	1	10000	1.170	10	PASS
902.6			10000	0.314		
914.8			10000	1.177		
880.2		2	10000	0.160		PASS
902.6			10000	0.946		
914.8			10000	0.983		
880.2		3	10000	0.159		PASS
902.6			10000	1.550		
914.8			10000	0.978		
880.2		4	10000	0.685		PASS
902.6			10000	0.993		
914.8			10000	0.774		

GPRS1800

Channel(MHz)	Test condition	number of samples	RBBER(%)	Limit(%)	Result
1710.2	normal	10000	0.714	2.439	PASS
1747.4		10000	0.304		
1784.8		10000	0.563		

EGPRS1800

Channel (MHz)	Test condition	time slot	number of samples	BLER(%)	Limit(%)	Result
1710.2	normal	1	10000	0.702	10	PASS
1747.4			10000	0.245		
1784.8			10000	0.856		
1710.2		2	10000	0.418		PASS
1747.4			10000	0.458		
1784.8			10000	1.263		
1710.2		3	10000	1.468		PASS
1747.4			10000	1.747		
1784.8			10000	0.735		
1710.2		4	10000	0.334		PASS
1747.4			10000	0.296		
1784.8			10000	0.974		

## 9. Frequency Error and Modulation Accuracy in EGPRS Configuration

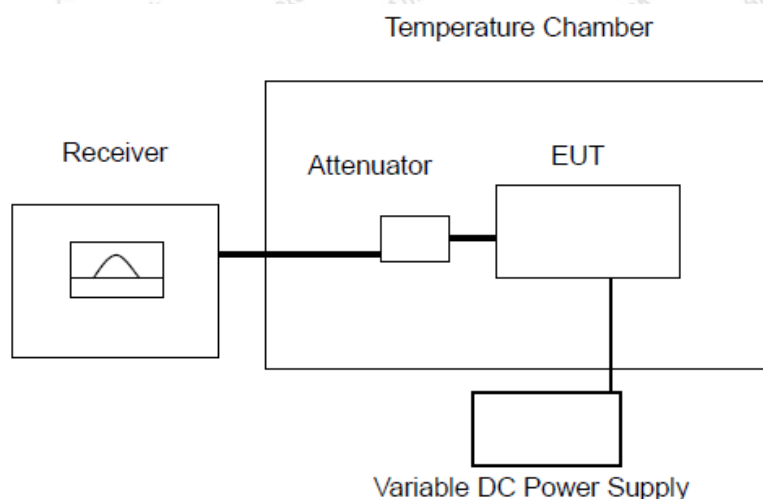
### 9.1. Test Limit

1. For all measured bursts, the frequency error, derived in step c.4), shall be less than  $10 \times 10^{-7}$ .
2. For all measured bursts, the RMS EVM, derived in step c.3) shall not exceed 9.0 % under normal conditions and 10.0% under extreme conditions.
3. The (averaged) value of peak EVM derived in step g) shall not exceed 30 %.
4. The 95:th percentile value derived in step i) shall not exceed 15 %.
5. The origin offset suppression derived in subclause 13.17.1.4.2 step h) shall exceed 30 dB for MS

### 9.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.1.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.1.4 for the measurement method..

### 9.3. Test Setup



### 9.4. Test Results

**MS under maximum power control level(8):**

EGPRS900	LCH ((880.2MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	14	15	15	14	13	0	<88	PASS
RMS EVM (%)	1.2	1.2	1.2	1.2	1.2	1.2	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	3.3	3.2	3.0	3.1	3.1	3.1	≤30	PASS
95:th percentile(%)	2.4	2.4	2.2	2.3	2.3	2.3	≤15	PASS
OOS Values(dB)	-57.4	-57.7	-58.4	-58.9	-58.2	58.4	>30 for MS	PASS

**MS under maximum power control level(19):**

EGPRS900	LCH ((880.2MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	13	17	16	12	15	0	<88	PASS
RMS EVM (%)	1.1	1.2	1.1	1.1	1.1	1.2	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	3.1	3.1	3.1	3.1	3.1	3.2	≤30	PASS
95:th percentile(%)	2.1	2.1	2.1	2.1	2.1	2.1	≤15	PASS
OOS Values(dB)	-57.5	-56.8	-58.0	-56.9	-57.6	58.2	>30 for MS	PASS

**MS under maximum power control level(8):**

EGPRS900	MCH (902.6MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	13	15	13	14	13	0	<90.1	PASS
RMS EVM (%)	1.3	1.3	1.2	1.2	1.2	1.2	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	3.2	3.3	3.1	3.3	3.1	3.1	≤30	PASS
95:th percentile(%)	2.3	2.4	2.3	2.3	2.2	2.3	≤15	PASS
OOS Values(dB)	-57.5	-57.1	-57.7	-57.7	-58.3	57.6	>30 for MS	PASS

**MS under maximum power control level(19):**

EGPRS900	MCH (902.6MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	13	14	13	14	16	0	<90.1	PASS
RMS EVM (%)	1.1	1.1	1.2	1.2	1.1	1.1	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	3.0	3.0	3.2	3.2	3.0	3.0	≤30	PASS
95:th percentile(%)	2.0	2.1	2.2	2.1	2.1	2.0	≤15	PASS
OOS Values(dB)	-57.9	-56.8	-57.5	-57.2	-57.8	57.4	>30 for MS	PASS

**MS under maximum power control level(8):**

EGPRS900	HCH (914.8MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	15	12	15	13	14	0	<91.5	PASS
RMS EVM (%)	1.2	1.3	1.3	1.3	1.3	1.2	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	3.2	3.3	3.3	3.2	3.2	3.2	≤30	PASS
95:th percentile(%)	2.3	2.3	2.4	2.4	2.4	2.3	≤15	PASS
OOS Values(dB)	-57.3	-57.9	-57.5	-57.6	-57.4	58.7	>30 for MS	PASS

**MS under maximum power control level(19):**

EGPRS900	HCH (914.8MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	16	12	15	15	15	0	<91.5	PASS
RMS EVM (%)	1.2	1.2	1.3	1.3	1.2	1.2	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	3.3	3.3	3.5	3.5	3.3	3.3	≤30	PASS
95:th percentile(%)	2.3	2.2	2.3	2.4	2.2	2.3	≤15	PASS
OOS Values(dB)	-57.4	-56.7	-56.3	-55.8	-56.4	56.7	>30 for MS	PASS

**MS under maximum power control level(2):**

EGPRS1800	LCH ((1710.2MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	11	0	7	10	9	0	<171	PASS
RMS EVM (%)	2.4	1.5	1.5	2.3	2.4	2.3	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	6.9	4.2	4.0	6.5	6.9	6.6	≤30	PASS
95:th percentile(%)	4.5	3.0	2.9	4.4	4.6	4.4	≤15	PASS
OOS Values(dB)	11	0	7	10	9	0	>30 for MS	PASS

**MS under maximum power control level(15):**

EGPRS1800	LCH ((1710.2MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	8	2	0	9	8	0	<171	PASS
RMS EVM (%)	2.6	1.3	1.4	2.6	2.6	2.6	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	7.6	3.4	3.5	7.3	7.3	7.1	≤30	PASS
95:th percentile(%)	4.7	2.7	2.6	4.7	4.8	4.7	≤15	PASS
OOS Values(dB)	-52.6	-57.6	-56.9	-51.7	-52.2	50.7	>30 for MS	PASS

**MS under maximum power control level(2):**

EGPRS1800	MCH ((1747.4MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	12	8	2	10	11	0	<174.7	PASS
RMS EVM (%)	1.8	1.5	1.6	1.8	1.9	1.8	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	5.2	4.2	4.6	5.0	5.3	5.0	≤30	PASS
95:th percentile(%)	3.4	2.8	3.0	3.3	3.6	3.4	≤15	PASS
OOS Values(dB)	12	8	2	10	11	0	>30 for MS	PASS

**MS under maximum power control level(15):**

EGPRS1800	MCH ((1747.4MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	7	8	9	6	10	0	<174.7	PASS
RMS EVM (%)	2.3	1.4	1.4	2.3	2.3	2.3	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	6.5	3.4	3.5	6.5	6.8	6.7	≤30	PASS
95:th percentile(%)	4.2	2.5	2.6	4.2	4.3	4.2	≤15	PASS
OOS Values(dB)	-52.8	-57.3	-56.8	-53.0	-52.9	53.3	>30 for MS	PASS

**MS under maximum power control level(2):**

EGPRS1800	HCH ((1784.8MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	12	8	2	10	11	0	<178.5	PASS
RMS EVM (%)	1.8	1.5	1.6	1.8	1.9	1.8	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	5.2	4.2	4.6	5.0	5.3	5.0	≤30	PASS
95:th percentile(%)	3.4	2.8	3.0	3.3	3.6	3.4	≤15	PASS
OOS Values(dB)	12	8	2	10	11	0	>30 for MS	PASS

**MS under maximum power control level(15):**

EGPRS1800	HCH ((1784.8MHz)							
Test Condition	TN/VN	TL/VL	TL/VH	TH/VL	TH/VH	Vibration	Limit	Result
Frequency Error (Hz)	13	9	8	9	7	0	<178.5	PASS
RMS EVM (%)	1.9	1.7	2.0	1.9	1.9	1.9	≤9.0 (Normal condition) ≤10.0(Extreme condition)	PASS
Peak EVM(%)	5.2	4.2	5.6	5.5	5.2	5.2	≤30	PASS
95:th percentile(%)	3.4	3.2	2.9	3.5	3.3	3.3	≤15	PASS
OOS Values(dB)	-56.2	-54.9	-54.2	-54.3	-55.4	53.9	>30 for MS	PASS

# 10.Frequency error under multipath and interference conditions in EGPRS Configuration

## 10.1.Test Limit

The frequency error, with reference to the SS carrier frequency as measured in repeats of step e), for each measured burst shall be less than the values shown in table

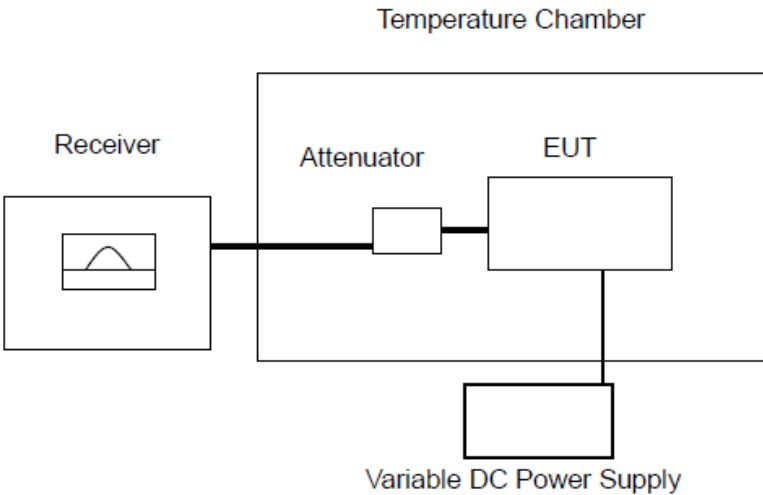
**Requirements for frequency error under multipath, Doppler shift and interference conditions**

GSM 400		T-GSM 810, GSM 850 and GSM 900		DCS 1 800 and PCS 1 900	
Propaga tion condition	Permitted frequency error	Propagatio n condition	Permitted frequency error	Propagati on condition	Permitted frequency error
RA500	±300 Hz	RA250	±300 Hz	RA130	±400 Hz
HT200	±180 Hz	HT100	±180 Hz	HT100	±350 Hz
TU100	±163 Hz	TU50	±163 Hz	TU50	±263 Hz
TU6	±230 Hz	TU3	±230 Hz	TU1,5	±320 Hz

## 10.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.2.4 for the measurement method..

10.3. Tet Setup



10.4. Test Results

Fading set	Test conditions	Result				
		GSM900				
		ARFCN				
		LCH	MCH	HCH	Limit	Result
RA250	TNVN	15	15	14	±300	PASS
	TLVL	15	16	14	±300	PASS
	TLVH	15	14	18	±300	PASS
	THVL	16	16	13	±300	PASS
	THVH	14	16	16	±300	PASS
HT100	TNVN	14	16	13	±180	PASS
	TLVL	14	14	15	±180	PASS
	TLVH	15	18	14	±180	PASS
	THVL	17	16	15	±180	PASS
	THVH	15	16	17	±180	PASS
TU50	TNVN	15	15	14	±163	PASS
	TLVL	13	14	13	±163	PASS
	TLVH	14	15	16	±163	PASS
	THVL	15	15	13	±163	PASS

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	THVH	16	15	14	±163	PASS
TU3	TNVN	14	13	15	±230	PASS
	TLVL	11	14	14	±230	PASS
	TLVH	13	17	15	±230	PASS
	THVL	14	14	12	±230	PASS
	THVH	15	14	13	±230	PASS

Fading set	Test conditions	Result				
		DCS1800				
		ARFCN				
		LCH	MCH	HCH	Limit	Result
RA130	TNVN	8	11	9	±400	PASS
	TLVL	13	10	14	±400	PASS
	TLVH	9	10	5	±400	PASS
	THVL	7	14	13	±400	PASS
	THVH	6	16	13	±400	PASS
HT100	TNVN	10	13	10	±350	PASS
	TLVL	12	11	9	±350	PASS
	TLVH	11	10	9	±350	PASS
	THVL	8	10	10	±350	PASS
	THVH	10	9	12	±350	PASS
TU50	TNVN	12	11	9	±263	PASS
	TLVL	9	9	10	±263	PASS
	TLVH	10	10	9	±263	PASS
	THVL	5	11	11	±263	PASS
	THVH	8	12	9	±263	PASS
TU1.5	TNVN	11	9	14	±320	PASS
	TLVL	9	10	9	±320	PASS
	TLVH	11	11	8	±320	PASS
	THVL	10	13	6	±320	PASS
	THVH	6	15	11	±320	PASS

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400-003-0500  
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## 11. EGPRS Transmitter Output Power

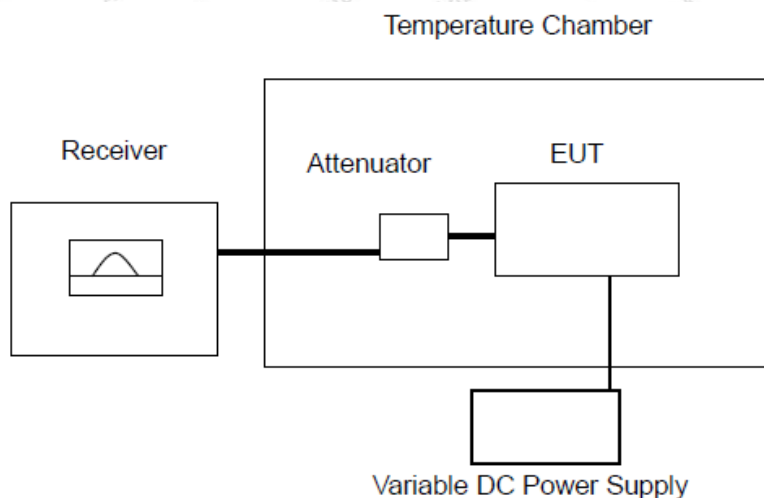
### 11.1. Test Limit

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.3.5

### 11.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.3.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.3.4 for the measurement method

### 11.3. Test Setup

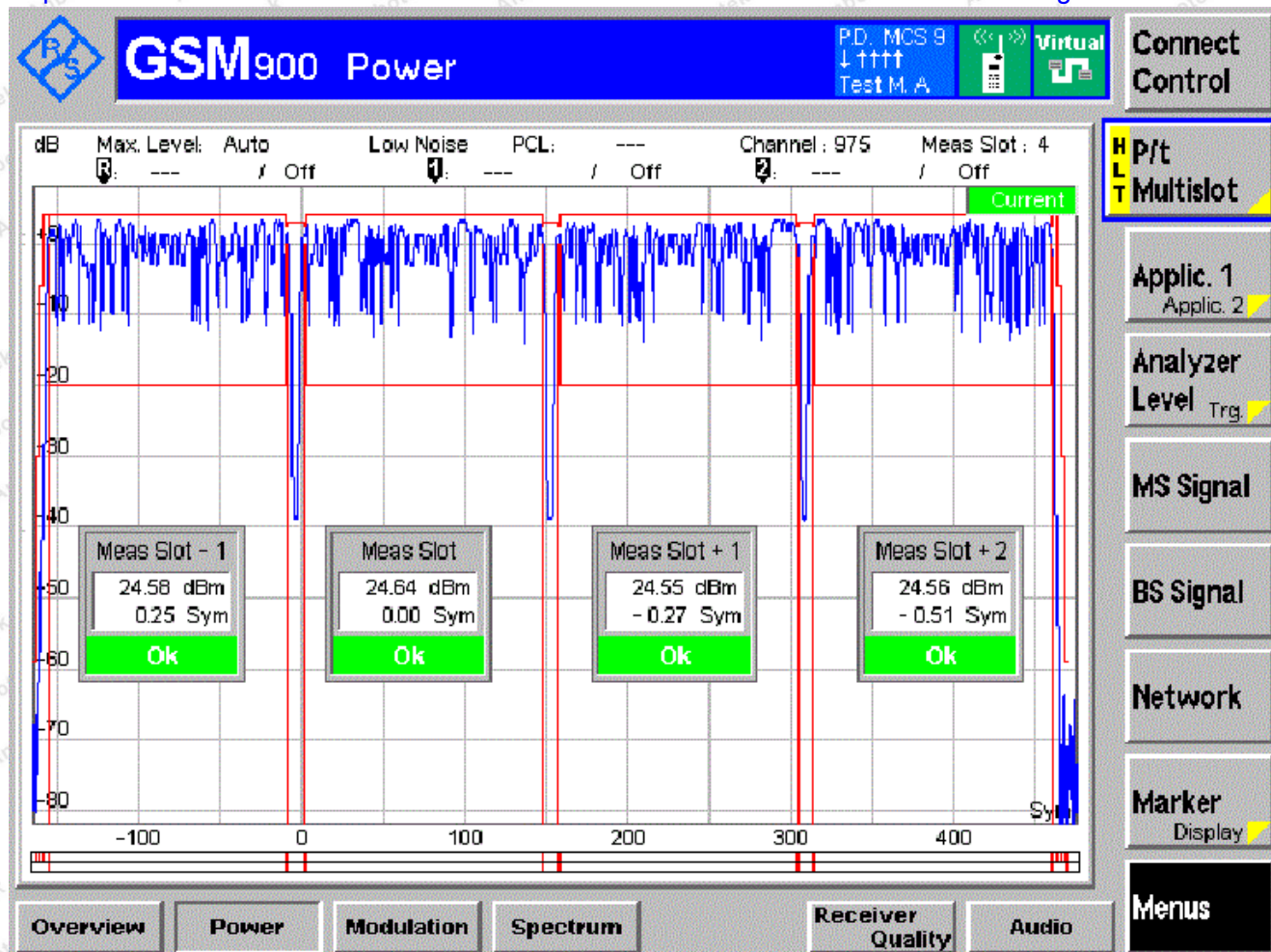


### 11.4. Test Results

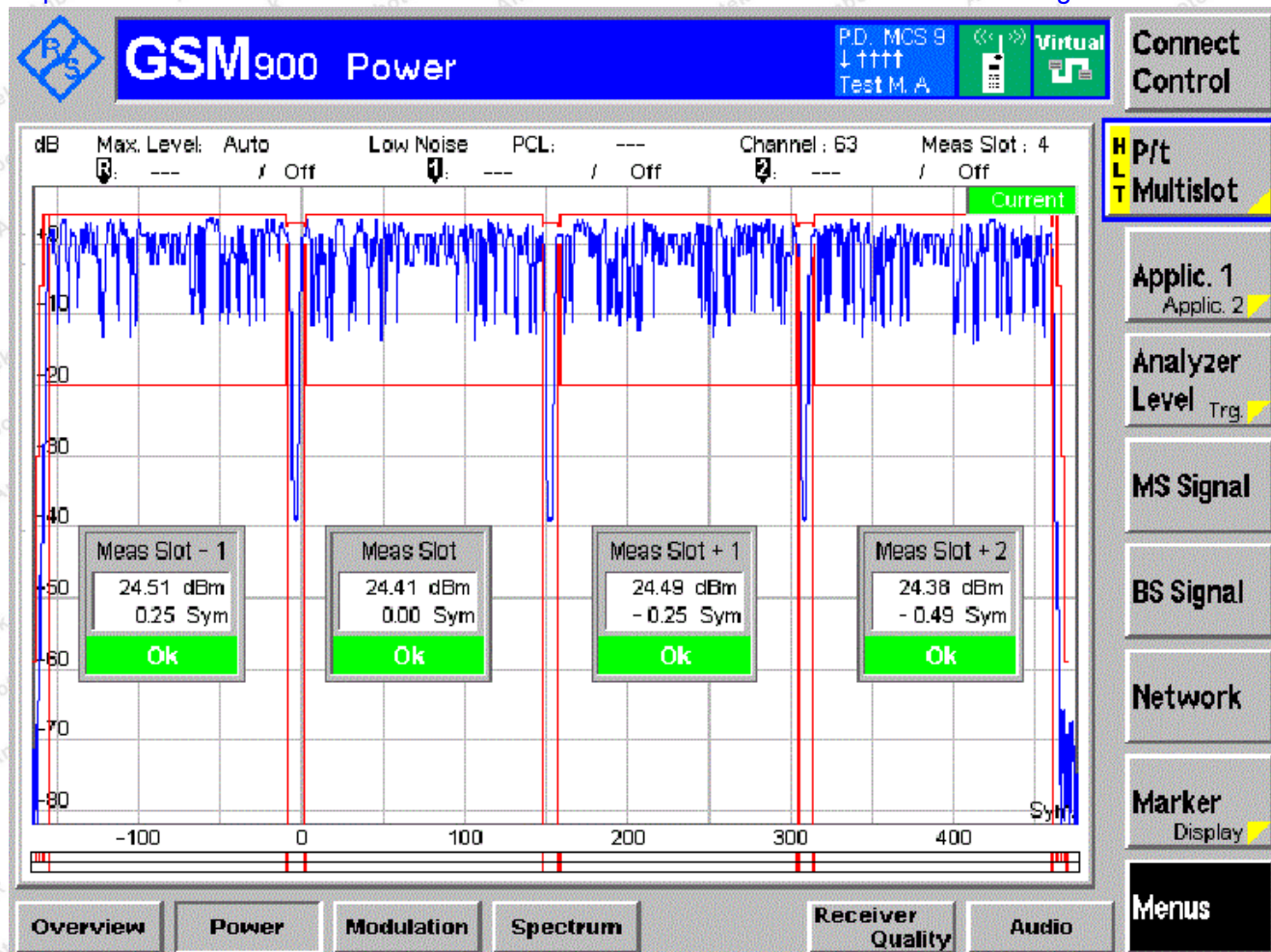
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
GSM900		LCH	MCH	HCH	Result
TN/VN	8	24.64	24.51	24.79	PASS
	12	16.87	16.72	16.98	PASS
	19	4.12	3.88	4.80	PASS

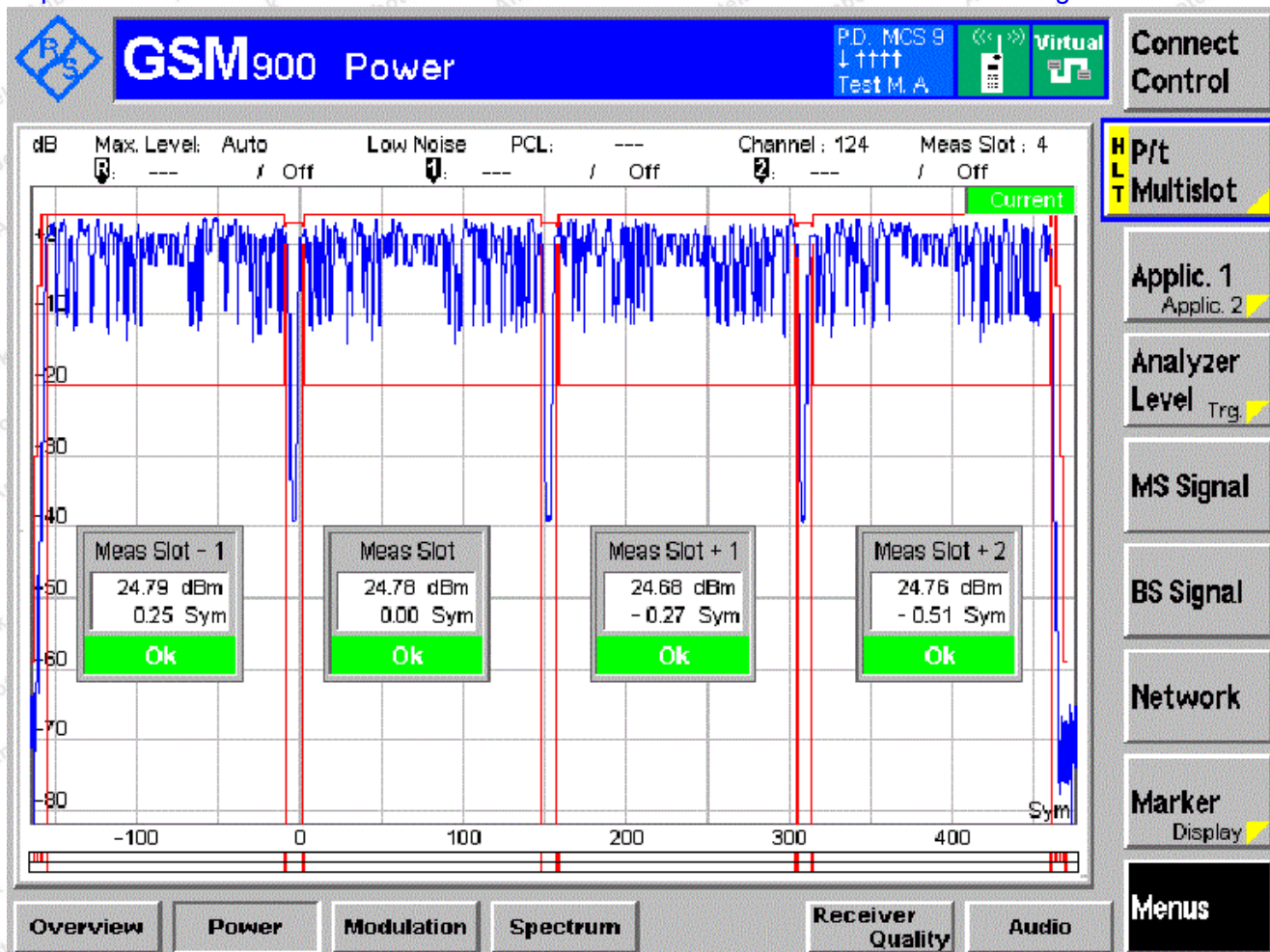
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
DCS1800		LCH	MCH	HCH	Result
TN/VN	2	25.23	25.21	25.15	PASS
	8	13.20	12.38	12.16	PASS
	15	1.10	1.19	1.24	PASS

a) GSM 900 TN/VN  
Channel LCH PCL 8

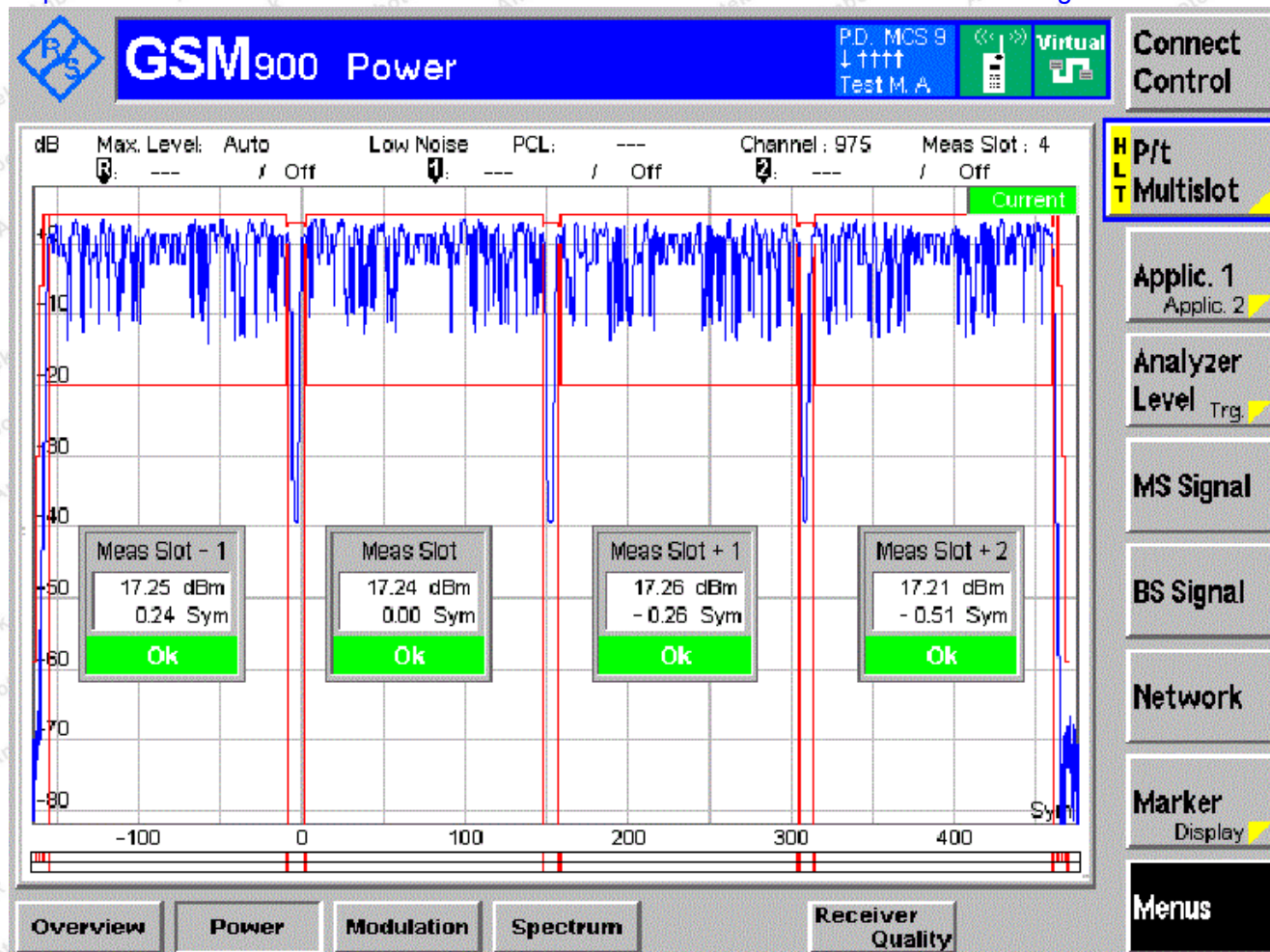


Channel MCH PCL 8

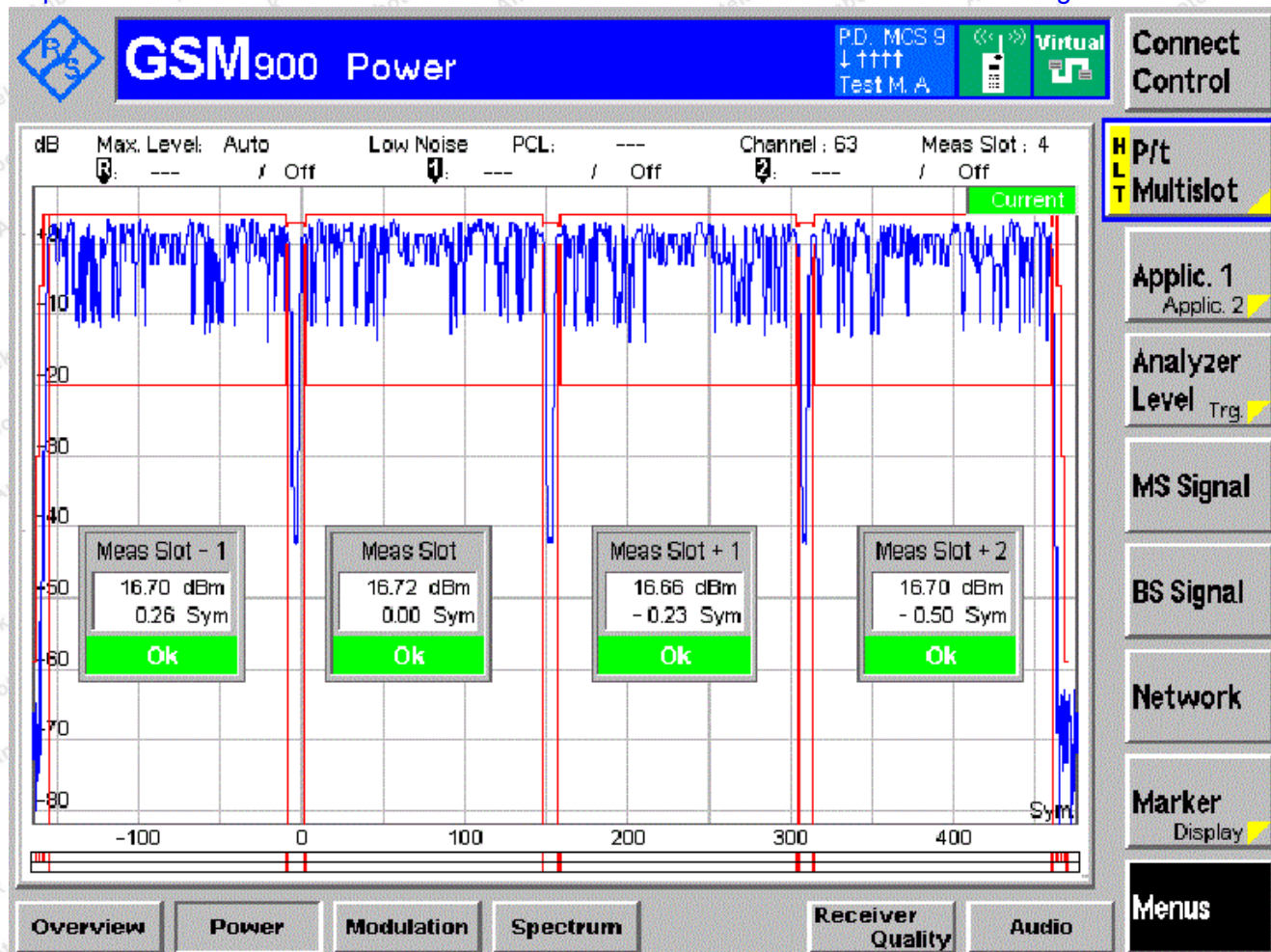




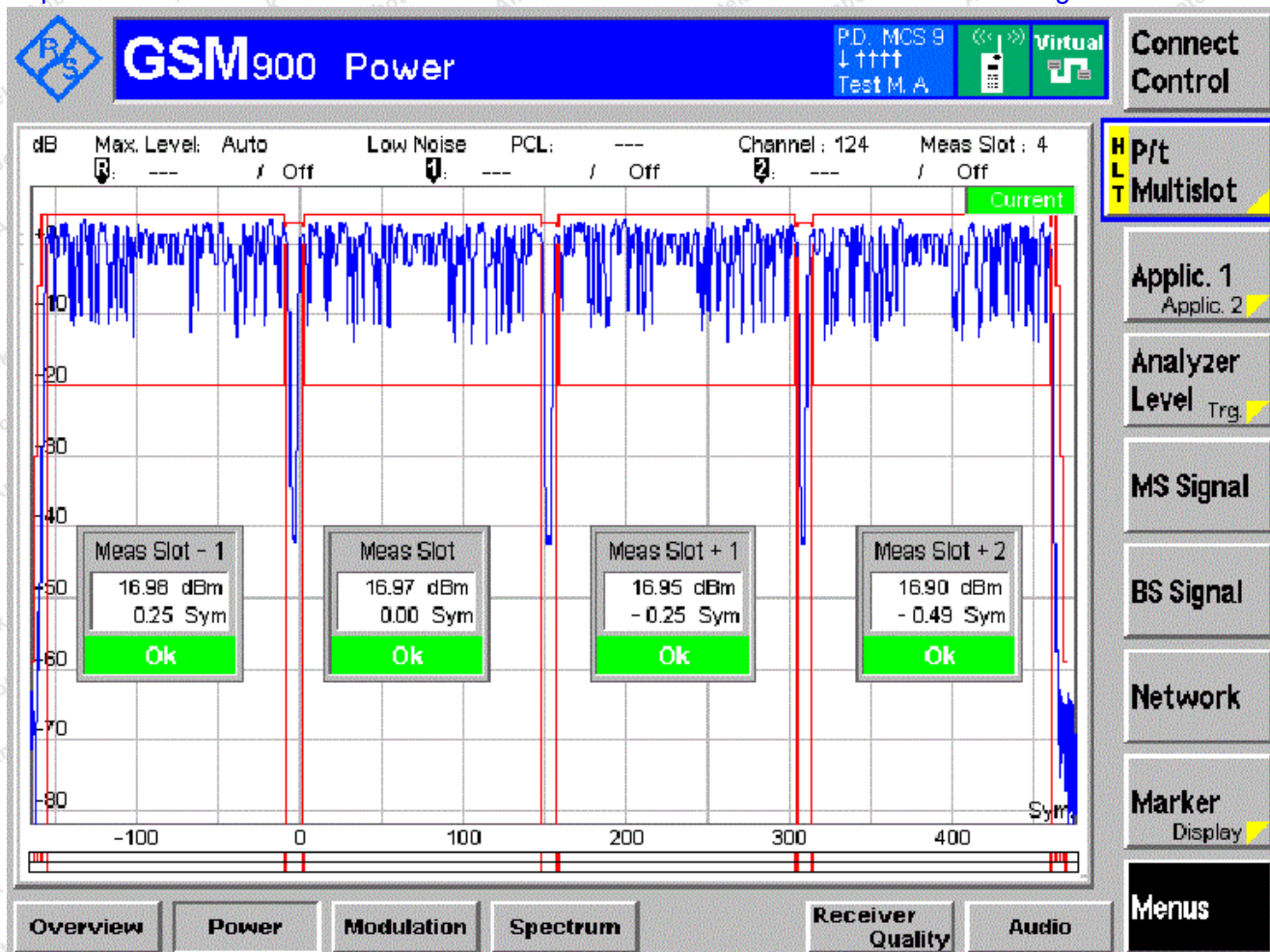
Channel LCH PCL 12



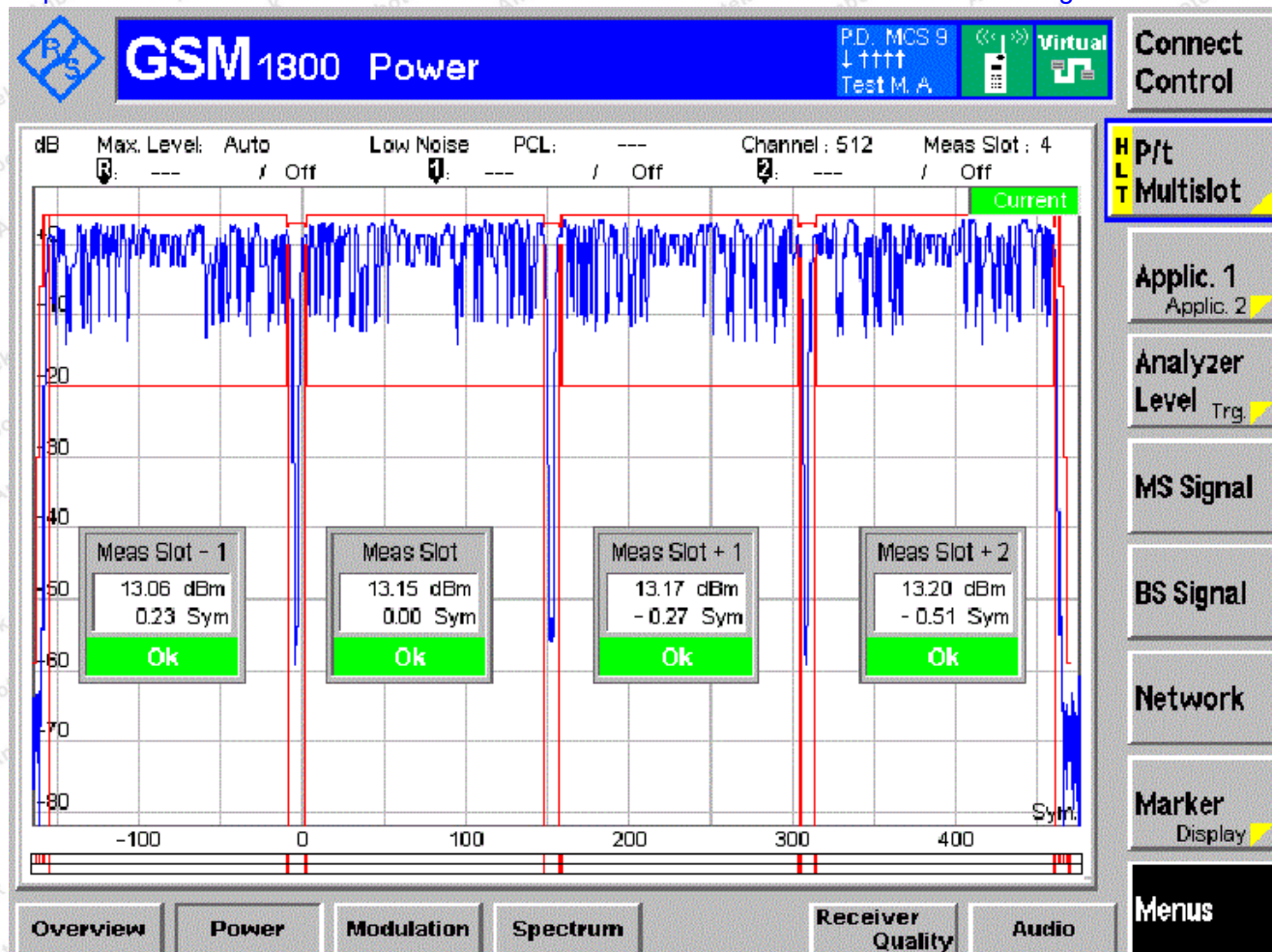
Channel MCH PCL 12



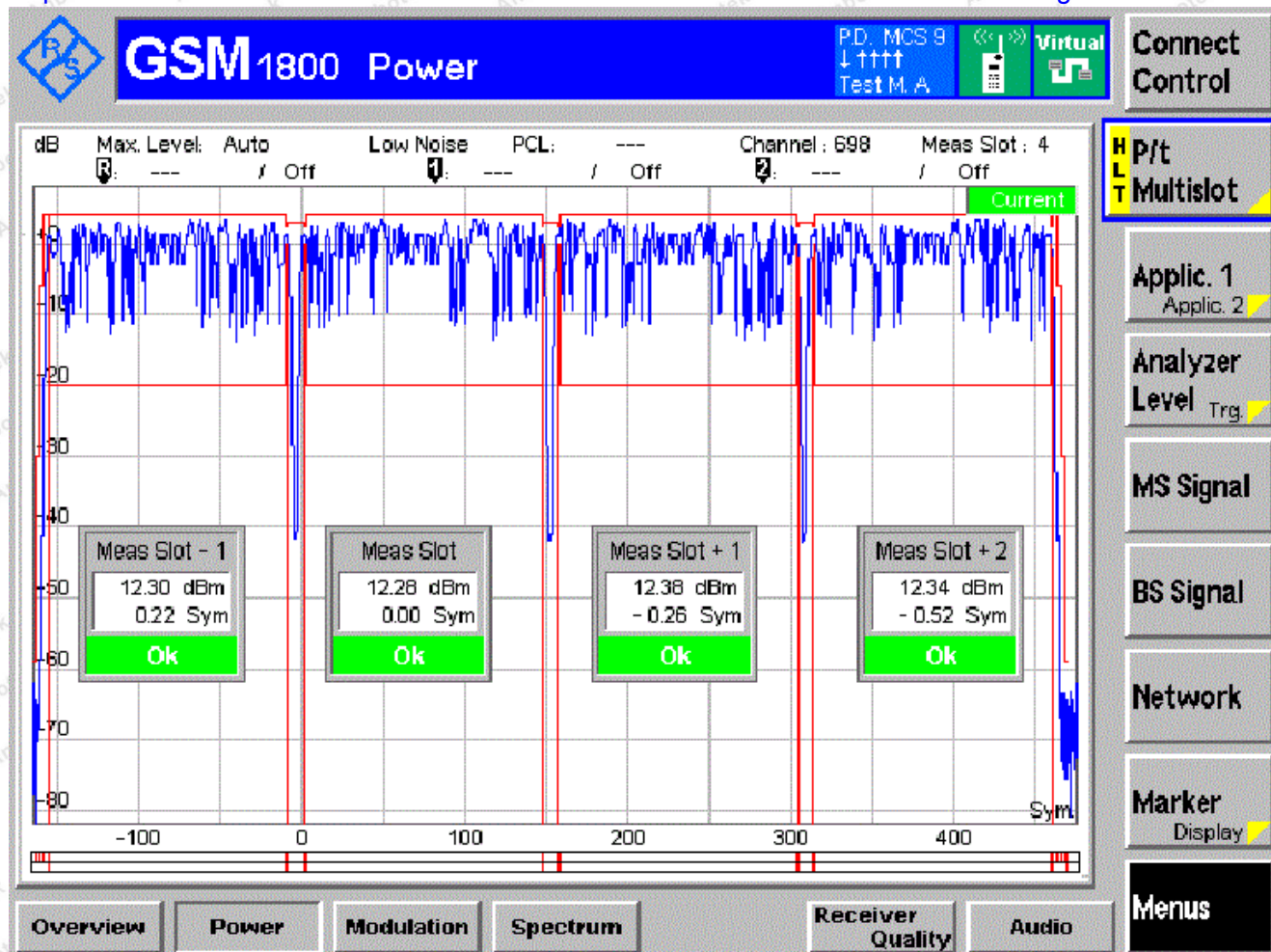
Channel HCH PCL 12



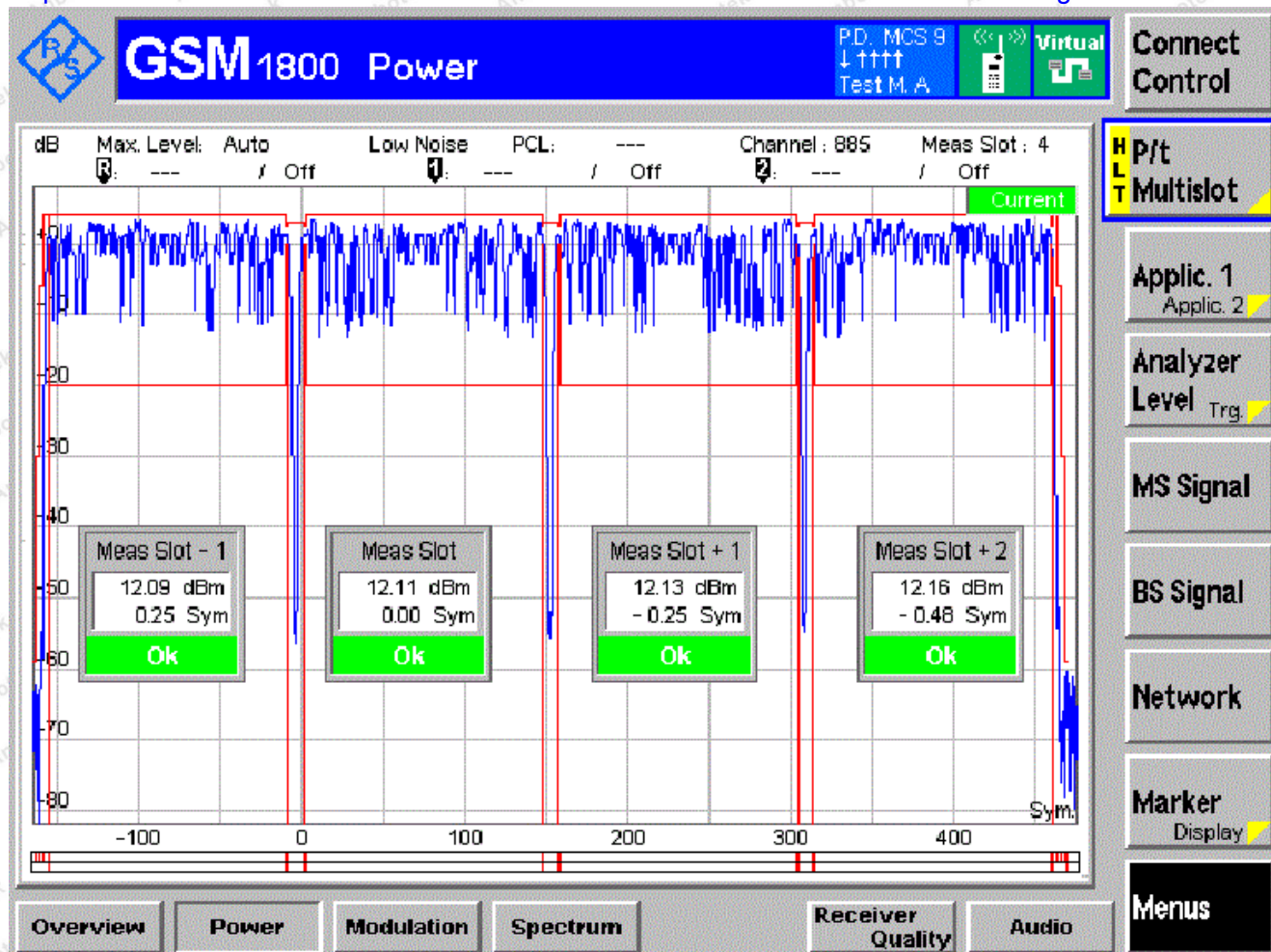
Channel LCH PCL 8



Channel MCH PCL 8



Channel HCH PCL 8



## 12. Output RF Spectrum in EGPRS Configuration

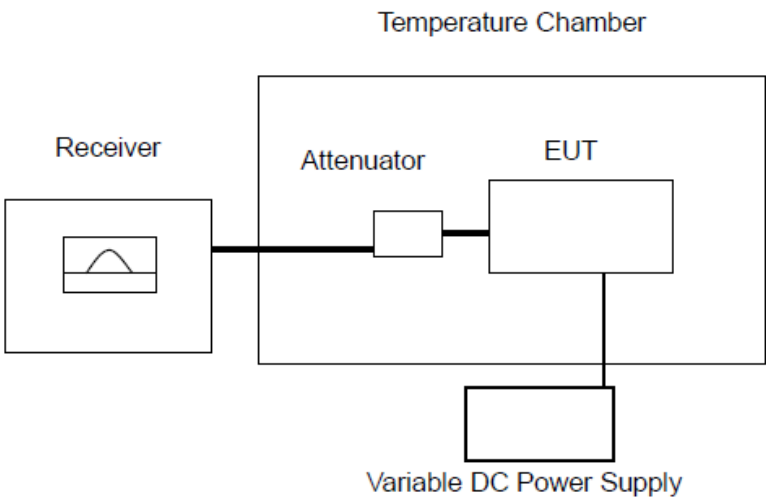
### 12.1 Test Limit

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.4.5

### 12.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.17.4.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.17.4.4 for the measurement method

### 12.3. Test Setup



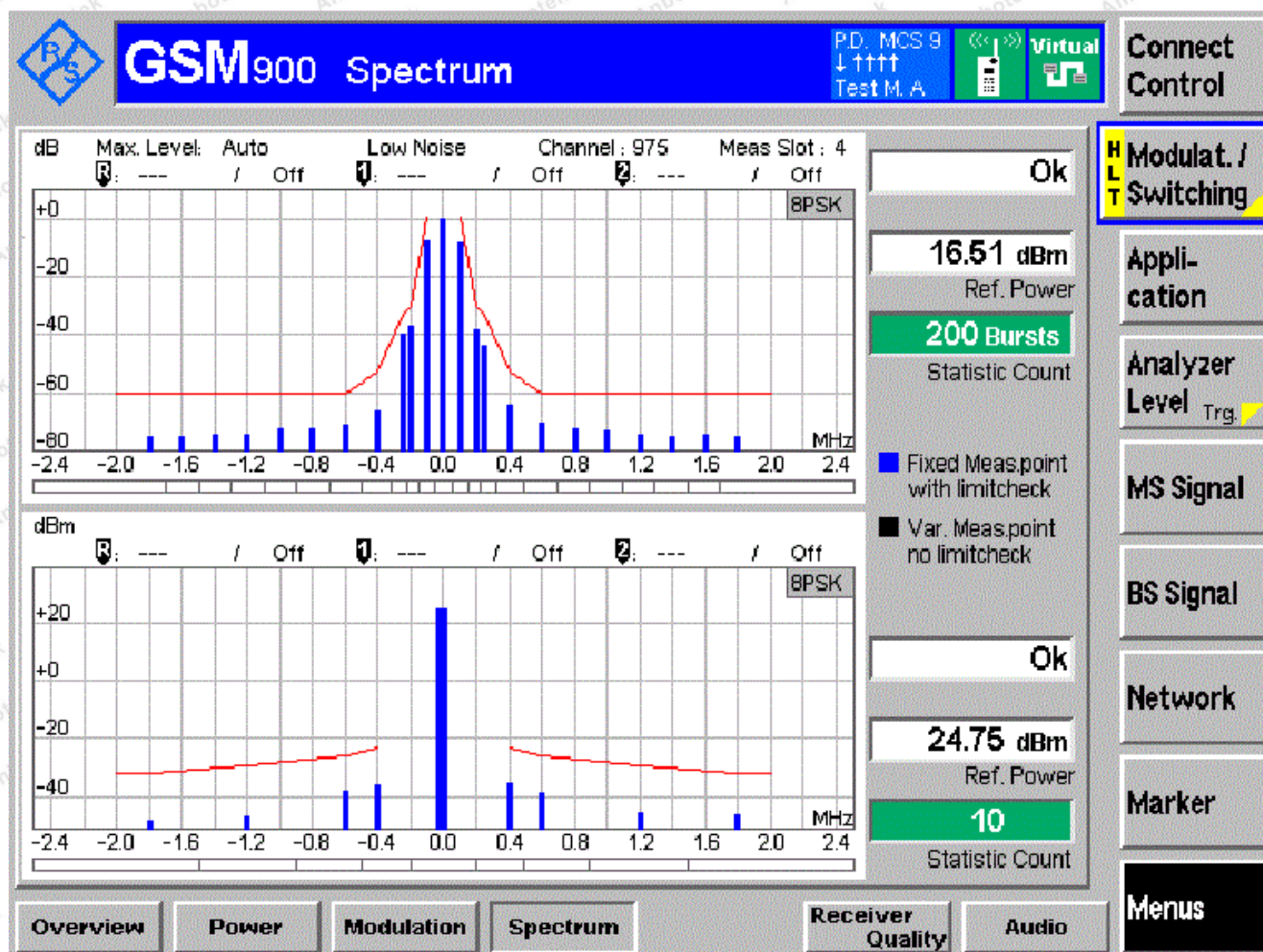
### 12.4. Test Results

Temperature:	25°C	Relative Humidity:	63 %
Pressure:	1012 hPa	Test Voltage:	AC 230V, 50Hz for adapter

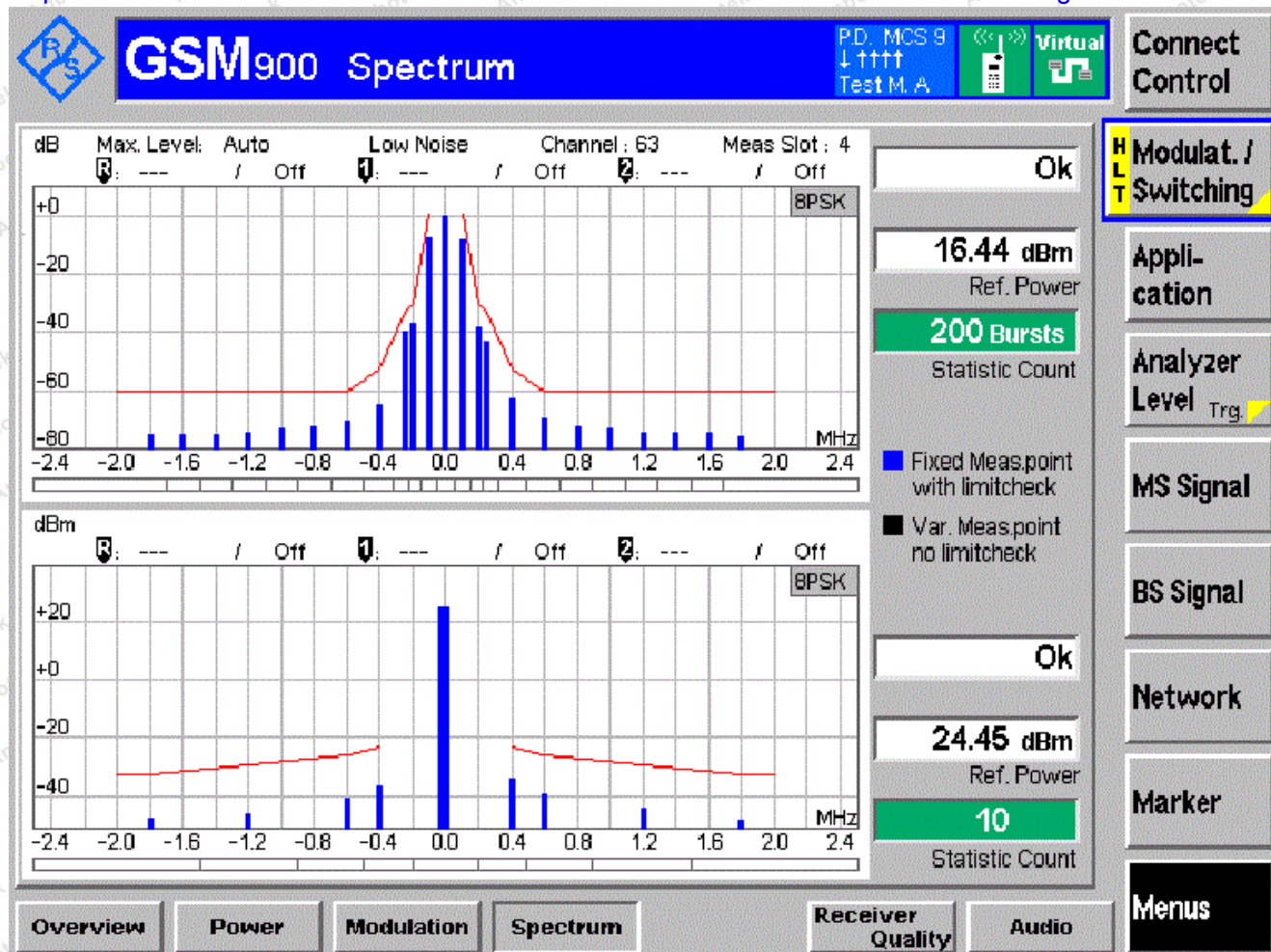
Graphs of output RF spectrum in EGPRS multislot configuration

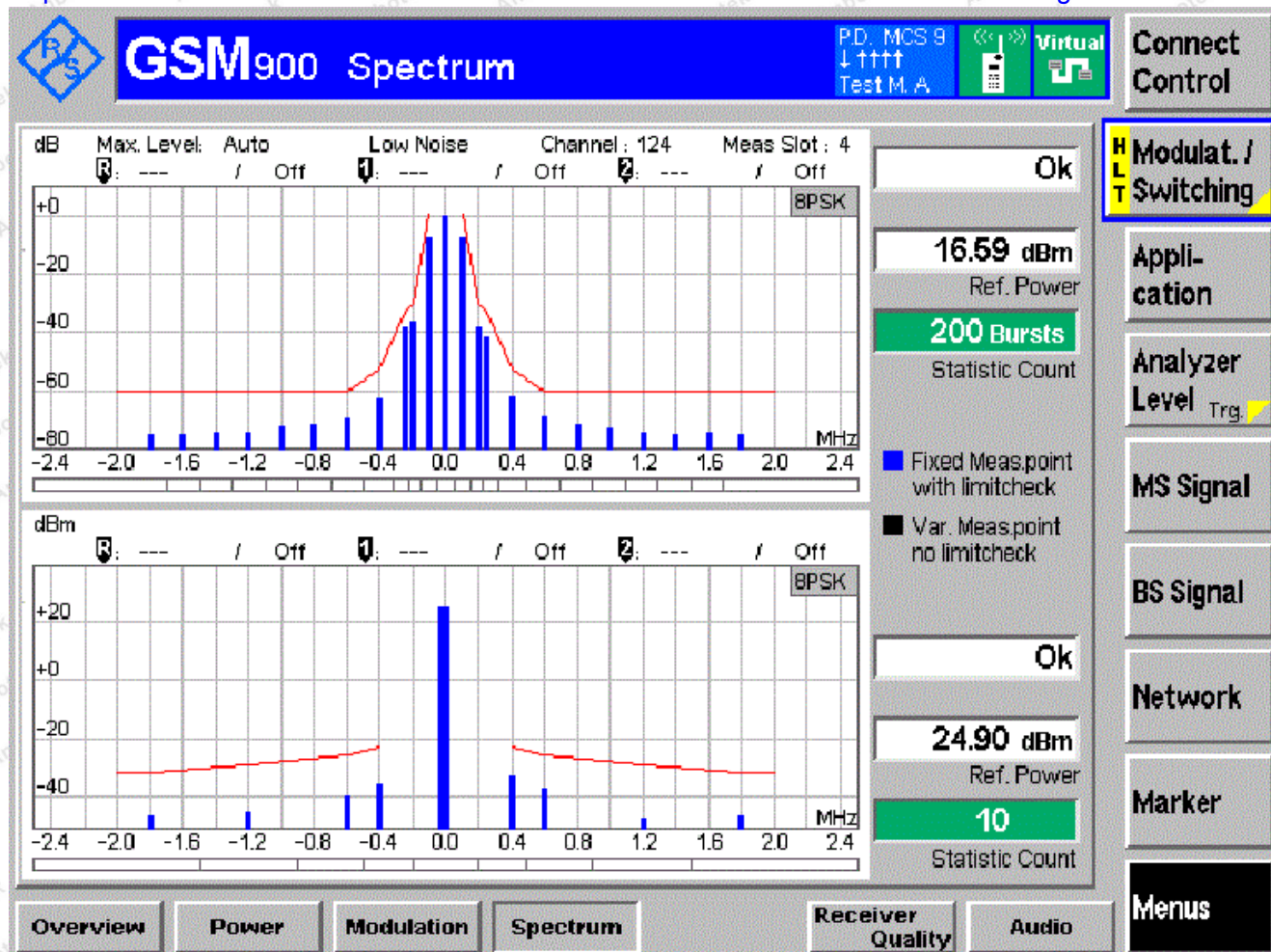
a) GSM 900 TN/VN

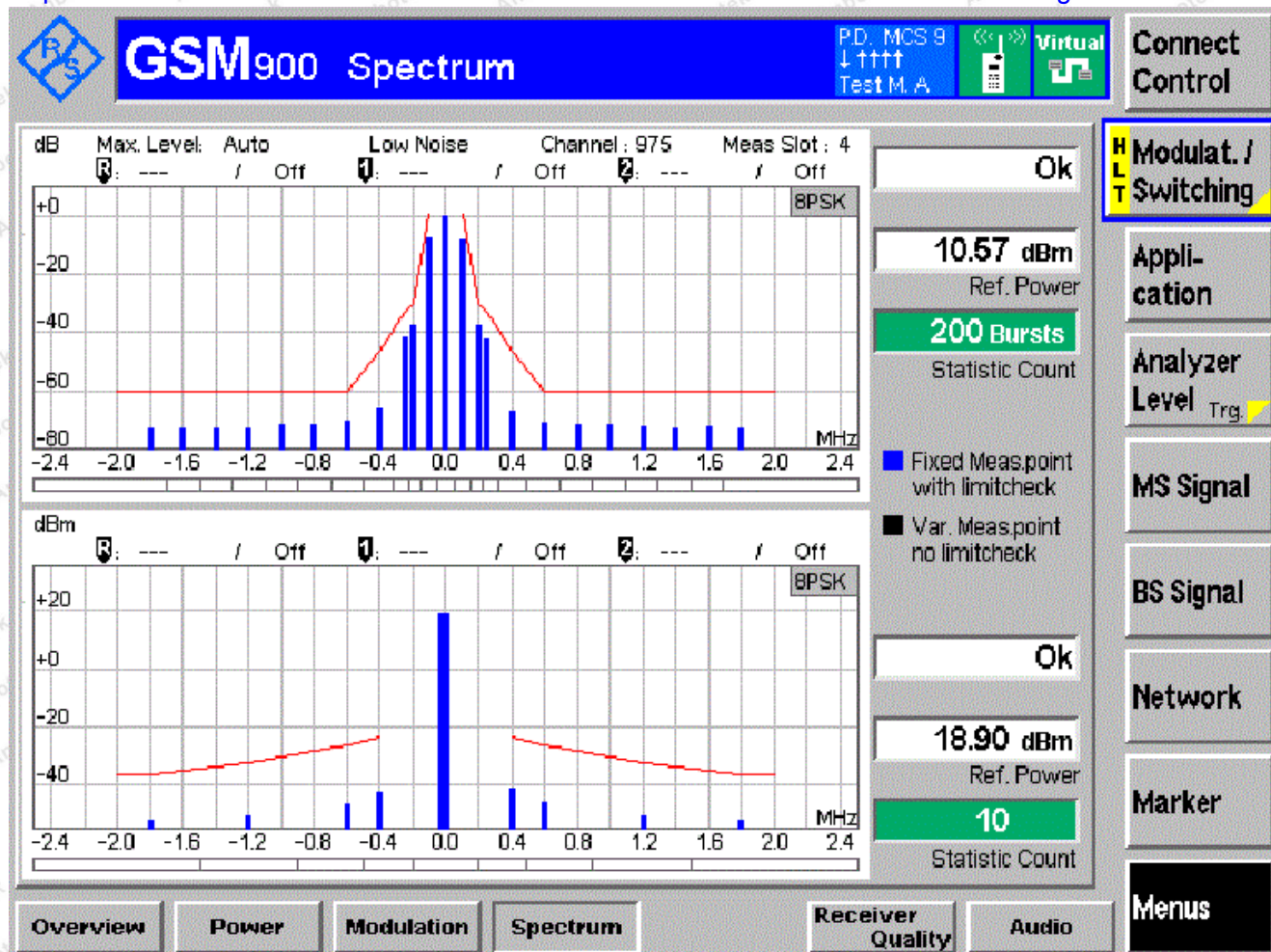
Channel LCH PCL 8

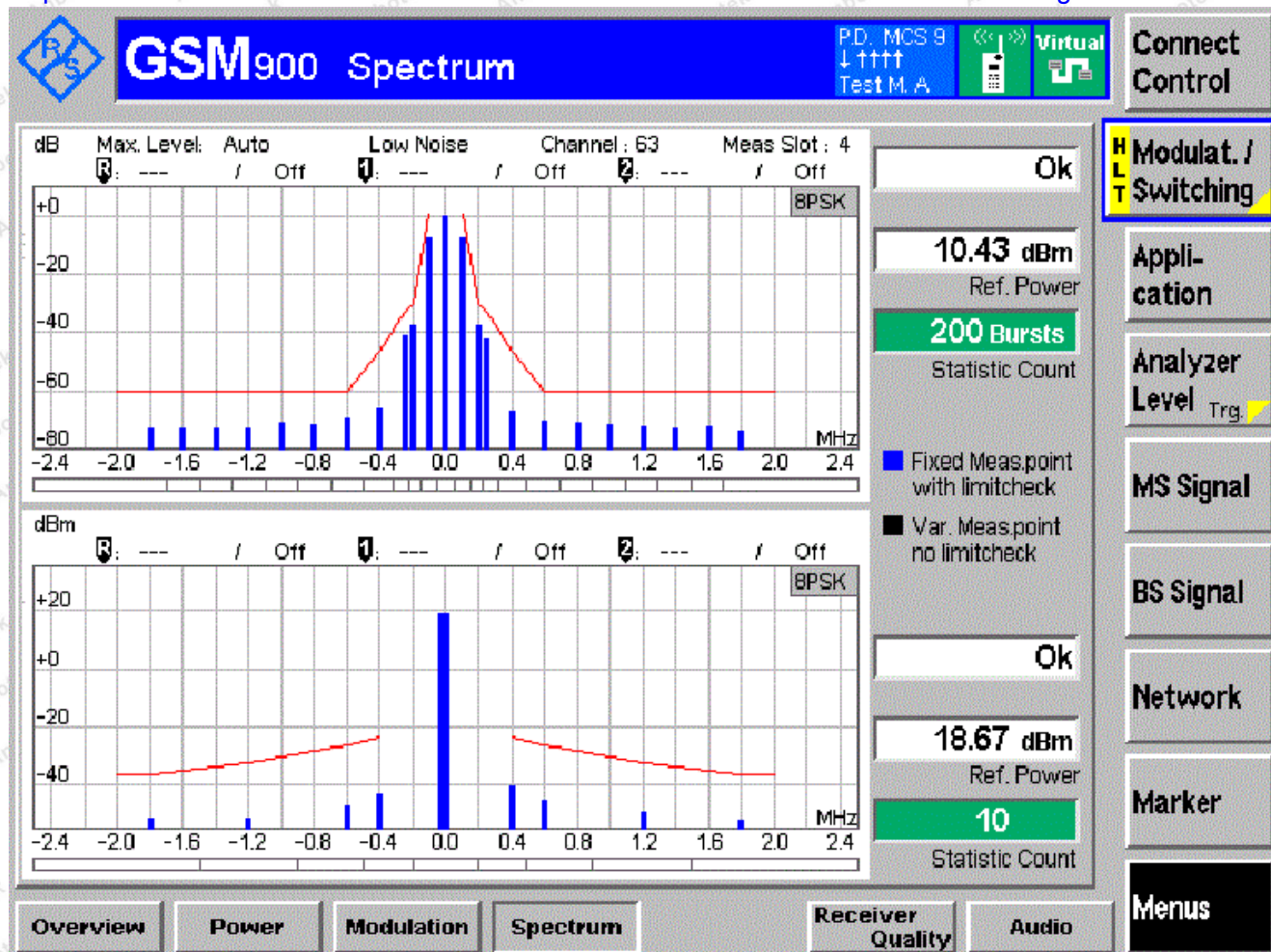


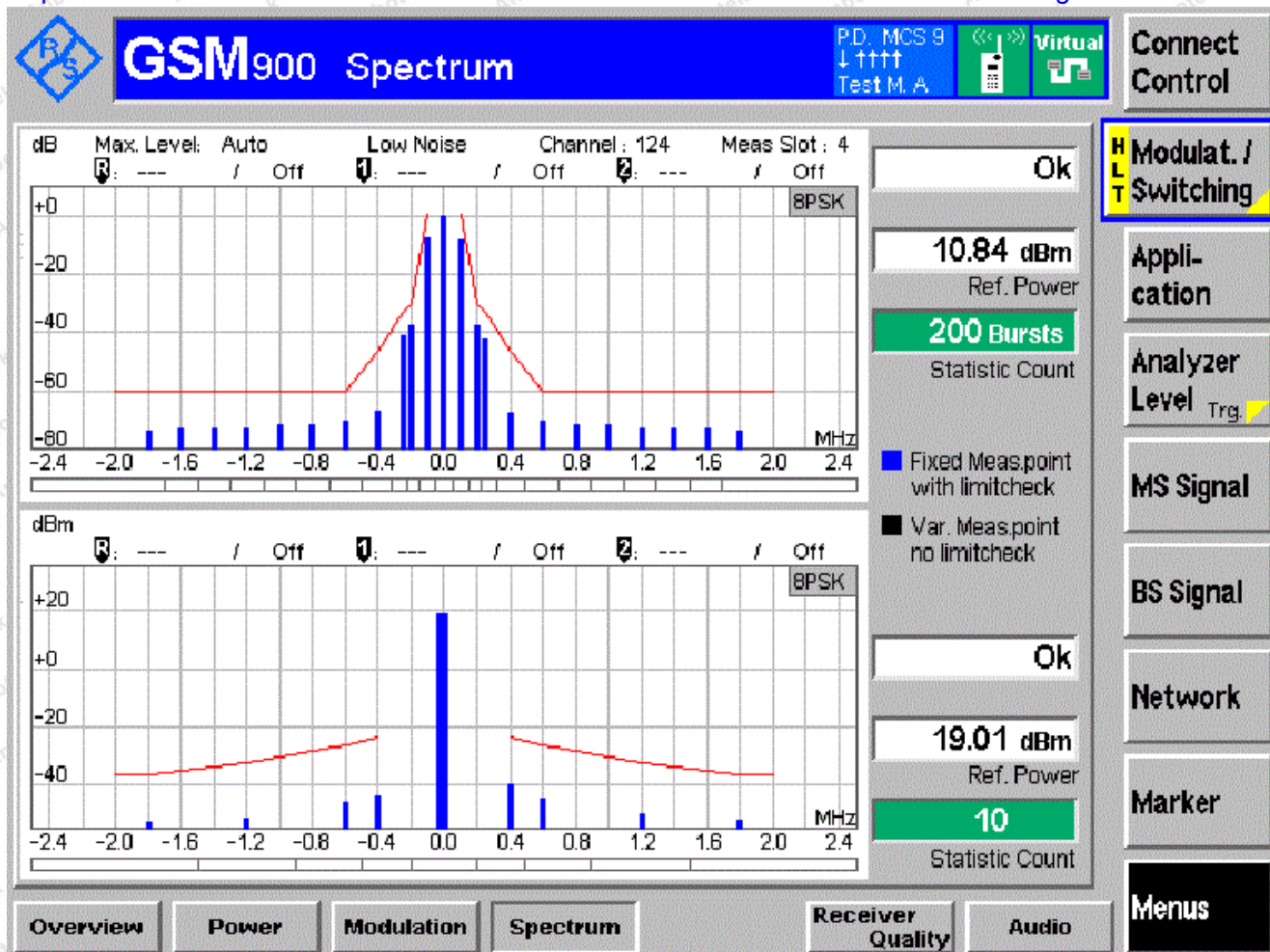
Channel MCH PCL 8

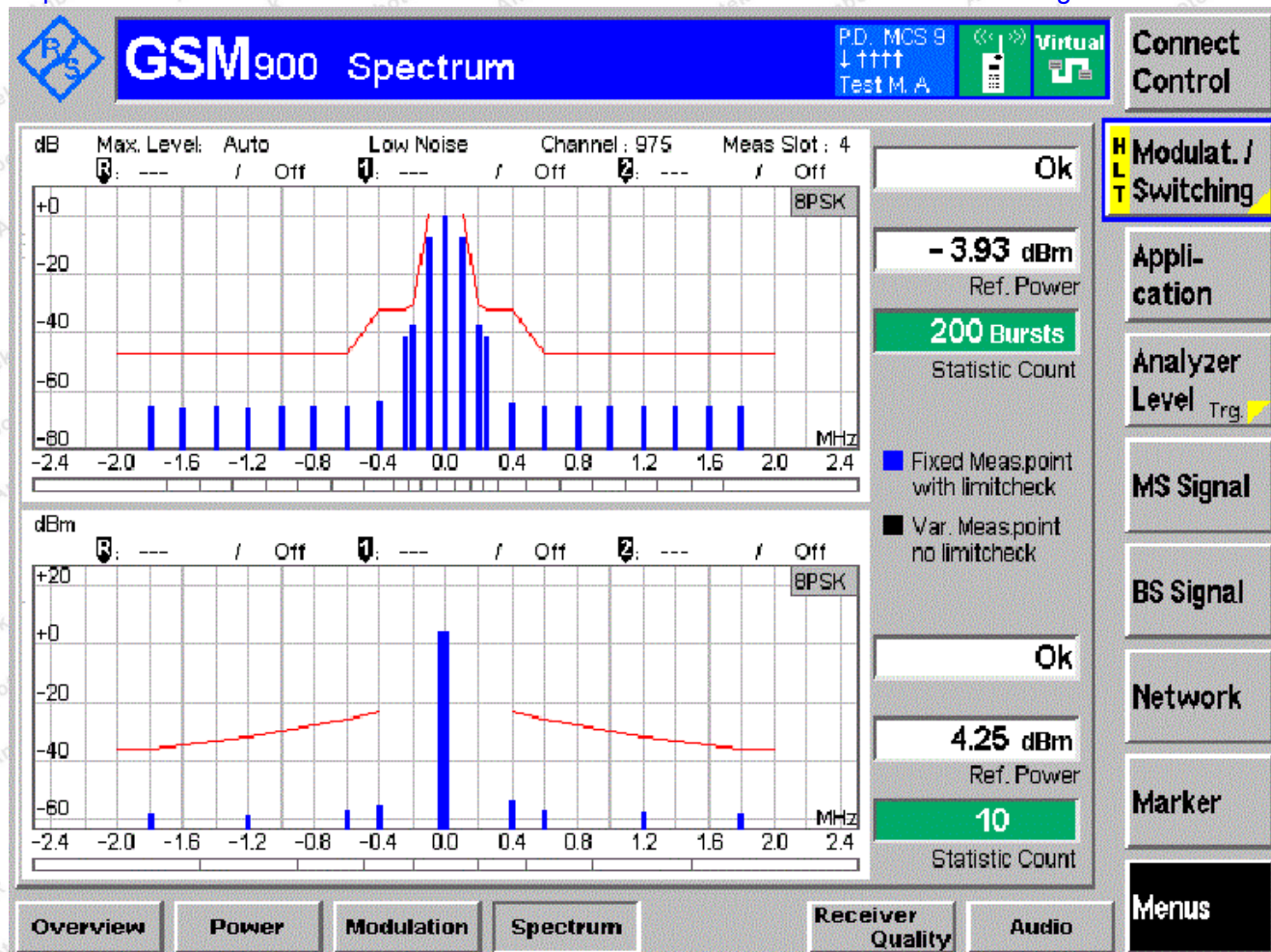




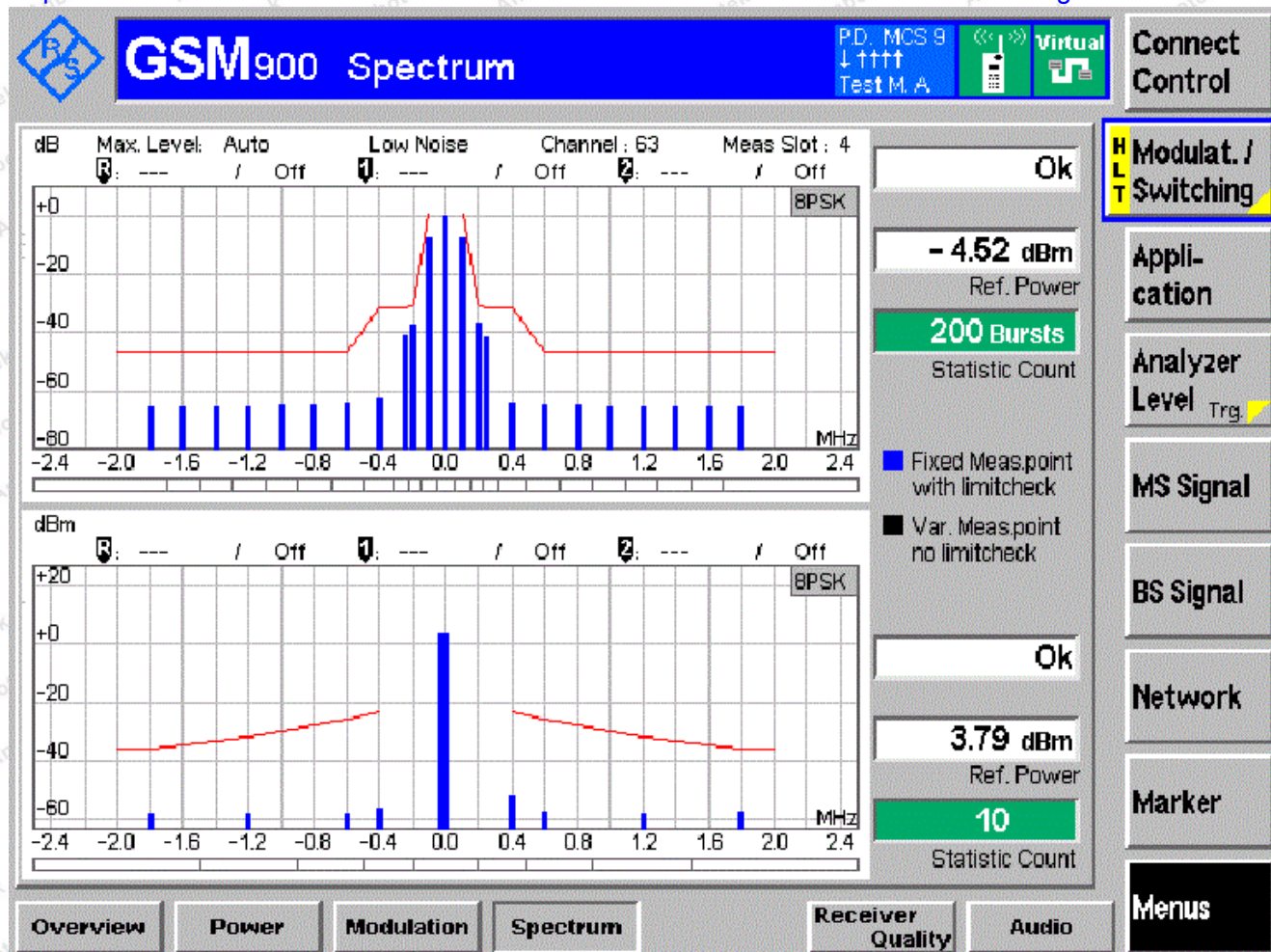


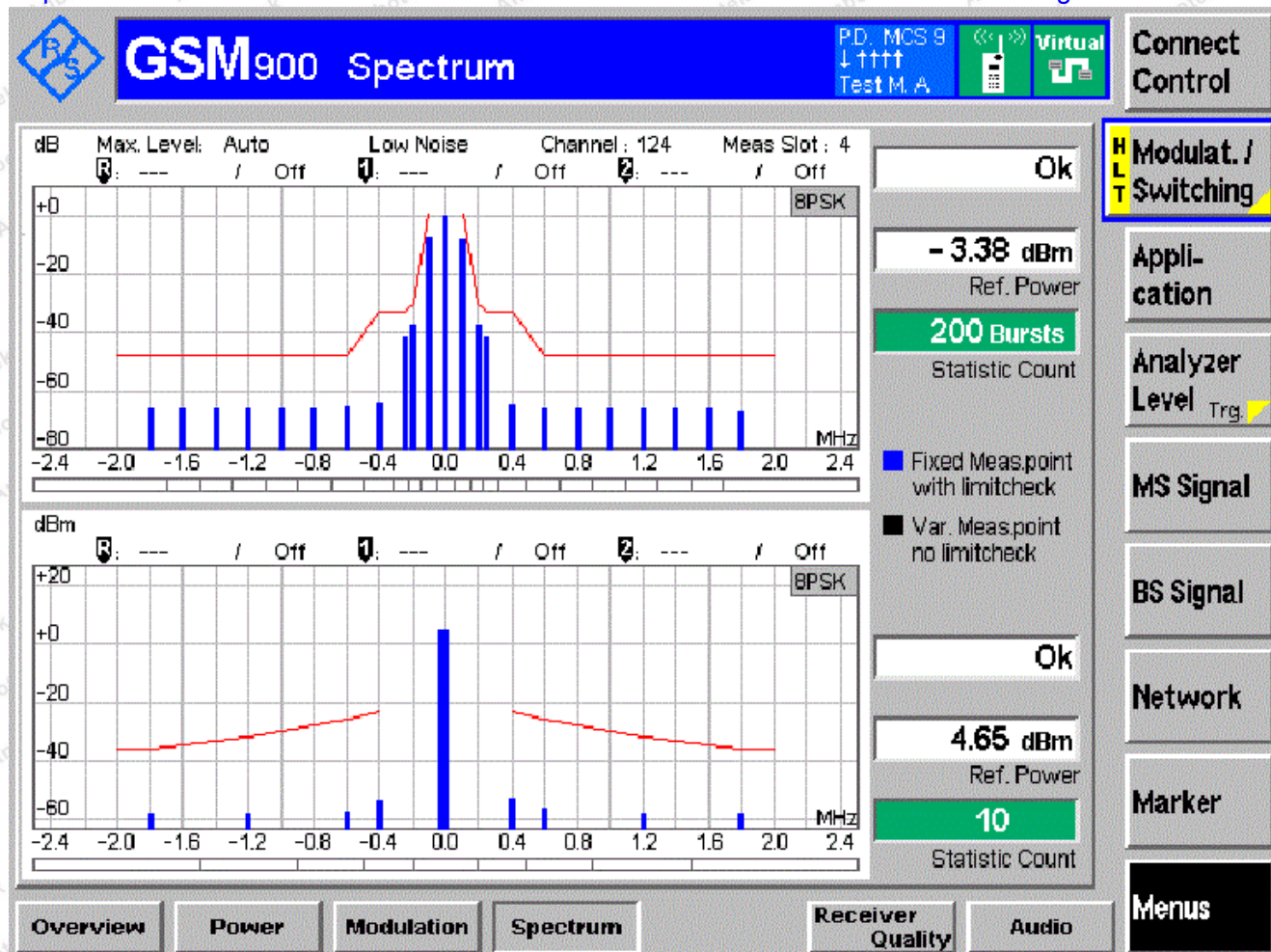




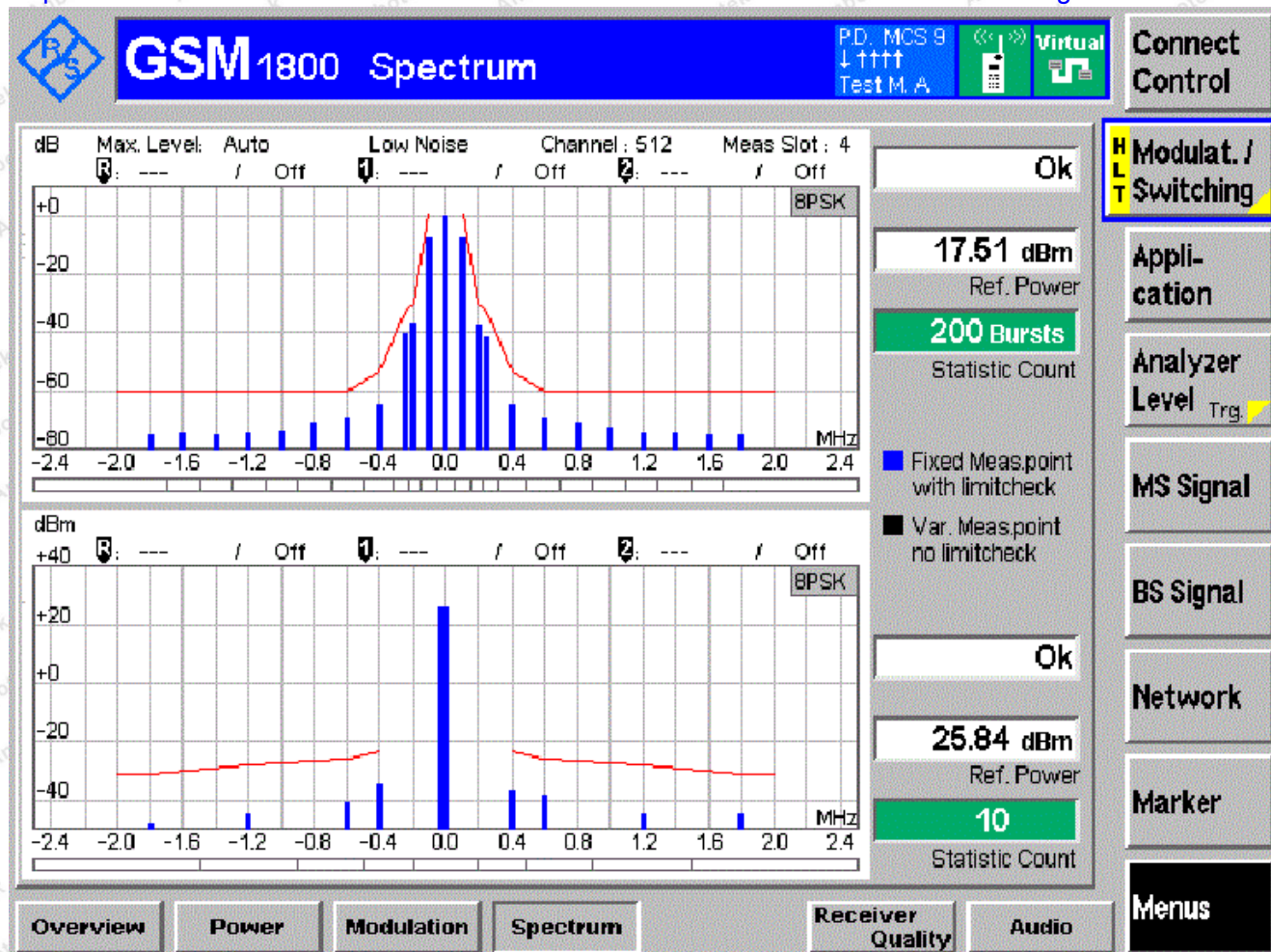


Channel MCH PCL 19

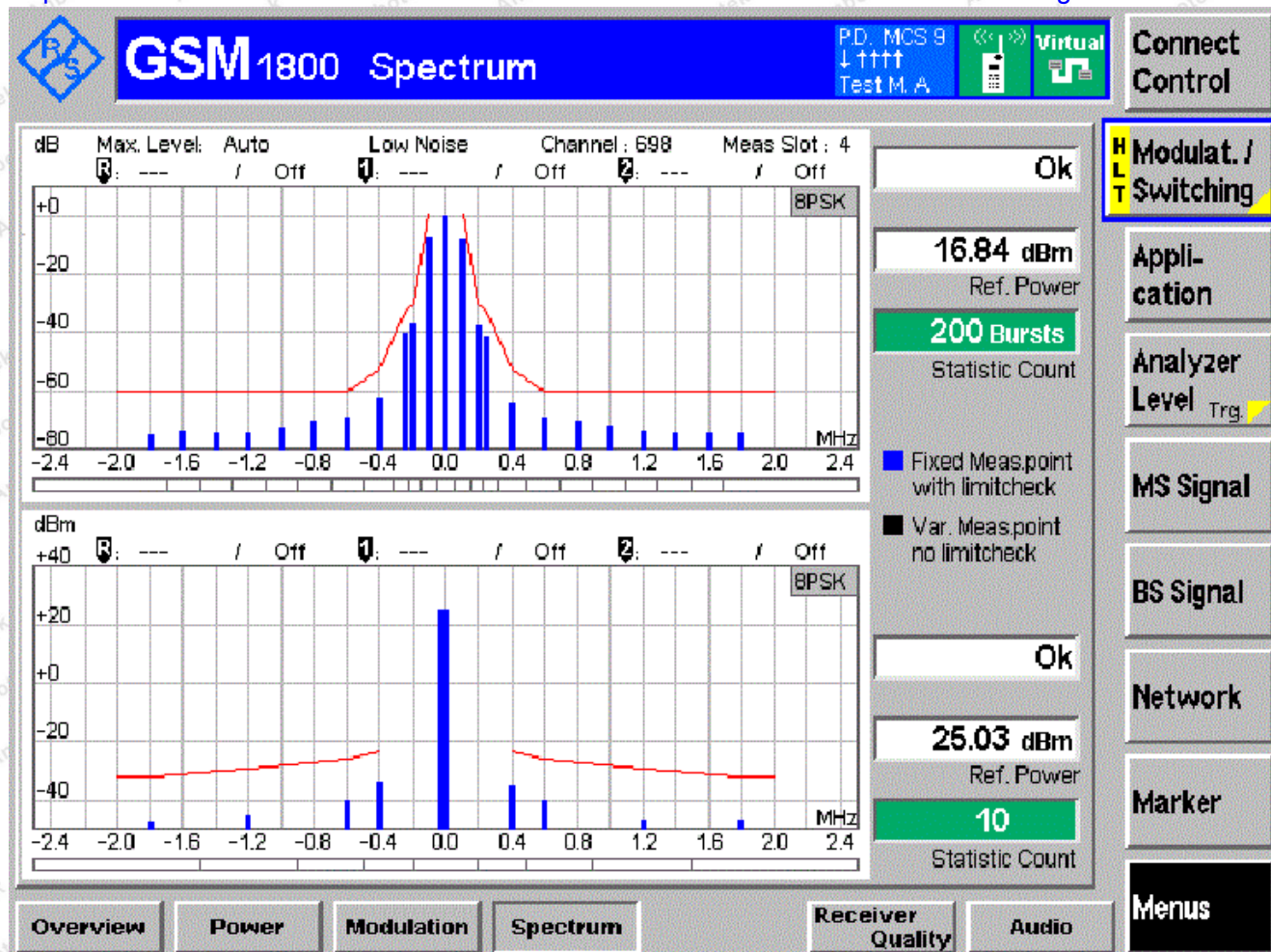


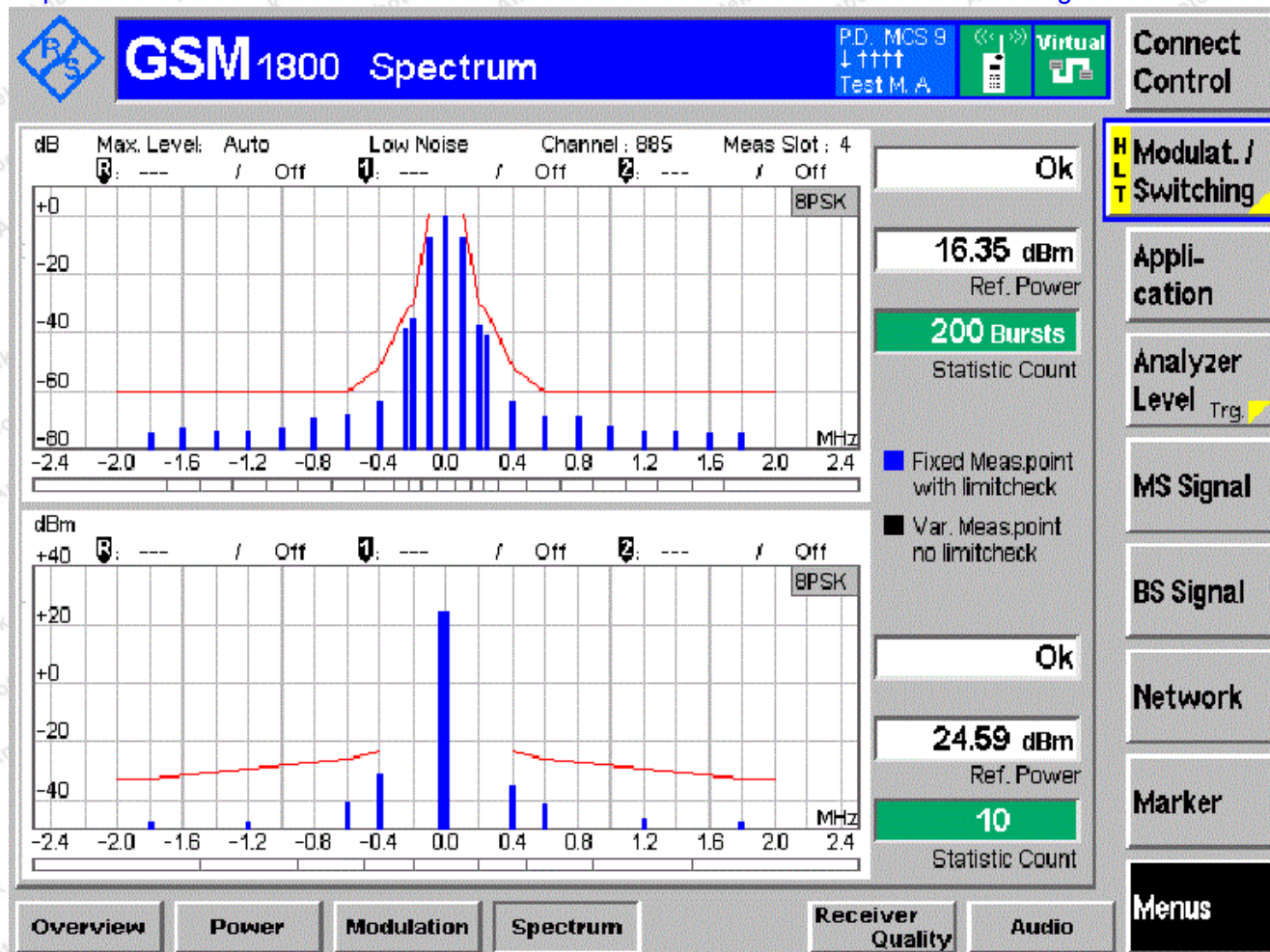


b) DCS1800 TN/VN  
Channel LCH PCL 2

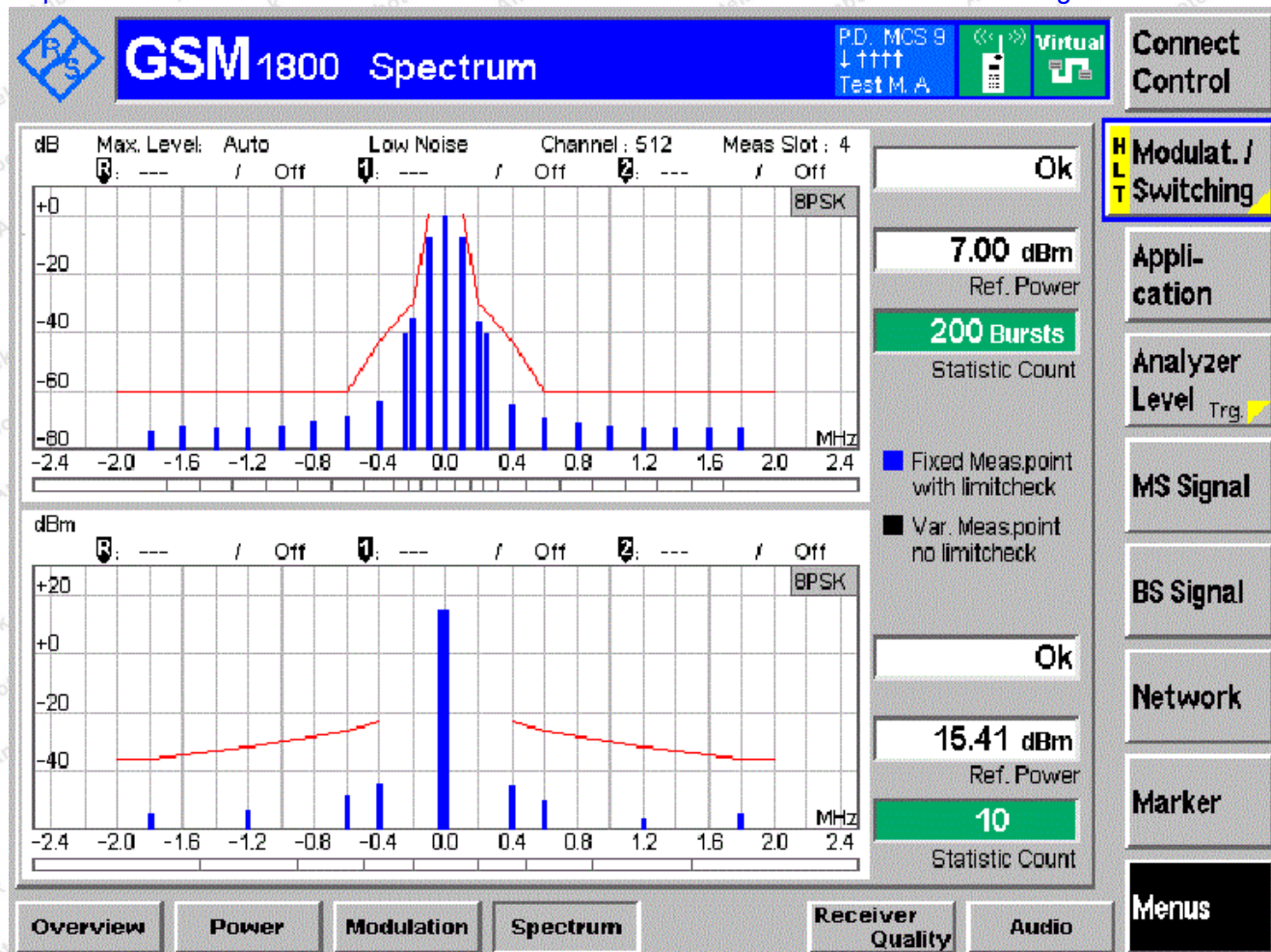


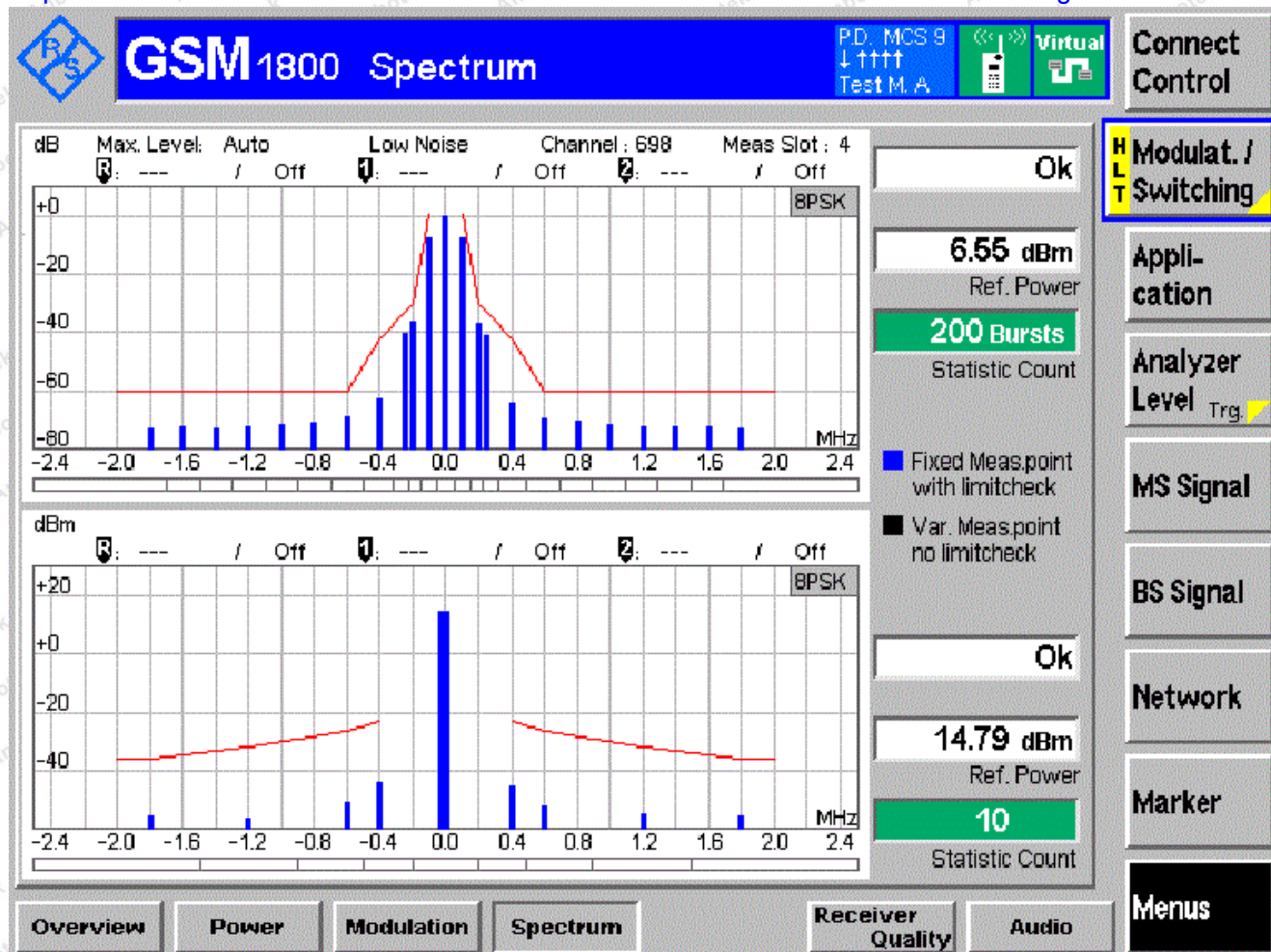
Channel MCH PCL 2



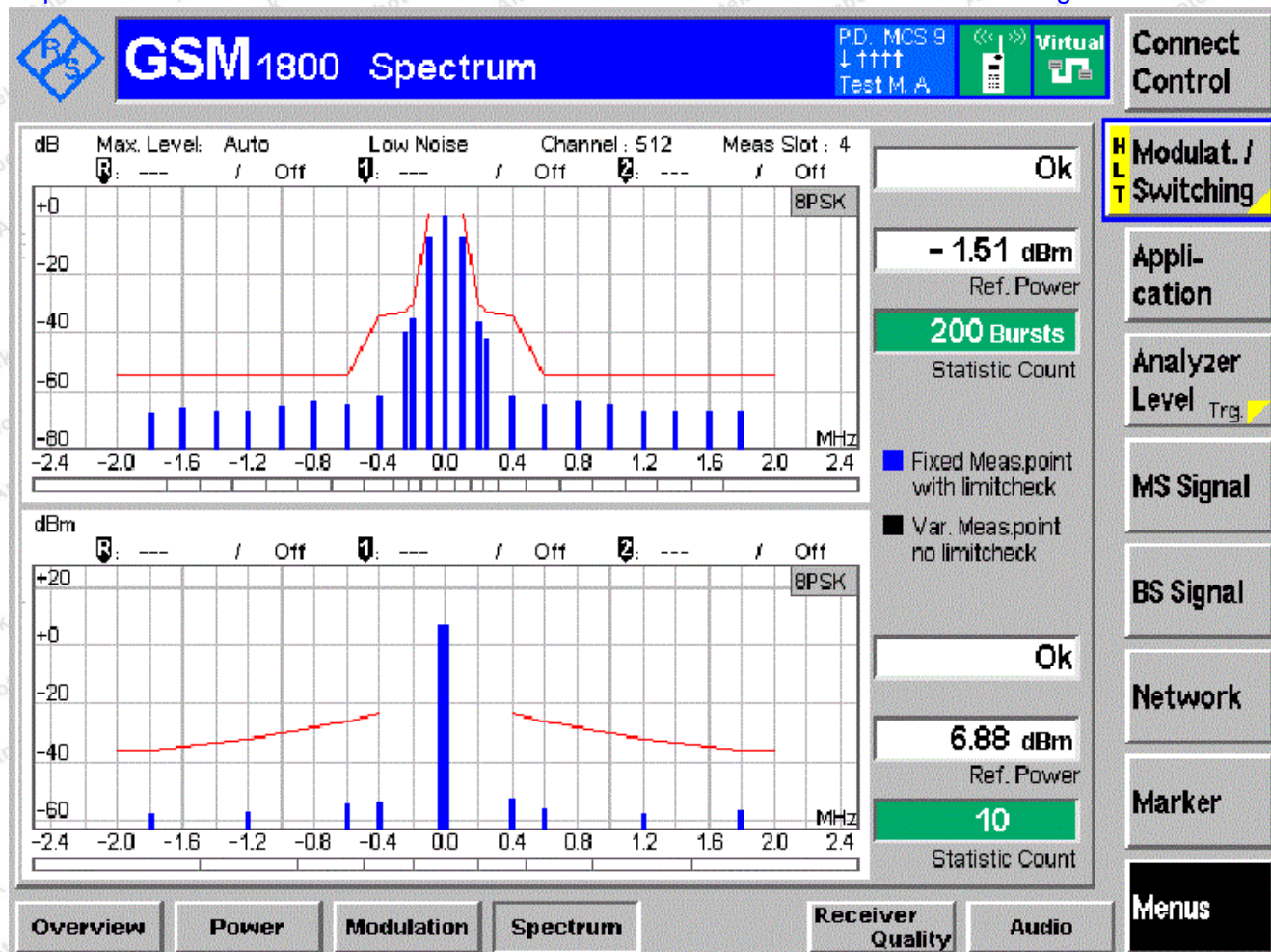


Channel LCH PCL 7

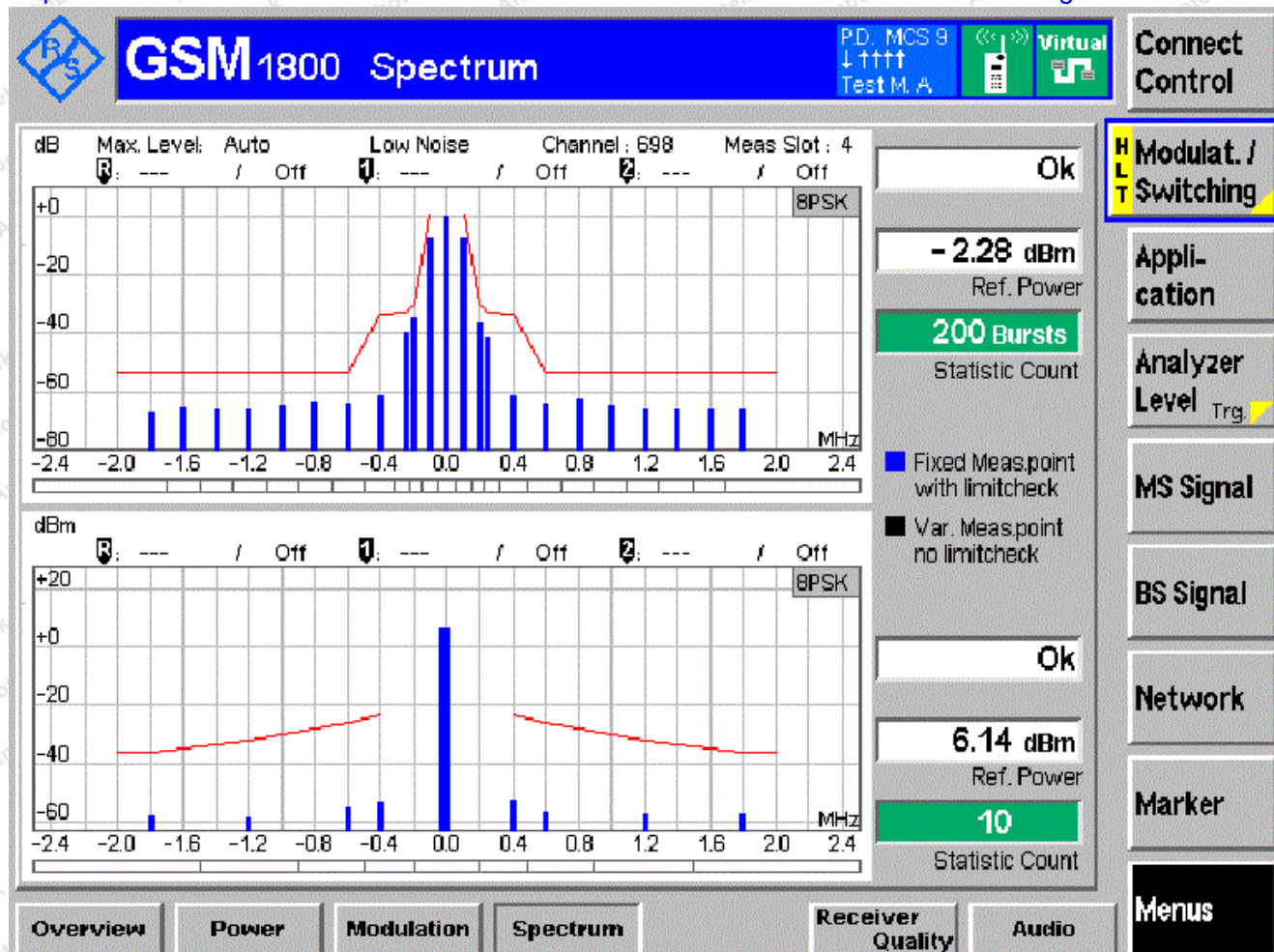








Channel MCH PCL 11



Channel HCH PCL 11



# 13.Receiver Blocking and Spurious Response - Speech Channels

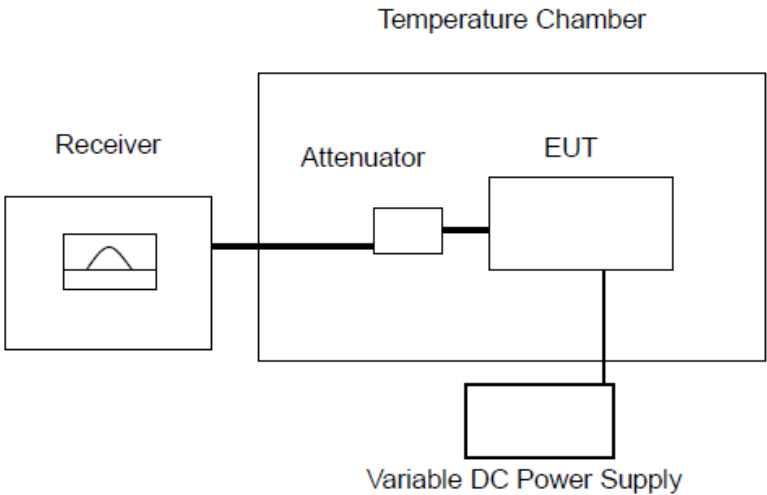
## 13.1. Test Limit

The frequency error, with reference to the SS carrier frequency as measured in repeats of step e), for each measured burst shall be less than the values shown in table

Requirements for frequency error under multipath, Doppler shift and interference conditions

GSM 400		T-GSM 810, GSM 850 and GSM 900		DCS 1 800 and PCS 1 900	
Propagati on conditio n	Permitted frequency error	Propagati on condition	Permitted frequency error	Propagati on condition	Permitted frequency error
RA500	±300 Hz	RA250	±300 Hz	RA130	±400 Hz
HT200	±180 Hz	HT100	±180 Hz	HT100	±350 Hz
TU100	±163 Hz	TU50	±163 Hz	TU50	±263 Hz
TU6	±230 Hz	TU3	±230 Hz	TU1,5	±320 Hz

## 13.2. Test Setup



### 13.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V13.5.0 clause 13.17.2.4 for the measurement method..


### 13.4. Test Result

FREQUENCY	Measurement Result	
	GPRS900	
	Small MS	
	Interference Level in dBμVemf()	Result
FR +/- 630 kHz to FR +/- 800 kHz	75	Pass
FR +/- 800 kHz to FR +/- 1,6 MHz	75	Pass
FR +/- 1,6 MHz to FR +/- 3 MHz	92	Pass
915 MHz to FR - 3 MHz	89	Pass
FR + 3 MHz to 980 MHz	98	Pass
835 MHz to <915 MHz	115	Pass
>980 MHz to 1000 MHz	117	Pass
100 kHz to <835 MHz	93	Pass
>1000 MHz to 12,75 GHz	94	Pass

FREQUENCY	Measurement Result	
	GPRS900	
	Small MS	
	Interference Level in dBμVemf()	Result
FR +/- 630 kHz to FR +/- 800 kHz	73	Pass
FR +/- 800 kHz to FR +/- 1,6 MHz	72	Pass
FR +/- 1,6 MHz to FR +/- 3 MHz	80	Pass
1785 MHz to FR - 3 MHz	89	Pass
FR + 3 MHz to 1920 MHz	89	Pass
100 kHz to 1705 MHz	113	Pass
>1705 MHz to <1785 MHz	105	Pass
>1920 MHz to 1980 MHz	104	Pass
>1980 MHz to 12,75 GHz	92	Pass

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# 14. Am suppression - Speech Channels

## 14.1. Test Limit

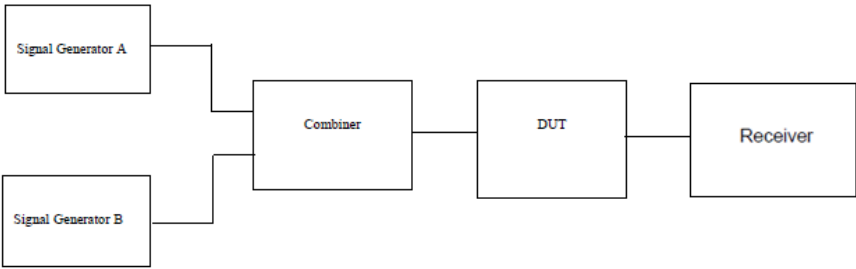
The error rates measured in this test shall not exceed the test limit error rate values given in table

Channel	Type of measurement	Test limit error rate %	Minimum number of samples
TCH/FS Class II	RBER	2,439	8 200

## 14.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 14.8.1.4 for the measurement method.

## 14.3. Test Setup



## 14.4. Test Results

GPRS900

Channel(MHz)	Test condition	number of samples	RBER(%)	Limit(%)	Result
880.2	normal	10000	0.836	2.439	PASS
902.6		10000	0.624		
914.8		10000	0.742		

GPRS1800

Channel(MHz)	Test condition	number of samples	RBER(%)	Limit(%)	Result
1710.2	normal	10000	0.975	2.439	PASS
1747.4		10000	0.259		
1784.8		10000	0.456		

## 15. Intermodulation rejection - EGPRS PDTCH

### 15.1. Test Limit

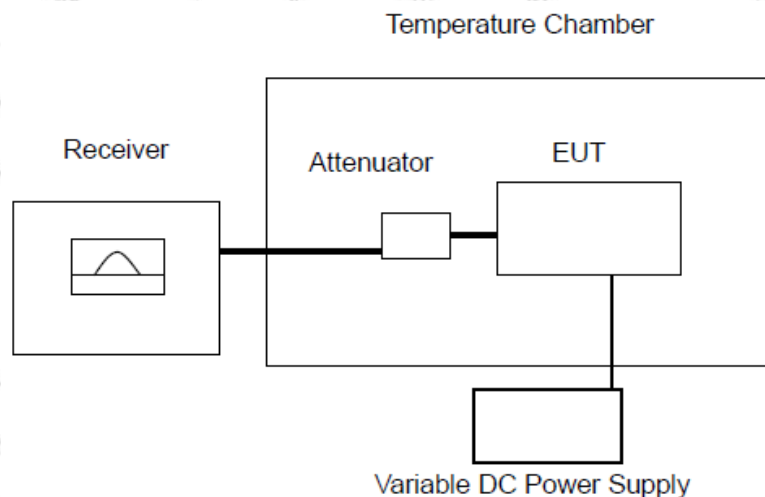
Table 14.18-8: Intermodulation interfering test signal levels

	GSM 400, GSM 700, T-GSM 810, GSM 850, GSM 900, PCS 1 900		DCS 1 800	
	Small MS	Other MS	Class 1 and 2	Class 3
FIRST INTERFERER dBμVemf( )	64	74	64	68
SECOND INTERFERER dBμVemf( )	63	63	64	68

### 15.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V13.5.0 clause 14.18.4.4 for the measurement method.

### 15.3. Test Setup



### 15.4. Test Results

**Pass**

### 15.4.1. Intermodulation rejection - EGPRS PDTCH

Band	Channel	UL Frequency (MHz)	DL Frequency (MHz)	Code Scheme	Interferer 1 Freq (MHz)	Interferer 1 Level (dBm)	Interferer 2 Freq (MHz)	Interferer 2 Level (dBm)	BLER (%)	Limit (%)	Verdict
GSM900	975	880.2	915.2	PDTC H MCS-1	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-1	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-2	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-2	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-3	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-3	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-4	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-4	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-5	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-5	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-6	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-6	916	-49	916.8	-50	0.00	10	PASS

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GSM900	975	880.2	915.2	PDTC H MCS-7	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-7	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-8	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-8	916	-49	916.8	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-9	914.4	-49	913.6	-50	0.00	10	PASS
GSM900	975	880.2	915.2	PDTC H MCS-9	916	-49	916.8	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-1	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-1	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-2	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-2	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-3	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-3	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-4	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-4	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-4	946.2	-49	945.4	-50	0.00	10	PASS

				H MCS-5							
GSM900	63	902.6	947	PDTC H MCS-5	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-6	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-6	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-7	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-7	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-8	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-8	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-9	946.2	-49	945.4	-50	0.00	10	PASS
GSM900	63	902.6	947	PDTC H MCS-9	947.8	-49	948.6	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-1	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-1	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-2	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-2	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC	959	-49	958.2	-50	0.00	10	PASS

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				MCS-3							
GSM900	124	914.8	959.8	PDTC H MCS-3	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-4	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-4	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-5	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-5	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-6	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-6	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-7	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-7	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-8	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-8	963.6	-49	961.4	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-9	959	-49	958.2	-50	0.00	10	PASS
GSM900	124	914.8	959.8	PDTC H MCS-9	963.6	-49	961.4	-50	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-1	1804.4	-49	1803.6	-49	0.00	10	PASS

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DCS1800	512	1710.2	1805.2	PDTC H MCS-1	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-2	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-2	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-3	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-3	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-4	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-4	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-5	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-5	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-6	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-6	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-7	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-7	1806	-49	1806.8	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-8	1804.4	-49	1803.6	-49	0.00	10	PASS
DCS1800	512	1710.2	1805.2	PDTC H MCS-8	1806	-49	1806.8	-49	0.00	10	PASS

0				H MCS-8			8				
DCS180 0	512	1710.2	1805.2	PDTC H MCS-9	1804.4	-49	1803. 6	-49	0.00	10	PASS
DCS180 0	512	1710.2	1805.2	PDTC H MCS-9	1806	-49	1806. 8	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-1	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-1	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-2	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-2	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-3	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-3	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-4	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-4	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-5	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-5	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-6	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-6	1843.6	-49	1844. 4	-49	0.00	10	PASS

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				MCS-6							
DCS180 0	698	1747.4	1842.8	PDTC H MCS-7	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-7	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-8	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-8	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-9	1842	-49	1841. 2	-49	0.00	10	PASS
DCS180 0	698	1747.4	1842.8	PDTC H MCS-9	1843.6	-49	1844. 4	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-1	1879	-49	1878. 2	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-1	1880.6	-49	1881. 4	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-2	1879	-49	1878. 2	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-2	1880.6	-49	1881. 4	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-3	1879	-49	1878. 2	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-3	1880.6	-49	1881. 4	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-4	1879	-49	1878. 2	-49	0.00	10	PASS
DCS180 0	885	1784.8	1879.8	PDTC H MCS-4	1880.6	-49	1881. 4	-49	0.00	10	PASS

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DCS1800	885	1784.8	1879.8	PDTC H MCS-5	1879	-49	1878.2	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-5	1880.6	-49	1881.4	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-6	1879	-49	1878.2	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-6	1880.6	-49	1881.4	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-7	1879	-49	1878.2	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-7	1880.6	-49	1881.4	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-8	1879	-49	1878.2	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-8	1880.6	-49	1881.4	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-9	1879	-49	1878.2	-49	0.00	10	PASS
DCS1800	885	1784.8	1879.8	PDTC H MCS-9	1880.6	-49	1881.4	-49	0.00	10	PASS

#### 19.4.2. Intermodulation rejection - EGPRS USF

Band	Channel	UL Frequency (MHz)	DL Frequency (MHz)	Code Scheme	Interfer 1 Freq (MHz)	Interfer 1 Level (dBm)	Interfer 2 Freq (MHz)	Interfer 2 Level (dBm)	BLER (%)	Limit (%)	Verdict
GSM900	975	880.2	915.2	USF MCS-1	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-1	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-2	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-2	916	-49	916.8	-50	0.00	1	PASS

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GSM900	975	880.2	915.2	USF MCS-3	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-3	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-4	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-4	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-5	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-5	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-6	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-6	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-7	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-7	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-8	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-8	916	-49	916.8	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-9	914.4	-49	913.6	-50	0.00	1	PASS
GSM900	975	880.2	915.2	USF MCS-9	916	-49	916.8	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-1	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-1	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-2	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-2	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-3	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-3	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-4	946.2	-49	945.4	-50	0.00	1	PASS

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GSM900	63	902.6	947	USF MCS-4	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-5	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-5	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-6	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-6	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-7	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-7	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-8	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-8	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-9	946.2	-49	945.4	-50	0.00	1	PASS
GSM900	63	902.6	947	USF MCS-9	947.8	-49	948.6	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-1	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-1	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-2	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-2	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-3	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-3	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-4	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-4	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-5	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-5	963.6	-49	961.4	-50	0.00	1	PASS

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GSM900	124	914.8	959.8	USF MCS-6	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-6	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-7	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-7	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-8	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-8	963.6	-49	961.4	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-9	959	-49	958.2	-50	0.00	1	PASS
GSM900	124	914.8	959.8	USF MCS-9	963.6	-49	961.4	-50	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-1	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-1	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-2	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-2	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-3	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-3	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-4	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-4	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-5	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-5	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-6	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-6	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-7	1804.4	-49	1803.6	-49	0.00	1	PASS

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DCS1800	512	1710.2	1805.2	USF MCS-7	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-8	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-8	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-9	1804.4	-49	1803.6	-49	0.00	1	PASS
DCS1800	512	1710.2	1805.2	USF MCS-9	1806	-49	1806.8	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-1	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-1	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-2	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-2	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-3	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-3	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-4	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-4	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-5	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-5	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-6	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-6	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-7	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-7	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-8	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-8	1843.6	-49	1844.4	-49	0.00	1	PASS

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DCS1800	698	1747.4	1842.8	USF MCS-9	1842	-49	1841.2	-49	0.00	1	PASS
DCS1800	698	1747.4	1842.8	USF MCS-9	1843.6	-49	1844.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-1	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-1	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-2	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-2	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-3	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-3	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-4	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-4	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-5	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-5	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-6	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-6	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-7	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-7	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-8	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-8	1880.6	-49	1881.4	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-9	1879	-49	1878.2	-49	0.00	1	PASS
DCS1800	885	1784.8	1879.8	USF MCS-9	1880.6	-49	1881.4	-49	0.00	1	PASS

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## 16. Adjacent Channel Rejection

### 16.1. Test Limit

Limits for adjacent channel selectivity-speech channels

			SM 400, GSM 700, T-GSM, 810, GSM 850 and GSM 900		DCS 1 800 and PCS 1 900	
Interference at	Channel	Type of measurement	Test limit error rate%	Minimum No. of samples	Test limit error rate%	Minimum No. of samples
200 kHz	TCH/FS class Ib class II	FER	6,742* $\alpha$	8 900	3,371* $\alpha$	17 800
		RBER	0,420/ $\alpha$	1 000 000	0,270/ $\alpha$	2 000 000
		RBER	8,333	630 000	8,333	1 200 000
400 kHz Interferer TUhigh	TCH/FS class Ib class II	FER	6,742* $\alpha$	8 900	3,371* $\alpha$	17 800
		RBER	0,420/ $\alpha$	1 000 000	0,270/ $\alpha$	2 000 000
		RBER	8,333	630 000	8,333	1 200 000
400 kHz Interferer Static	TCH/FS class Ib class II	FER	11,461* $\alpha$	8 900	5,714* $\alpha$	10 500
		RBER	0,756/ $\alpha$	1 000 000	0,483/ $\alpha$	1 200 000
		RBER	9,167	630 000	9,167	720 000

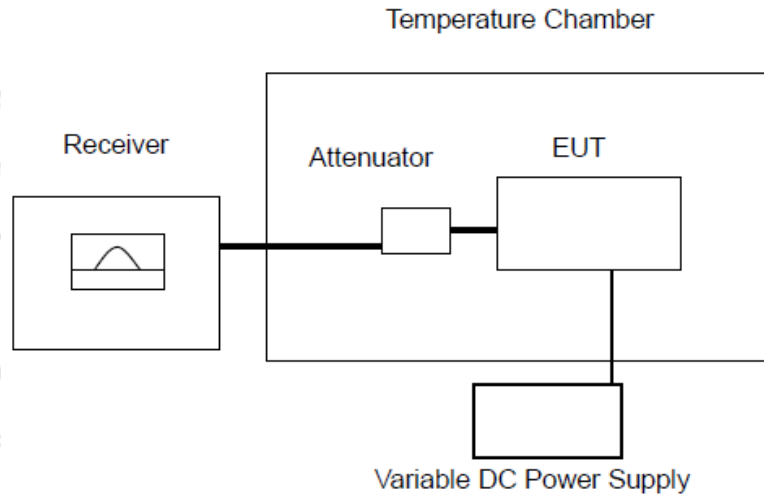
Limits for adjacent channel selectivity- control channels

Interference at	Channel	Type of measurement	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples
200 kHz/400 kHz interferer faded	Propagation conditions	FER	10,640	5 639	3,808	15 756
400 kHz interferer static	FACCH/F	FER	19,152	3 133	6,832	8 782

### 16.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 clause 14.5.1.4&14.5.2.4 for the measurement method.

### 16.3. Test Setup



### 16.4. Test Results

Reference sensitivity - TCH/FS(GSM900)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	200KHz	902.6	8900	Pass
	400 kHz Interferer TUhigh		8900	Pass
	400 kHz Interferer Static		8900	Pass
class Ib(RBER)	200KHz	902.6	1000000	Pass
	400 kHz Interferer TUhigh		1000000	Pass
	400 kHz Interferer Static		1000000	Pass
class II(RBER)	200KHz	902.6	630000	Pass
	400 kHz Interferer TUhigh		630000	Pass
	400 kHz Interferer Static		630000	Pass

$\alpha = 1$

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Reference sensitivity - TCH/FS(DCS1800)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	200KHz	1747.4	17800	Pass
	400 kHz Interferer TUhigh		17800	Pass
	400 kHz Interferer Static		17800	Pass
class Ib(RBER)	200KHz	1747.4	2000000	Pass
	400 kHz Interferer TUhigh		2000000	Pass
	400 kHz Interferer Static		2000000	Pass
class II(RBER)	200KHz	1747.4	120000	Pass
	400 kHz Interferer TUhigh		120000	Pass
	400 kHz Interferer Static		120000	Pass
α =1				

## 17. Reference Sensitivity

### 17.1. Test Limit

Limits for GSM 400, GSM 700, T-GSM 810, GSM 850 and GSM 900 sensitivity

Channels	Propagation conditions TUhigh		Propagation conditions RA		Propagation conditions HT		Static conditions	
	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples
TCH/FS								
FER class		8 900					0,122*	164 000
lb(RBER)	6,742* $\alpha$	1 000					$\alpha$	20 000
class	0,42/ $\alpha$	000					0,41/ $\alpha$	000
II(RBER)	8,333	120 000	7,5	24 000	9,333	63 000	2,439	8 200

Limits for DCS 1 800 and PCS 1 900 sensitivity

Channels	Propagation conditions TUhigh		Propagation conditions RA		Propagation conditions HT		Static conditions	
	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples	Test limit error rate %	Minimum No. of samples
TCH/FS								
FER class		13400					0,122*	164 000
lb(RBER)	4478* $\alpha$	1 500					$\alpha$	20 000
class	0.32/ $\alpha$	000					0,41/ $\alpha$	000
II(RBER)	8,333	63 000	7,5	24 000	9,333	30 000	2,439	8 200

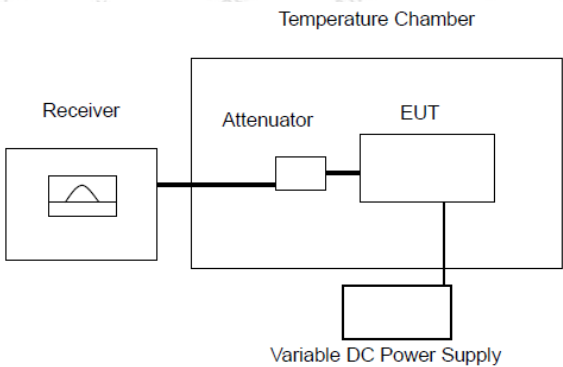
Limits for FACCH/F sensitivity

			GSM 400, GSM 700, T-GSM 810, GSM 850 and GSM 900		DCS 1 800 and PCS 1 900	
Channels	Type of Propagation measurements		Test limit error rate %	Minimum No of samples	Test limit error rate %	Minimum No of samples
FACCH/F	FER	TUhigh	8,961	6696	4,368	13736

17.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 clause 14.2.1.4&14.2.3.4 for the measurement method.

17.3. Test Setup



17.4. Test Results

Reference sensitivity - TCH/FS(GSM900)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	TUhigh	902.6	8900	Pass
	Static		164000	Pass
class Ib(RBER)	TUhigh	902.6	1000000	Pass
	Static		20000000	Pass
class II(RBER)	TUhigh	902.6	120000	Pass
	RA		24000	Pass
	HT		63000	Pass
	Static		8200	Pass
α =1				

Reference sensitivity - TCH/FS(DCS1800)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	TUhigh	1747.4	13400	Pass
	Static		164000	Pass
class Ib(RBER)	TUhigh	1747.4	1500000	Pass
	Static		20000000	Pass
class II(RBER)	TUhigh	1747.4	63000	Pass
	RA		24000	Pass
	HT		30000	Pass
	Static		82000	Pass
α =1				

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Reference sensitivity - TCH/FS(GSM900)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	TUhigh	902.6	7000	Pass

Reference sensitivity - TCH/FS(DCS1800)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	TUhigh	1747.4	14000	Pass

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## 18. Reference Sensitivity

### 18.1. Test Limit

The block error rate (BLER) performance for PDTCH/MCS1 to 4 shall not exceed 10 % at input levels according to the table 14.18-3a; and for PDTCH/MCS5 to 9 shall not exceed 10 % or 30 % depending on Coding Schemes at input levels according to the table 14.18-3b.

**Table 14.18-3a: PDTCH Sensitivity Input Level for GMSK modulation**

Type of channel		Propagation conditions				
		static	TUhigh (no FH)	TUhigh (ideal FH)	RA (no FH)	HT (no FH)
GSM 400, GSM 700, GSM 850 and GSM 900						
PDTCH/CS-1	dBm	-104	-102.5	-103	-103	-102
PDTCH/CS-2	dBm	-104	-100.5	-101	-100.5	-100
PDTCH/CS-3	dBm	-104	-96.5	-96.5	-92.5	-95.5
PDTCH/CS-4	dBm	-101.5	-91	-91	(note)	(note)
DCS 1 800 and PCS 1 900						
PDTCH/CS-1	dBm	-104	-102.5	-103	-103	-101.5
PDTCH/CS-2	dBm	-104	-100.5	-101	-100.5	-99.5
PDTCH/CS-3	dBm	-104	-96.5	-96.5	-92.5	-94.5
PDTCH/CS-4	dBm	-101.5	-90.5	-90.5	(note)	(note)
NOTE: PDTCH/MCS-4 can not meet the reference performance for some propagation conditions						

**PDTCH Sensitivity Input Level for MS for 8-PSK modulation**

Type of channel		Propagation conditions				
		static	TUhigh (no FH)	TUhigh (ideal FH)	RA (no FH)	HT (no FH)
GSM 400, GSM 700, GSM 850 and GSM 900						
PDTCH/CS-5	dBm	-98	-93	-94	-93	-92
PDTCH/CS-6	dBm	-96	-91	-91.5	-88	-89
PDTCH/CS-7	dBm	-93	-84	-84	(note 2)	(note 2)
PDTCH/CS-8	dBm	90.5	-83(note 3)	-83(note 3)	(note 2)	(note 2)
PDTCH/CS-9	dBm	-86	-78.5(note 3)	-78.5(note 3)	(note 2)	(note 2)
DCS 1 800 and PCS 1 900						
PDTCH/CS-5	dBm	-98	-93.5	-93.5	-93	-89.5
PDTCH/CS-6	dBm	-96	-91	-91	-88	-83.5
PDTCH/CS-7	dBm	-93	-81.5	-80.5	(note 2)	(note 2)
PDTCH/CS-8	dBm	90.5	-80(note 3)	-80(note 3)	(note 2)	(note 2)

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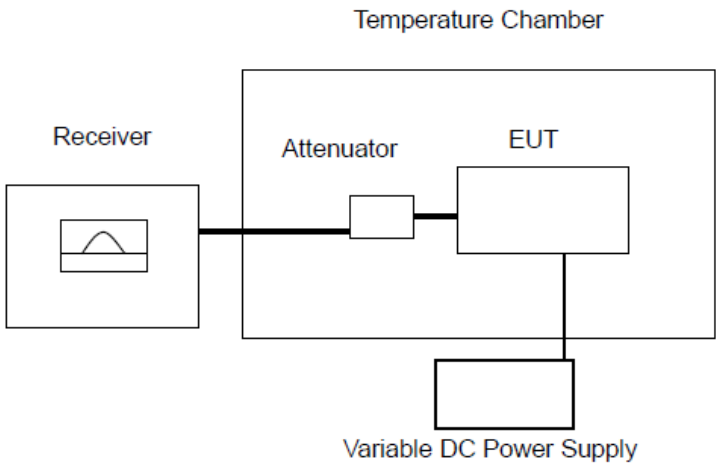
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		3)			
PDTCH/CS-9	dBm	-86	(note 2)	(note 2)	(note 2)
NOTE: PDTCH/MCS-4 can not meet the reference performance for some propagation conditions					

18.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 clause 14.18.1.4 for the measurement method.

18.3. Test Setup



18.4. Test Results

EGPRS900(GMSK)					
Test style	Test condition	Channel (MHz)	Input level(dBm))	Reading (%)	Limit (%)
PDTCH/CS-1	static	902.6	-104	1.19	10
	TUhigh (no FH)		-102.5	1.07	
	TUhigh (ideal FH)		-103	1.34	
	RA (no FH)		-103	1.32	
	HT (no FH)		-102	1.27	
PDTCH/CS-2	static	902.6	-104	0.93	10
	TUhigh (no FH)		-100.5	1.29	
	TUhigh (ideal FH)		-101	1.51	
	RA (no FH)		-100.5	1.43	
	HT (no FH)		-100	0.49	

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PDTCH/CS-3	static	902.6	-104	1.20	10
	TUhigh (no FH)		-96.5	0.93	
	TUhigh (ideal FH)		-96.5	0.68	
	RA (no FH)		-92.5	1.32	
	HT (no FH)		-95.5	0.52	
PDTCH/CS-4	static	902.6	-101.5	0.91	10
	TUhigh (no FH)		-91	0.95	
	TUhigh (ideal FH)		-91	0.80	

EGPRS1800(GMSK)					
Test style	Test condition	Channel (MHz)	Input level(dBm)	Reading (%)	Limit (%)
PDTCH/CS-1	static	1747.4	-104	0.81	10
	TUhigh (no FH)		-102.5	1.23	
	TUhigh (ideal FH)		-103	1.40	
	RA (no FH)		-103	0.54	
	HT (no FH)		-101.5	1.44	
PDTCH/CS-2	static	1747.4	-104	1.37	10
	TUhigh (no FH)		-100.5	1.24	
	TUhigh (ideal FH)		-101	1.14	
	RA (no FH)		-100.5	0.75	
	HT (no FH)		-99.5	0.74	
PDTCH/CS-3	static	1747.4	-104	0.73	10
	TUhigh (no FH)		-96.5	0.71	
	TUhigh (ideal FH)		-96.5	1.28	
	RA (no FH)		-92.5	0.88	
	HT (no FH)		-94.5	0.57	
PDTCH/CS-4	static	1747.4	-101.5	0.83	10
	TUhigh (no FH)		-90.5	1.35	
	TUhigh (ideal FH)		-90.5	1.46	

EGPRS900(8-PSK)					
Test style	Test condition	Channel (MHz)	Input level(dBm))	Reading (%)	Limit (%)
PDTCH/CS-5	static	902.6	-98	0.58	10
	TUhigh (no FH)		-93	1.06	
	TUhigh (ideal FH)		-94	1.39	
	RA (no FH)		-93	1.34	
	HT (no FH)		-92	1.06	
PDTCH/CS-6	static	902.6	-96	0.99	10
	TUhigh (no FH)		-91	0.92	
	TUhigh (ideal FH)		-91.5	0.85	
	RA (no FH)		-88	1.16	
	HT (no FH)		-89	1.41	
PDTCH/CS-7	static	902.6	-93	0.95	10
	TUhigh (no FH)		-84	0.64	
	TUhigh (ideal FH)		-84	1.20	
	HT (no FH)		-83	0.53	30
PDTCH/CS-8	static	902.6	-90.5	0.86	10
	TUhigh (no FH)		-83	0.44	30
	TUhigh (ideal FH)		-83	1.22	30
PDTCH/CS-9	static	902.6	-86	0.85	10
	TUhigh (no FH)		-78.5	1.34	30
	TUhigh (ideal FH)		-78.5	0.41	30

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EGPRS1800(8-PSK)					
Test style	Test condition	Channel (MHz)	Input level(dBm)	Reading (%)	Limit (%)
PDTCH/CS-5	static	1747.4	-98	0.63	10
	TUhigh (no FH)		-93.5	1.53	
	TUhigh (ideal FH)		-93.5	1.04	
	RA (no FH)		-93	1.31	
	HT (no FH)		-89.5	0.79	
PDTCH/CS-6	static	1747.4	-96	0.75	10
	TUhigh (no FH)		-91	1.04	
	TUhigh (ideal FH)		-91	1.41	
	RA (no FH)		-88	1.17	
	HT (no FH)		-83.5	1.04	
PDTCH/CS-7	static	1747.4	-93	0.88	10
	TUhigh (no FH)		-81.5	0.68	
	TUhigh (ideal FH)		-80.5	1.25	
PDTCH/CS-8	static	1747.4	-90.5	0.89	10
	TUhigh (no FH)		-80	0.99	30
	TUhigh (ideal FH)		-80	0.72	30
PDTCH/CS-9	static	1747.4	-86	0.55	10

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## 19. PICS/PIXIT Information of The EUT

Type of Mobile Station (Re. ETSI EN301 511 Annex A)

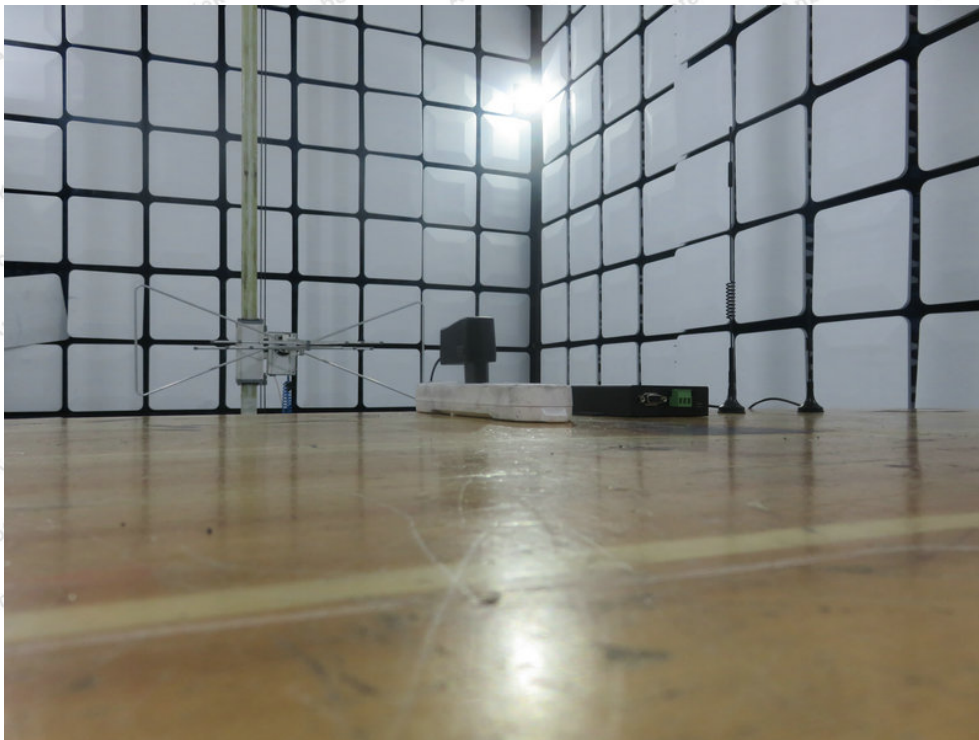
Item	Type of Mobile Station	Support	Mnemonic
1	HSCSD Multislot MS	N	Type_HSCSD_Multislot
2	R-GSM MS	N	Type_R-GSM
3	Support of GPRS Multislot class on the uplink	Y	Type_GPRS_Multislot_uplink
4	EGPRS	Y	Type_EGPRS
5	EGPRS capable of 8PSK in Uplink, of all Multislot classes	Y	Type_EGPRS_8PSK_uplink

ADDITIONAL INFORMATION (Re. ETSI EN301 511 Annex A)

Item	Additional Information	Support	Mnemonic
1	Telephony.	Y	TSPC_Serv_TS11
2	Permanent Antenna Connector.	N	TSPC_AddInfo_PermAntenna

## 20. Test setup photos


Photo of Radiation Emission Test



----- End of Report -----

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