

RED-Radio Test Report

For

Shandong USR IOT Technology Limited

Serial to GPRS Module

Model No.: USR-GM3, USR-GM3s, USR-GPRS232-7S3, USR-GPRS232-730,
USR-GPRS232-702, USR-GPRS232-703, USR-GPRS232-704,
USR-GPRS232-705, USR-GPRS232-732, USR-GPRS232-734

Prepared For : Shandong USR IOT Technology Limited
Address : Floor 11, Building 1, No. 1166 Xinluo Street, Gaoxin Qu, 250101, Jinan,
Shandong, China

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
Address : 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan
District, Shenzhen, Guangdong, China
Tel: (86) 755-26066544 Fax: (86) 755-26014772


Report Number : R0217100055W
Date of Test : Oct. 26~Oct. 31, 2017
Date of Report : Nov. 03, 2017

Contents

1. Client Information.....	5
1.1. Description of Device (EUT).....	5
1.2. Auxiliary Equipment Used During Test.....	5
1.3 Test Standard Description.....	6
1.4 Test Conditions.....	6
1.5 Measurement Uncertainty (95% confidence levels, k=2).....	7
1.6 Measurement and Test Setup.....	7
1.7 Test Equipment List.....	9
2. Summary of Test Results.....	10
3. Transmitter-Frequency Error and Phase Error.....	12
3.1. Test Limit.....	12
3.2. Test Setup.....	12
3.3. Test Procedure.....	12
3.4. Test Result.....	12
4. Frequency Error and Phase Error in GPRS Multislot Configuration.....	18
4.1. Test Limit.....	18
4.2. Test Setup.....	18
4.3. Test Procedure.....	18
4.4. Test Result.....	18
5. GPRS Transmitter Output Power and Burst Timing.....	24
5.1. Test Limit.....	24
5.2. Test Setup.....	24
5.3. Test Procedure.....	24
5.4. Test Result.....	25
6. Transmitter Output Power in GPRS Multislot Configuration.....	28
6.1. Test Limit.....	28
6.2. Test Setup.....	28
6.3. Test Procedure.....	28
6.4. Test Result.....	29
7. Output RF Spectrum in GPRS Multislot Configuration.....	32
7.1. Test Limit.....	32
7.2. Test Setup.....	32
7.3. Test Procedure.....	32
7.4. Test Result.....	32
8. Conducted Spurious Emissions.....	36
8.1. Test Limit.....	36
8.2. Test Setup.....	36
8.3. Test Procedure.....	36
8.4. Test Result.....	37
9. Radiated Spurious Emissions.....	38
9.1. Test Limit.....	38
9.2. Test Setup.....	39

9.3. Test Procedure.....	39
9.4. Test Result.....	39
9.5. Test Results for MS in idle mode.....	42
10. Receiver Blocking and Spurious Response.....	43
10.1. Test Limit.....	43
10.2. Test Setup.....	45
10.3. Test Procedure.....	45
10.4. Test Result.....	45
11. Am suppression - Speech Channels.....	46
11.1. Test Limit.....	46
11.2. Test Procedures.....	46
11.3. Test Setup.....	46
11.4. Test Results.....	46
12. Adjacent Channel Rejection.....	48
12.1. Test Limit.....	48
12.2. Test Procedures.....	48
12.3. Test Setup.....	49
12.4. Test Results.....	49
13. Reference Sensitivity.....	52
13.1. Test Limit.....	52
13.2. Test Procedures.....	52
13.3. Test Setup.....	53
13.4. Test Results.....	53
14. PICS/PIXIT Information of The EUT.....	56
15. Test setup photo.....	57

TEST REPORT

Applicant : Shandong USR IOT Technology Limited
Manufacturer : Shandong USR IOT Technology Limited
Product Name : Serial to GPRS Module
Model No. : USR-GM3, USR-GM3s, USR-GPRS232-7S3, USR-GPRS232-730,
USR-GPRS232-702, USR-GPRS232-703, USR-GPRS232-704, USR-GPRS232-705,
USR-GPRS232-732, USR-GPRS232-734
Trade Mark : 
Rating(s) : DC 3.8V, 750mA

Test Standard(s) : ETSI EN 301 511 V12.5.1 (2017-03)
ETSI TS 151 010-1 V12.8.0 (2016-05)

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 Test

Oct. 26~Oct. 31, 2017

Prepared By



Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer

May Lu

(Project Manager / May Lu)

Approved & Authorized Signer


Tom Chen

(Manager / Tom Chen)

1. Client Information

Applicant	:	Shandong USR IOT Technology Limited
Address	:	Floor 11, Building 1, No. 1166 Xinluo Street, Gaoxin Qu, 250101, Jinan, Shandong, China
Manufacturer	:	Shandong USR IOT Technology Limited
Address	:	Floor 11, Building 1, No. 1166 Xinluo Street, Gaoxin Qu, 250101, Jinan, Shandong, China

1.1. Description of Device (EUT)

Product Name	:	Serial to GPRS Module	
Model No.	:	USR-GM3, USR-GM3, USR-GM3s, USR-GPRS232-7S3, USR-GPRS232-730, USR-GPRS232-702, USR-GPRS232-703, USR-GPRS232-704, USR-GPRS232-705, USR-GPRS232-732, USR-GPRS232-734 (Note: All samples are the same except the model number and appearance, so we prepare "USR-GM3" for test only.)	
Trade Mark	:		
Test Power Supply	:	DC 5V from adapter with AC 230V/50Hz	
Product Description	:	Frequency Range	GPRS(900MHz, 1800MHz)
	:	Operation Band:	GPRS 900: 880 ~ 915MHz(TX) 925~960MHz (RX) GPRS1800: 1710 ~ 1785 MHz(TX) 1805~1880MHz(RX)
	:	Modulation Type:	GMSK
	:	Power Class:	GSM900: 4, GSM1800: 1
	:	Multislot Class:	GPRS: 10
	:	Antenna Type:	PIFA Antenna
	:	Antenna Gain(Peak):	2.5 dBi
Remark: 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.			

1.2. Auxiliary Equipment Used During Test

N/A	
-----	--

1.3 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 V12.8.0: Digital cellular telecommunications system (Phase 2+);

Mobile Station (MS) conformance specification; Part 1: Conformance specification

(ETSI TS 151 010-1 version 12.8.0 Release 12)

1.4 Test Conditions

Temperature:	15-35 ° C	
Relative humidity content:	Up to 75 %	
Details of power supply:		
- Extreme test conditions:	Vnom= 5 V	DC
	Vmin = 4.5 V	DC
	Vmax = 5.5 V	DC
- Extreme temperature:	-20° C / 50° 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

GPRS900	LCH	MCH	HCH
	880.2	902.4	914.8

GPRS1800	LCH	MCH	HCH
	1710.2	1747.6	1784.8

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

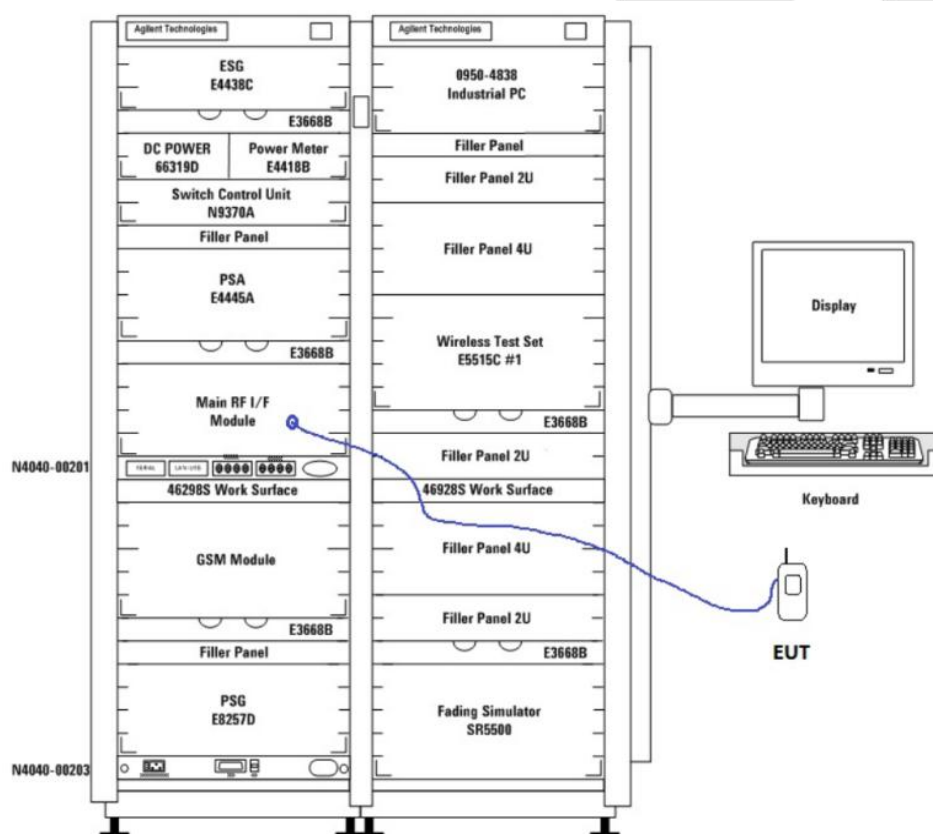
1.5 Measurement Uncertainty (95% confidence levels, k=2)

Maximum measurement uncertainty

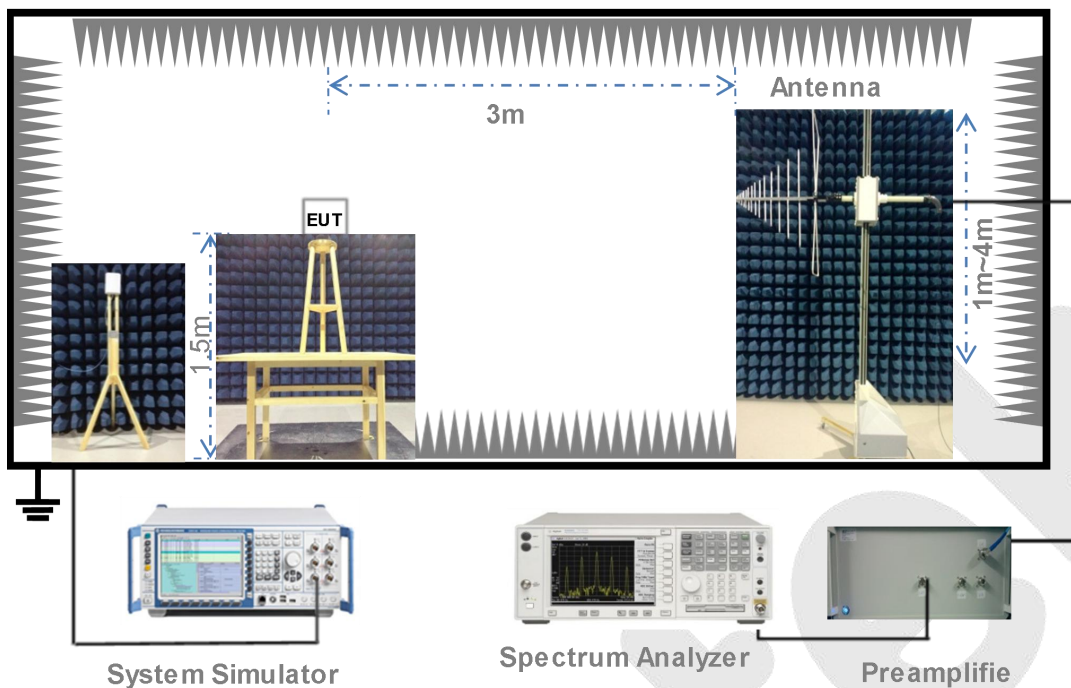
Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1,5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±1 °C
Humidity	±5 %
DC and low frequency voltages	±3 %
Time	±5 %
Duty Cycle	±5 %

1.6 Measurement and Test Setup

1.6.1 Conducted Test Setup



1.6.2 Radiated Test Setup



1.7 Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	May 27, 2017	1 Year
2.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	May 27, 2017	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
9.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
10.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
11.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80 B	ZJ-17042804	Mar. 3, 2017	1 Year
12.	Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	117888	May 27, 2017	1 Year
13.	Wideband Radio Communication Tester	Rohde & Schwarz	CMU 500	1201.0002K50- 104209-JC	May 27, 2017	1 Year
14.	High-Pass Filter	CDKMV	ZHPF-BM11 00 -4000-0730	B2015094550	May 27, 2017	1 Year
15.	High-Pass Filter	CDKMV	ZHPF-M3.5 -18G-3834	1307006523	May 27, 2017	1 Year
16.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063507	May 27, 2017	1 Year
17.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063513	May 27, 2017	1 Year

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	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
13.2	4.2.2	Transmitter – Frequency error under multipath and interference conditions	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
13.3.4.1	4.2.5	Transmitter output power and burst timing - MS with external antenna	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

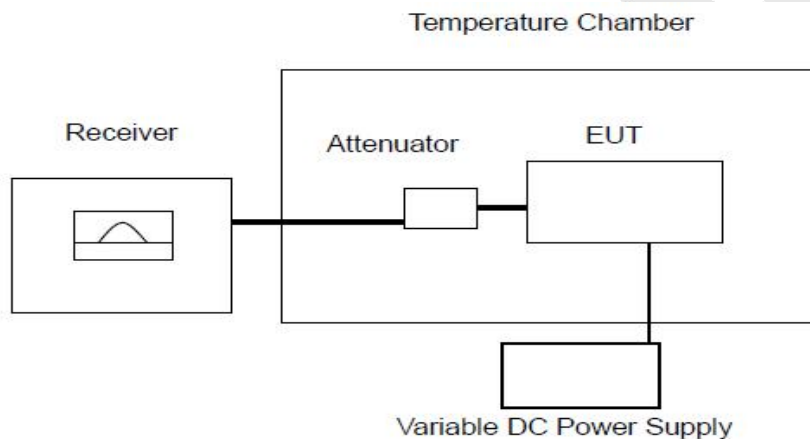
3GPP TS 51.010-1 Item	EN 301 511 Reference	TEST DESCRIPTION	GSM 900	DCS 1800
13.4	4.2.6	Transmitter - Output RF spectrum	Pass	Pass
		Temperature High, Voltage High	Pass	Pass
		Temperature High, Voltage Low	Pass	Pass
		Temperature Low, Voltage High	Pass	Pass
		Temperature Low, Voltage Low	Pass	Pass
13.16.1	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	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
		Temperature Low, Voltage Low	Pass	Pass
13.16.3	4.2.11	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
		Temperature Low, Voltage Low	Pass	Pass
14.7.1	4.2.20	Receiver Blocking and spurious response - speech channels	Pass	Pass

3. Transmitter-Frequency Error and Phase Error

3.1. Test Limit

1. The MS carrier frequency shall be accurate to within 0,1 ppm, or accurate to within 0,1 ppm compared to signals received from the BS. For GSM 400 MS a value of 0,2 ppm shall be used in both cases.
 - 1.1 Under normal conditions; 3GPP TS 05.10, subclause 6.1.
 - 1.2 Under vibration conditions; 3GPP TS 05.10, subclause 6.1; 3GPP TS 05.05, annex D in subclause D.2.3.
 - 1.3 Under extreme conditions; 3GPP TS 05.10, subclause 6.1; 3GPP TS 05.05, subclause 4.4; 3GPP TS 05.05, annex D in subclauses D.2.1 and D.2.2.
2. The RMS phase error (difference between the phase error trajectory and its linear regression on the active part of the time slot) for each burst shall not be greater than 5 degrees.
 - 2.1 Under normal conditions; 3GPP TS 05.05, subclause 4.6.
 - 2.2 Under vibration conditions; 3GPP TS 05.05, subclause 4.6; 3GPP TS 05.05, annex D in subclause D.2.3.
 - 2.3 Under extreme conditions; 3GPP TS 05.05, subclause 4.6; 3GPP TS 05.05, annex D in subclauses D.2.1 and D.2.2.
3. The maximum peak deviation during the useful part of each burst shall not be greater than 20 degrees.
 - 3.1 Under normal conditions; 3GPP TS 05.05, subclause 4.6.
 - 3.2 Under vibration conditions; 3GPP TS 05.05, subclause 4.6; 3GPP TS 05.05, annex D in subclause D.2.3.
 - 3.3 Under extreme conditions; 3GPP TS 05.05, subclause 4.6; 3GPP TS 05.05, annex D in subclauses D.2.1 and D.2.2.

3.2. Test Setup



3.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.1.2 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.1.2 for the measurement method.

3.4. Test Result

RMS phase error(degree)	Power control LEVEL	Result			
		GPRS900			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	0.6	0.6	0.6	PASS
	17	0.7	0.6	0.7	PASS
vibration conditions	3	0.6	0.6	0.6	PASS
	17	0.7	0.6	0.6	PASS
TL VL	3	0.5	0.6	0.7	PASS
	17	0.6	0.7	0.7	PASS
TL VH	3	0.6	0.7	0.7	PASS
	17	0.7	0.7	0.6	PASS
TH VL	3	0.6	0.7	0.6	PASS
	17	0.7	0.6	0.7	PASS
TH VH	3	0.7	0.7	0.7	PASS
	17	0.7	0.6	0.7	PASS

Peak phase error(degree)	Power control LEVEL	Result			
		GPRS900			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	1.7	1.7	1.6	PASS
	17	1.7	1.7	1.7	PASS
vibration conditions	3	1.5	1.6	1.7	PASS
	17	1.4	1.7	1.7	PASS
TL VL	3	1.5	1.6	1.7	PASS
	17	1.4	1.7	2.0	PASS
TL VH	3	1.5	1.7	1.8	PASS
	17	1.3	1.7	1.7	PASS
TH VL	3	1.5	1.5	1.8	PASS
	17	1.3	1.4	1.8	PASS
TH VH	3	1.5	1.5	1.7	PASS
	17	1.4	1.3	1.7	PASS

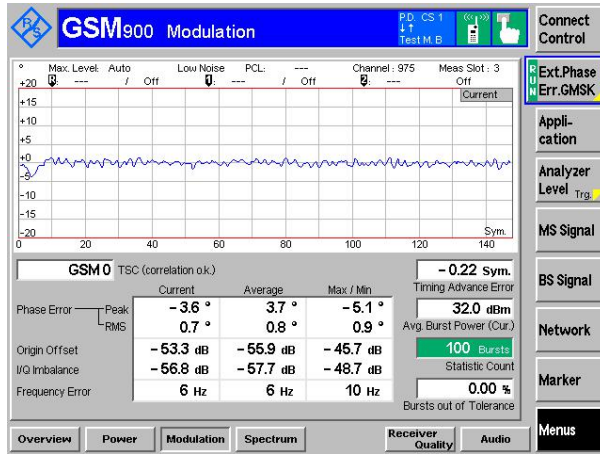
RMS phase error(degree)	Power control LEVEL	Result			
		GPRS1800			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	4	6	10	PASS
	18	4	6	4	PASS
vibration conditions	3	5	5	3	PASS
	18	8	6	11	PASS
TL VL	3	7	7	6	PASS
	18	5	6	6	PASS
TL VH	3	10	6	6	PASS
	18	-4	-7	-3	PASS
TH VL	3	-3	-7	-3	PASS
	18	-4	-4	-4	PASS
TH VH	3	-6	-6	-6	PASS
	18	-4	-5	-5	PASS

Peak phase error(degree)	Power control LEVEL	Result			
		GPRS1800			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	11	13	12	PASS
	18	12	12	6	PASS
vibration conditions	3	5	9	6	PASS
	18	11	13	4	PASS
TL VL	3	8	5	8	PASS
	18	10	8	5	PASS
TL VH	3	8	8	6	PASS
	18	3	3	-5	PASS
TH VL	3	-1	0	-4	PASS
	18	2	-2	-5	PASS
TH VH	3	2	-2	-4	PASS
	18	3	-4	-7	PASS

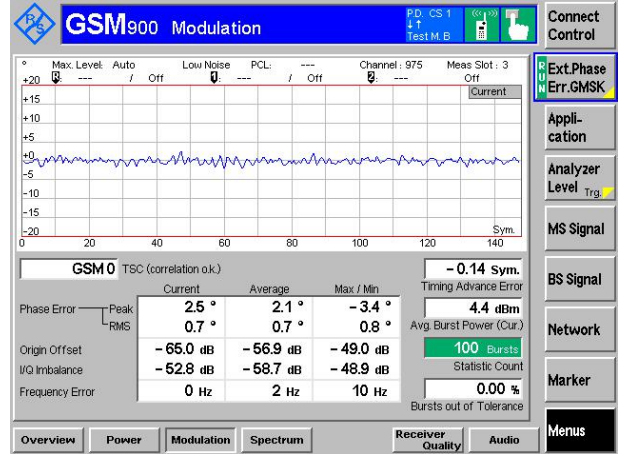
frequency error(Hz)	Power control LEVEL	Result			
		GPRS1800			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	-8	3	-5	PASS
	18	-1	-1	-9	PASS
vibration conditions	3	-13	0	-1	PASS
	18	1	-6	-3	PASS
TL VL	3	-12	-2	-10	PASS
	18	1	-2	0	PASS
TL VH	3	-2	-2	-2	PASS
	18	-12	4	-19	PASS
TH VL	3	-18	12	-13	PASS
	18	-16	11	-13	PASS
TH VH	3	-14	4	-12	PASS
	18	-15	9	-12	PASS

Test slot

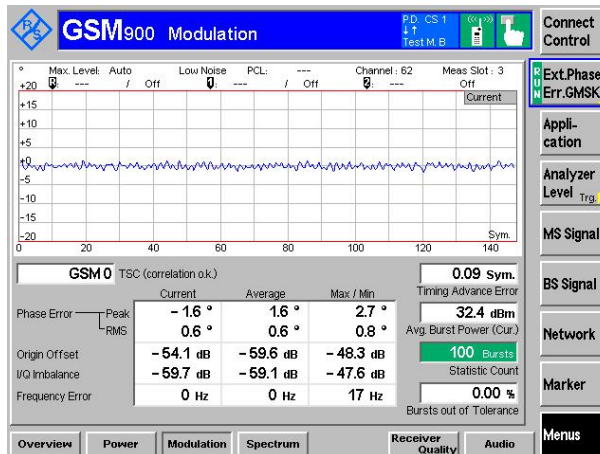
Low Channel PCL(3) GPRS900



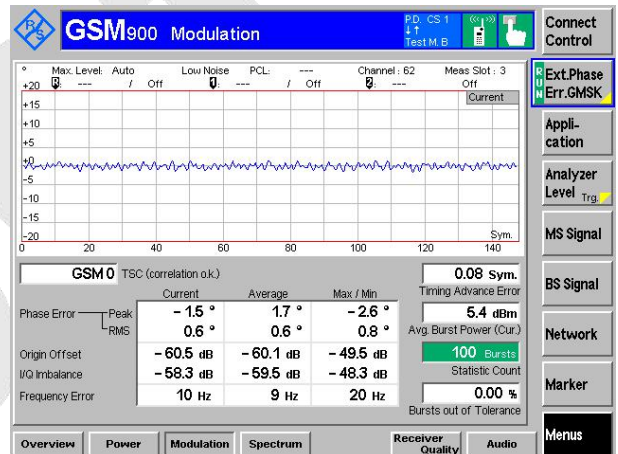
Low Channel PCL(17) GPRS900



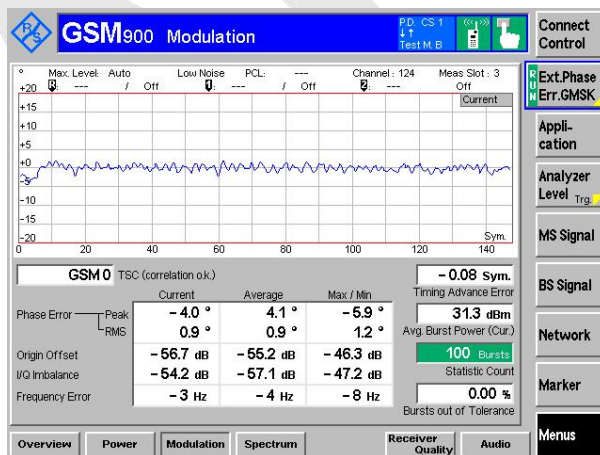
Middle Channel PCL(3) GPRS900



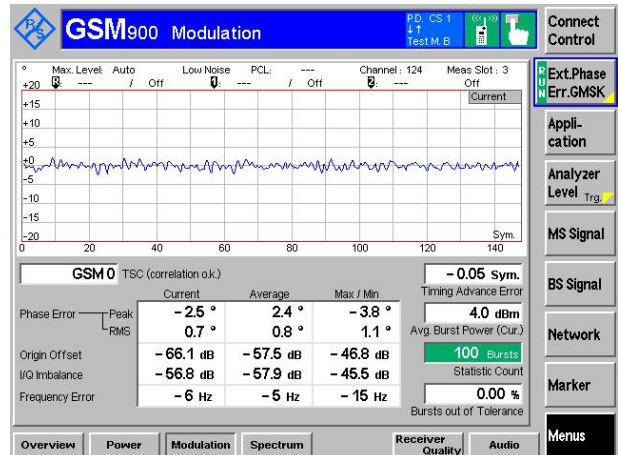
Middle Channel PCL(17) GPRS900



High Channel PCL(3) GPRS900

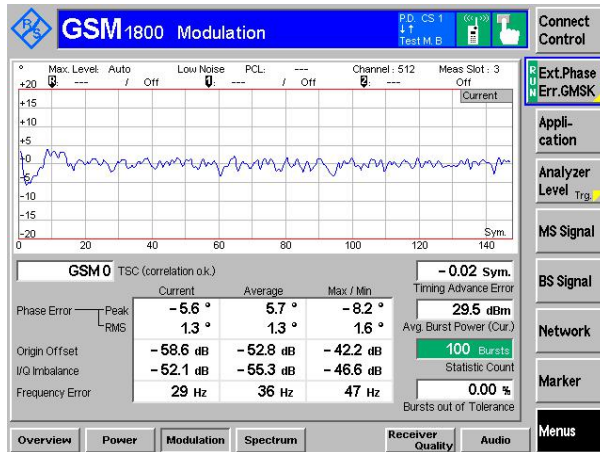


High Channel PCL(17) GPRS900

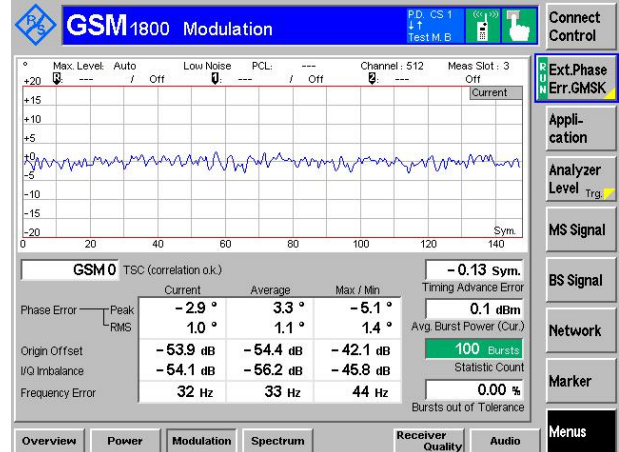


Test slot

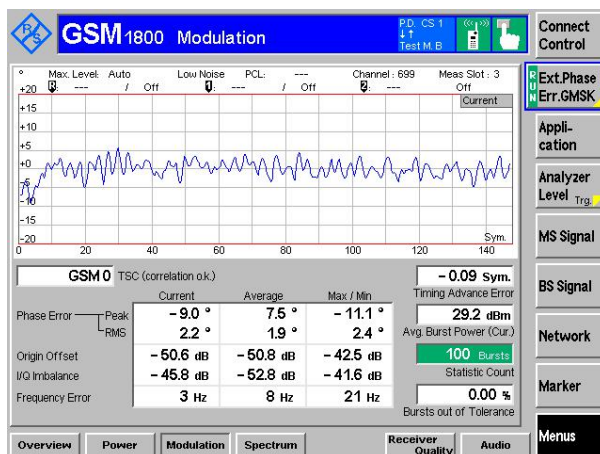
Low Channel PCL(3) GPRS1800



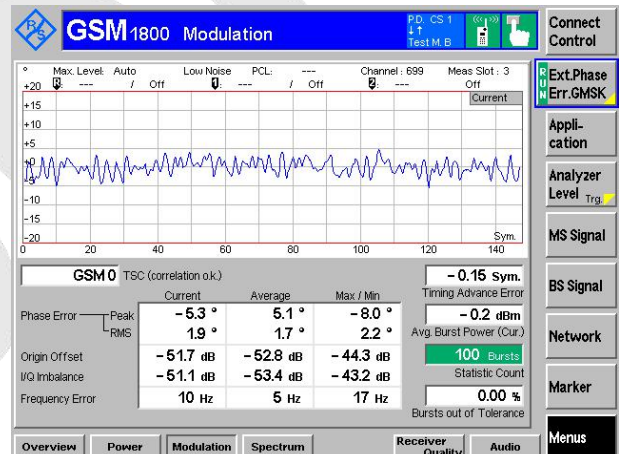
Low Channel PCL(18) GPRS1800



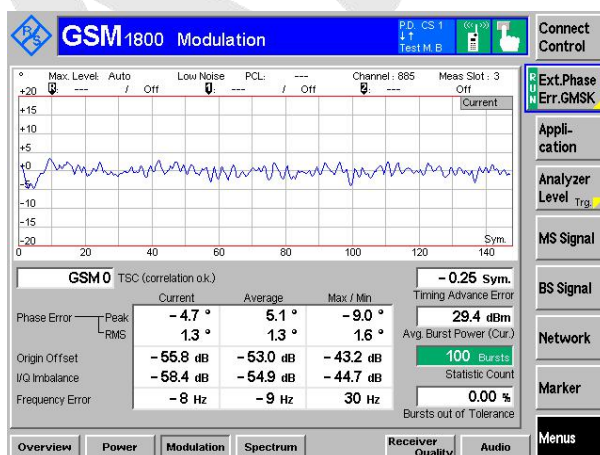
Middle Channel PCL(3) GPRS1800



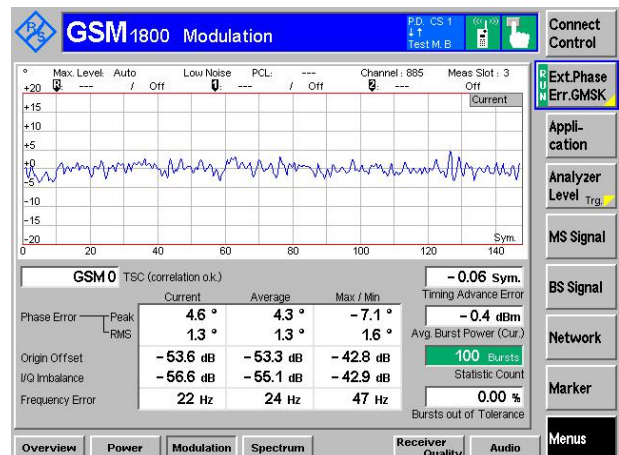
Middle Channel PCL(18) GPRS1800



High Channel PCL(3) GPRS1800



High Channel PCL(18) GPRS1800

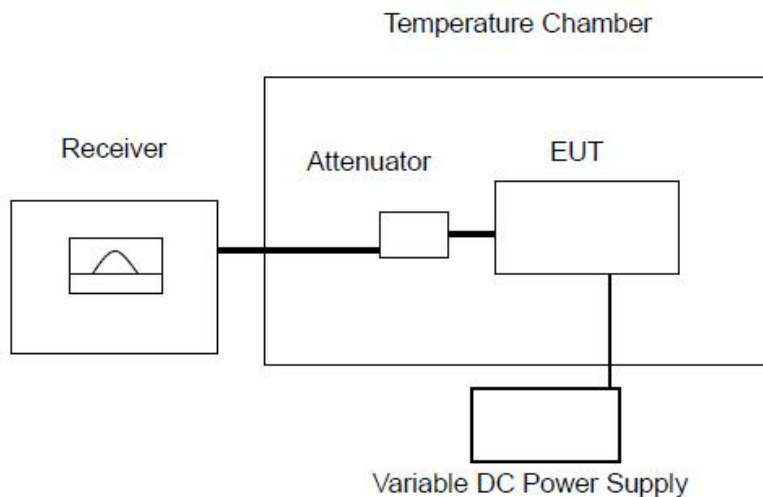


4. Frequency Error and Phase Error in GPRS Multislot Configuration

4.1. 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

4.2. Test Setup



4.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.1.2 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.1.3 for the measurement method.

4.4. Test Result

Temperature:	25° C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage:	DC 12 V Battery inside

RMS phase error(degree)	Power control LEVEL	Result			
		GPRS900			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	0.6	0.5	0.7	PASS
	17	0.6	0.5	0.6	PASS
vibration conditions	3	0.6	0.5	0.6	PASS
	17	0.7	0.4	0.5	PASS
TL VL	3	0.5	0.5	0.7	PASS
	17	0.7	0.4	0.6	PASS
TL VH	3	0.6	0.5	0.6	PASS
	17	0.6	0.4	0.5	PASS
TH VL	3	0.5	0.5	0.6	PASS
	17	0.6	0.5	0.5	PASS
TH VH	3	0.6	0.5	0.7	PASS
	17	0.7	0.5	0.6	PASS

Peak phase error(degree)	Power control LEVEL	Result			
		GPRS900			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	1.3	1.1	1.3	PASS
	17	1.5	1.2	1.3	PASS
vibration conditions	3	1.4	1.1	1.2	PASS
	17	1.5	1.2	1.3	PASS
TL VL	3	1.4	1.1	1.3	PASS
	17	1.5	1.3	1.4	PASS
TL VH	3	1.3	1.1	1.3	PASS
	17	1.4	1.3	1.4	PASS
TH VL	3	1.4	1.1	1.2	PASS
	17	1.5	1.3	1.3	PASS
TH VH	3	1.4	1.2	1.2	PASS
	17	1.5	1.2	1.4	PASS

frequency error(Hz)	Power control LEVEL	Result			
		GPRS900			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	-13	-21	-15	PASS
	17	-4	-16	-7	PASS
vibration conditions	3	-13	-23	-15	PASS
	17	-2	-20	-6	PASS
TL VL	3	-9	-27	-13	PASS
	17	-1	-19	-5	PASS
TL VH	3	-15	-21	-19	PASS
	17	-13	-9	-12	PASS
TH VL	3	-18	-16	-17	PASS
	17	-15	-7	-13	PASS
TH VH	3	-19	-17	-18	PASS
	17	-19	-3	-15	PASS

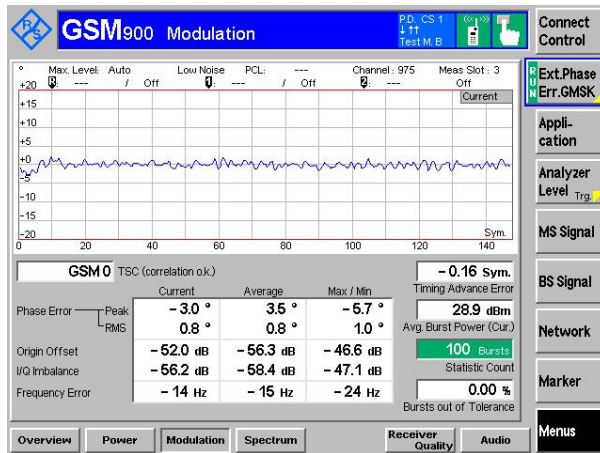
RMS phase error(degree)	Power control LEVEL	Result			
		GPRS1800			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	1.2	1.0	0.8	PASS
	18	1.3	1.0	0.8	PASS
vibration conditions	3	1.9	0.6	0.8	PASS
	18	0.7	0.7	0.8	PASS
TL VL	3	0.8	0.6	0.7	PASS
	18	0.6	0.6	0.8	PASS
TL VH	3	0.9	0.6	0.8	PASS
	18	0.7	0.7	0.8	PASS
TH VL	3	0.8	0.7	0.7	PASS
	18	0.7	0.7	0.8	PASS
TH VH	3	0.9	0.7	0.8	PASS
	18	0.7	0.6	0.7	PASS

Peak phase error(degree)	Power control LEVEL	Result			
		GPRS1800			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	2.8	2.8	2.8	PASS
	18	1.8	2.8	1.8	PASS
vibration conditions	3	2.8	3.0	2.7	PASS
	18	1.8	2.0	1.9	PASS
TL VL	3	2.9	3.0	2.8	PASS
	18	1.8	2.0	1.9	PASS
TL VH	3	2.9	3.0	2.8	PASS
	18	1.7	2.0	1.9	PASS
TH VL	3	2.9	3.0	2.7	PASS
	18	1.8	2.0	1.9	PASS
TH VH	3	2.9	3.0	2.7	PASS
	18	1.8	2.0	1.9	PASS

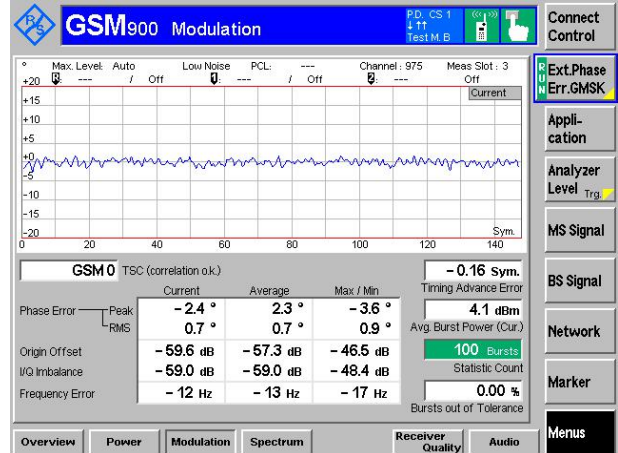
frequency error(Hz)	Power control LEVEL	Result			
		GPRS1800			
		ARFCN			
		LCH	MCH	HCH	Result
TN VN	3	-18	13	-22	PASS
	18	5	17	2	PASS
vibration conditions	3	-23	-29	-24	PASS
	18	1	-5	-1	PASS
TL VL	3	-16	-36	-21	PASS
	18	5	-7	2	PASS
TL VH	3	-18	-36	-31	PASS
	18	-9	7	-5	PASS
TH VL	3	-31	-23	-29	PASS
	18	-8	6	-4	PASS
TH VH	3	-33	-23	-31	PASS
	18	-9	5	-6	PASS

Test slot

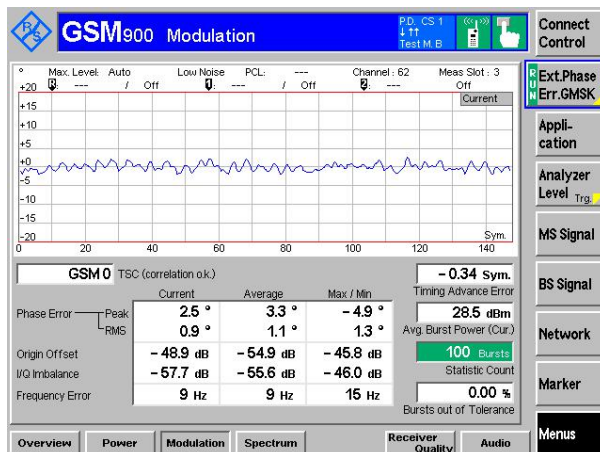
Low Channel PCL(5) GPRS900



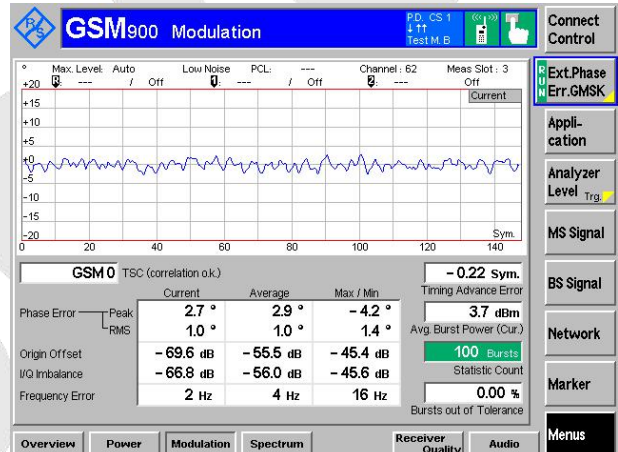
Low Channel PCL(17) GPRS900



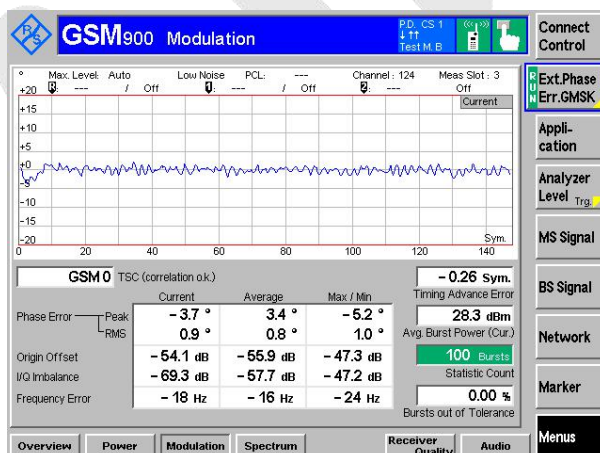
Middle Channel PCL(3) GPRS900



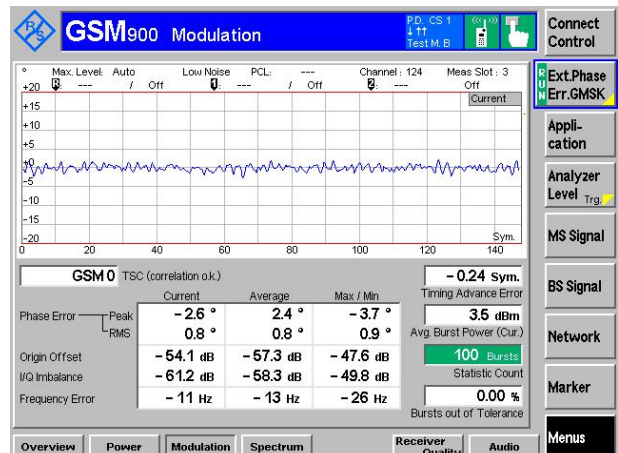
Middle Channel PCL(17) GPRS900



High Channel PCL(3) GPRS900

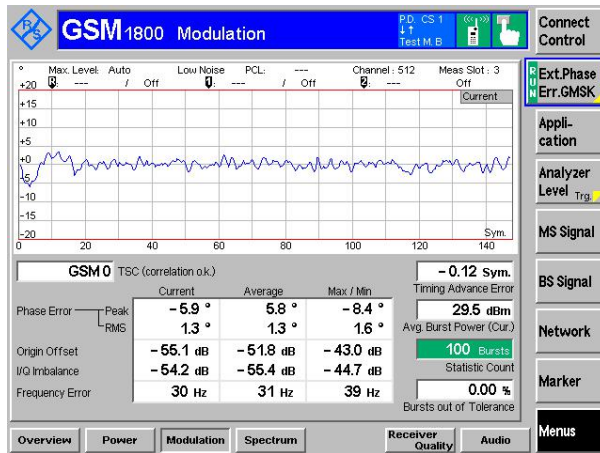


High Channel PCL(17) GPRS900

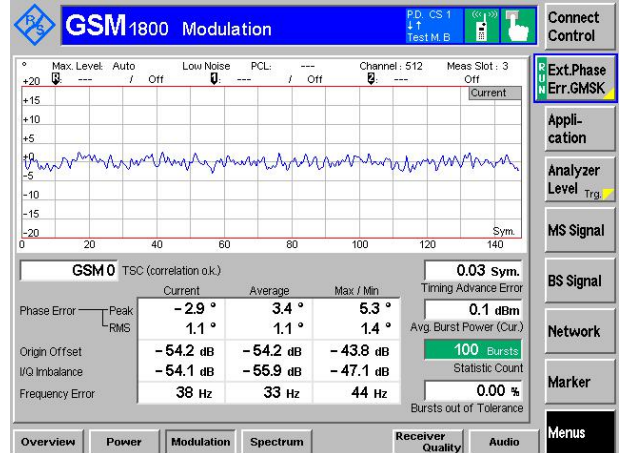


Test slot

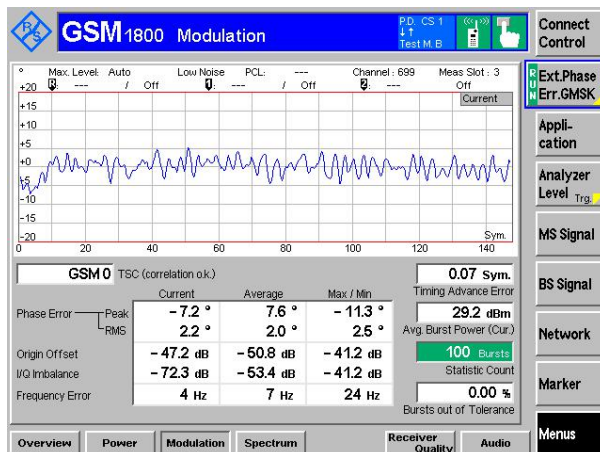
Low Channel PCL(3) GPRS1800



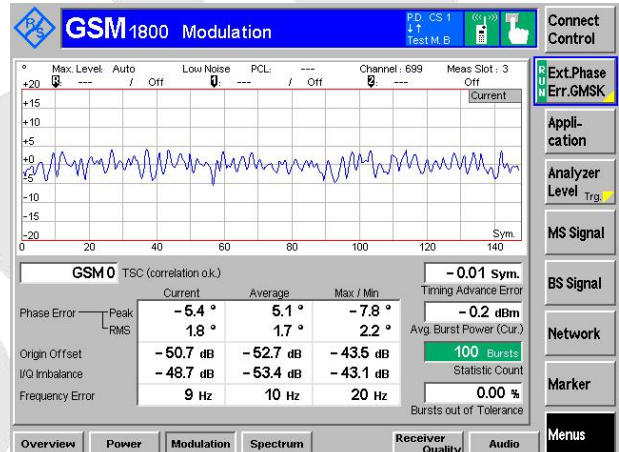
Low Channel PCL(18) GPRS1800



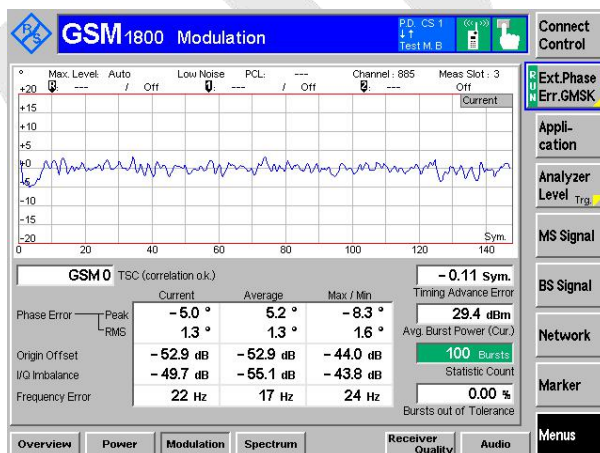
Middle Channel PCL(3) GPRS1800



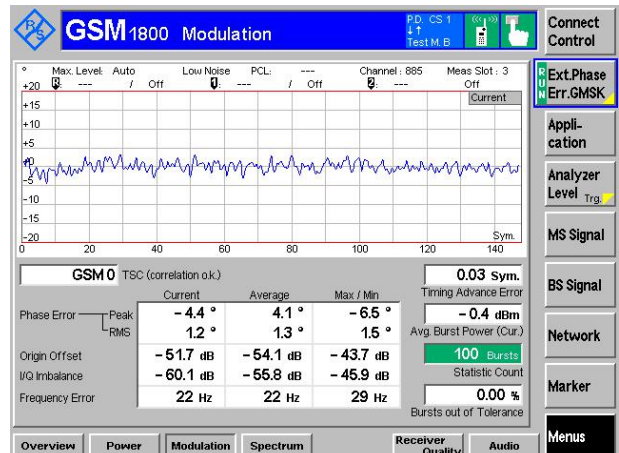
Middle Channel PCL(18) GPRS1800



High Channel PCL(8) GPRS1800



High Channel PCL(18) GPRS1800

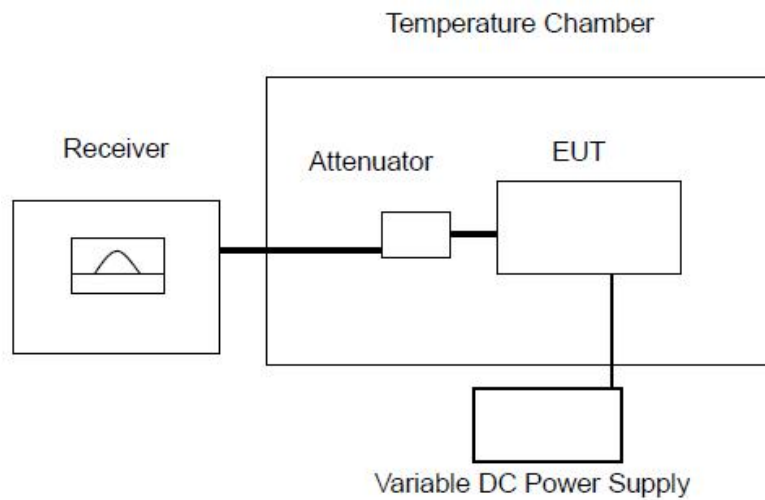


5. GPRS Transmitter Output Power and Burst Timing

5.1. Test Limit

Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.2.5

5.2. Test Setup



5.3. Test Procedure

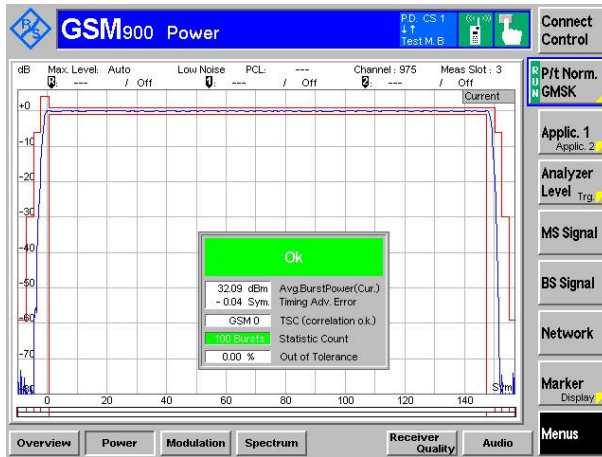
1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.2.4 for the measurement method..

5.4. Test Result

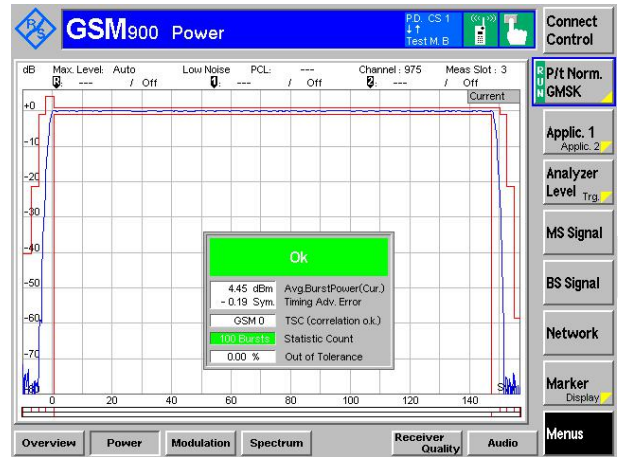
GPRS900					
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
		LCH	MCH	HCH	Result
TN,VN	3	32.09	31.44	31.29	PASS
	17	4.45	3.98	3.87	PASS
TL,VL	3	31.96	31.09	31.04	PASS
	17	4.24	4.30	4.34	PASS
TL,VH	3	30.20	30.27	30.33	PASS
	17	4.03	4.08	4.11	PASS
TH,VL	3	29.90	29.93	30.00	PASS
	17	3.93	3.99	4.04	PASS
TH,VH	3	30.24	30.29	30.35	PASS
	17	4.46	4.50	4.55	PASS
GPRS1800					
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
		LCH	MCH	HCH	Result
TN,VN	3	29.49	29.23	29.40	PASS
	18	0.13	-0.11	-0.42	PASS
TL,VL	3	28.50	27.58	27.63	PASS
	18	0.15	0.02	-0.32	PASS
TL,VH	3	28.13	28.20	28.26	PASS
	18	0.26	0.31	-0.34	PASS
TH,VL	3	28.02	28.05	28.12	PASS
	18	0.23	-0.07	0.01	PASS
TH,VH	3	28.16	28.21	28.27	PASS
	18	0.11	0.02	0.05	PASS

burst timing

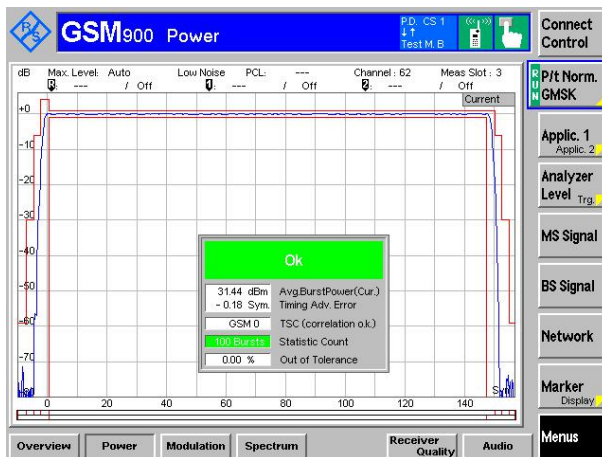
Low channel PCL(3) GPRS 900



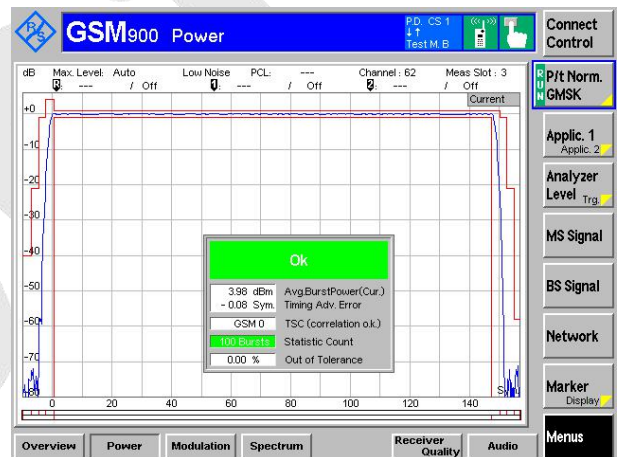
Low channel PCL(17) GPRS 900



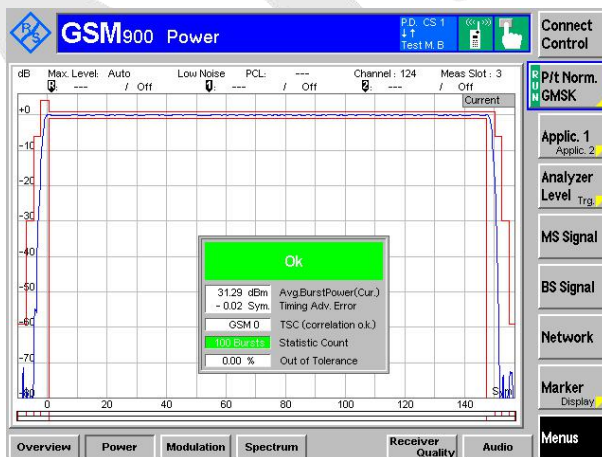
Middle channel PCL(3) GPRS 900



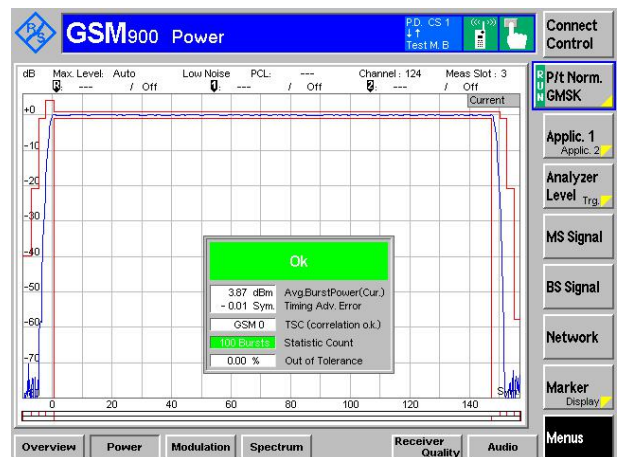
Middle channel PCL(17) GPRS 900



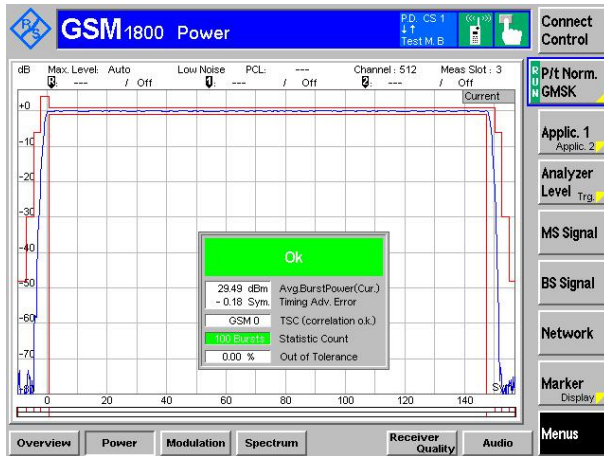
High channel PCL(3) GPRS 900



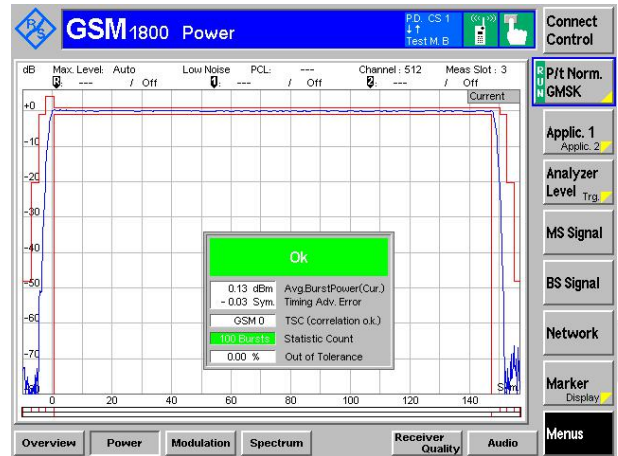
High channel PCL(17) GPRS 900



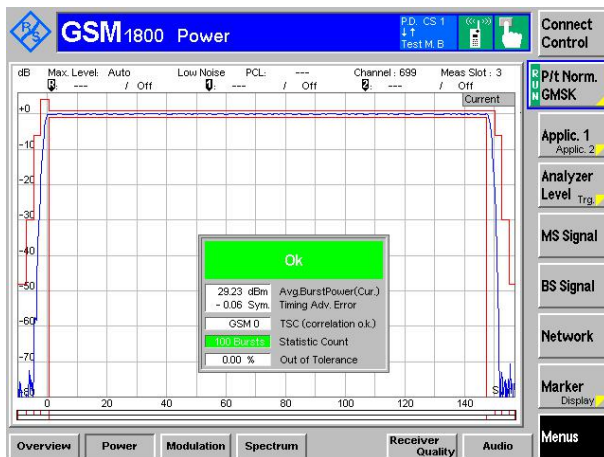
Low channel PCL(3) GPRS 1800



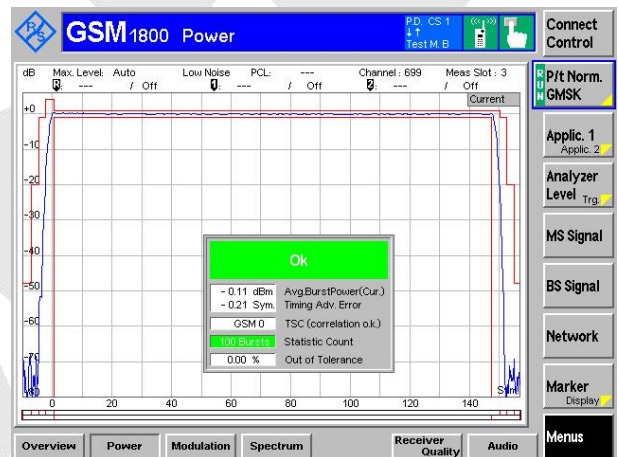
Low channel PCL(18) GPRS 1800



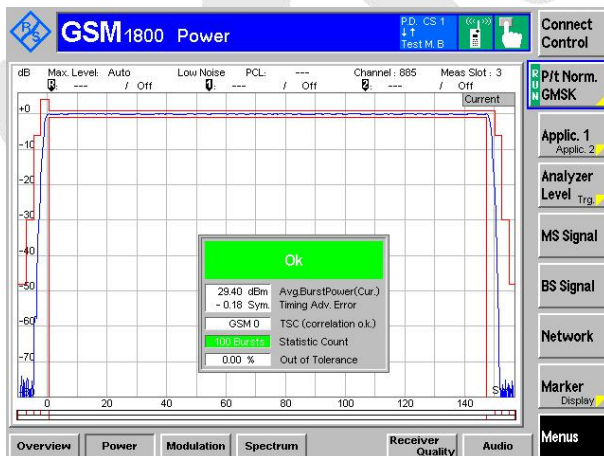
Middle channel PCL(3) GPRS 1800



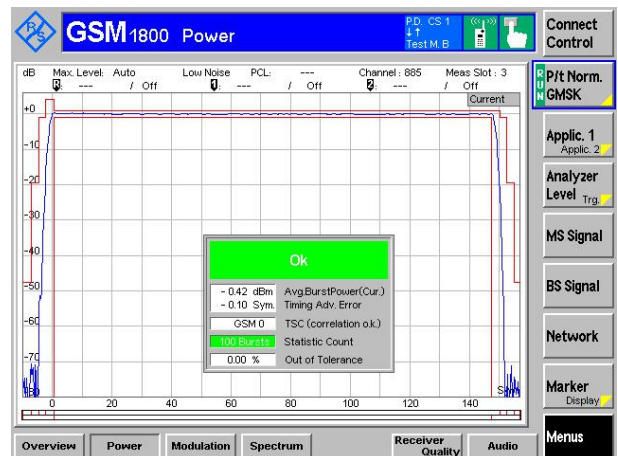
Middle channel PCL(18) GPRS 1800



High channel PCL(3) GPRS 1800



High channel PCL(18) GPRS 1800

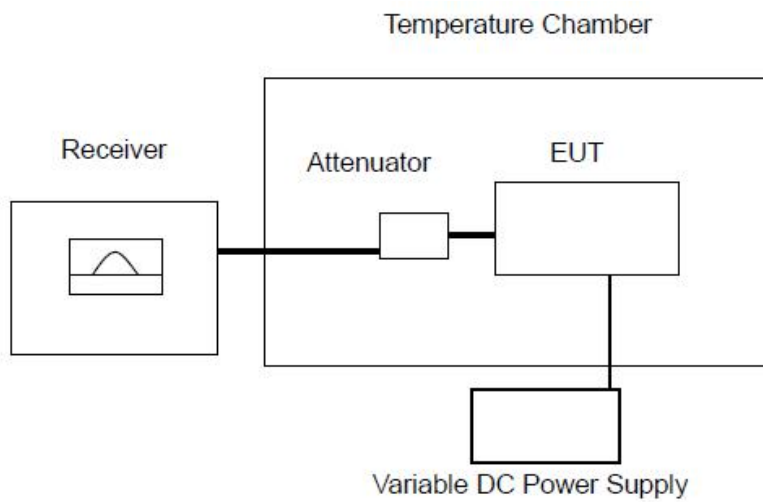


6. Transmitter Output Power in GPRS Multislot Configuration

6.1. Test Limit

Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.2.5

6.2. Test Setup



6.3. Test Procedure

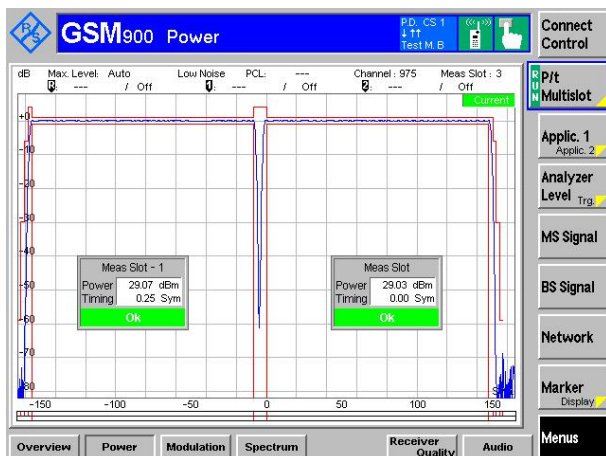
1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.2.4 for the measurement method..

6.4. Test Result

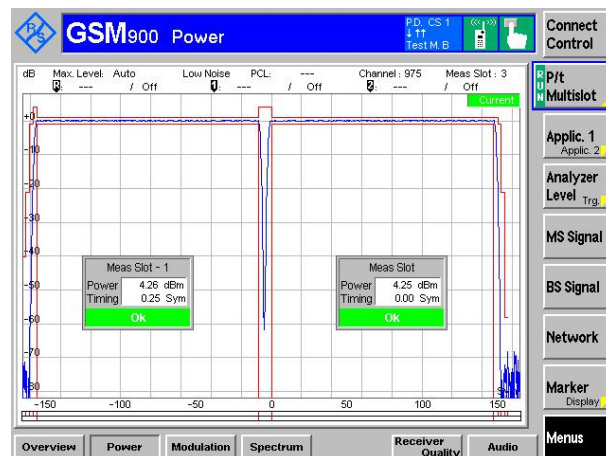
GPRS900					
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
		LCH	MCH	HCH	Result
TN,VN	3	28.53	28.54	29.03	PASS
	17	3.83	3.74	4.25	PASS
TL,VL	3	29.01	29.03	29.14	PASS
	17	4.24	4.30	4.34	PASS
TL,VH	3	28.20	28.27	28.33	PASS
	17	4.03	4.08	4.11	PASS
TH,VL	3	29.90	29.93	30.00	PASS
	17	3.93	3.99	4.04	PASS
TH,VH	3	27.24	27.29	27.35	PASS
	17	3.46	3.50	3.55	PASS
GPRS1800					
Transmitter Output power(dBm)	Power level	Result			
		Traffic Channels			
		LCH	MCH	HCH	Result
TN,VN	3	26.00	25.59	25.64	PASS
	18	-0.16	-0.35	-0.57	PASS
TL,VL	3	25.50	25.58	25.63	PASS
	18	-0.15	-0.37	-0.49	PASS
TL,VH	3	24.13	25.20	25.26	PASS
	18	-0.26	0.39	-0.56	PASS
TH,VL	3	24.02	24.05	24.12	PASS
	18	-0.13	-0.27	-0.31	PASS
TH,VH	3	25.16	24.21	25.27	PASS
	18	-0.11	-0.21	-0.35	PASS

Test slot

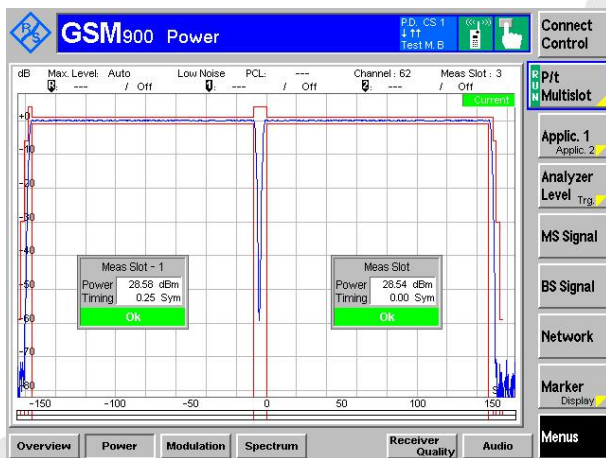
Low channel PCL(3) GPRS 900



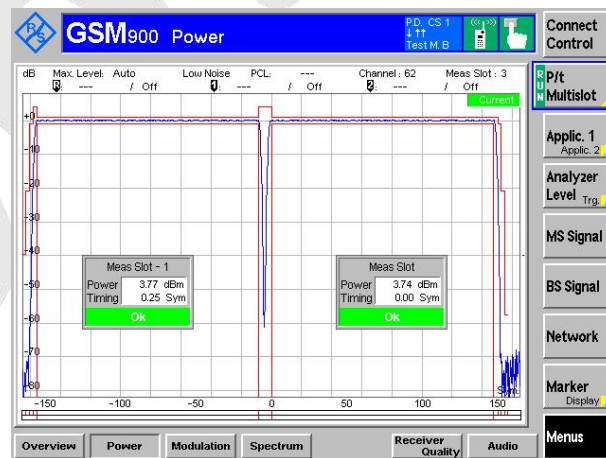
Low channel PCL(17) GPRS 900



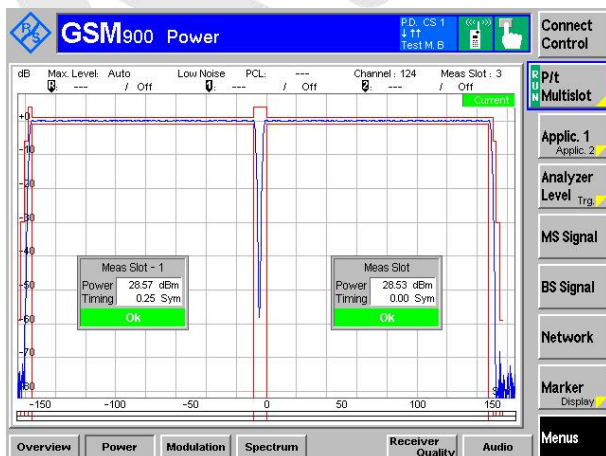
Middle channel PCL(3) GPRS 900



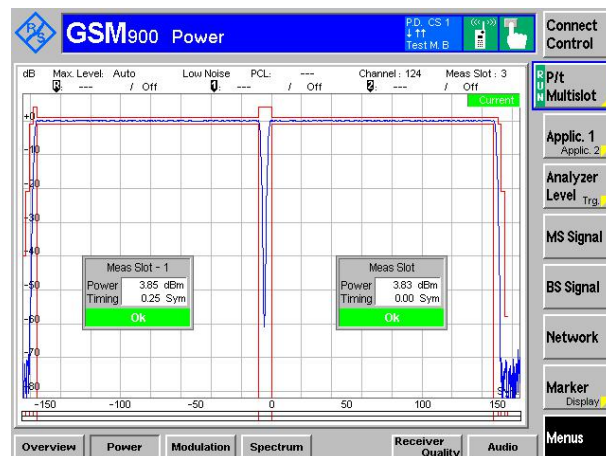
Middle channel PCL(17) GPRS 900



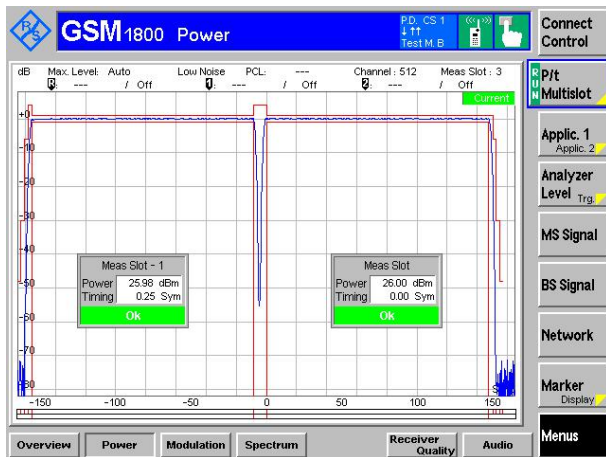
High channel PCL(3) GPRS 900



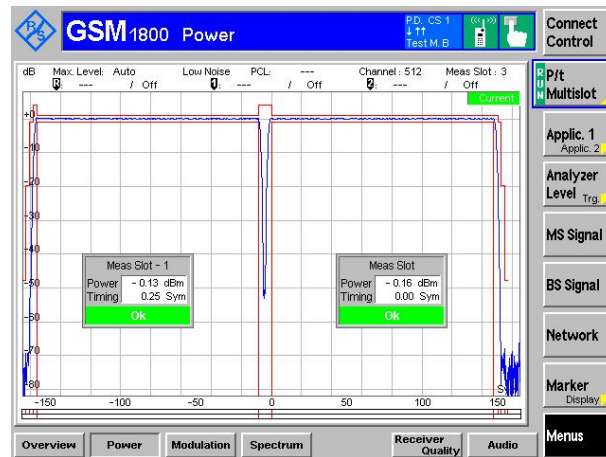
High channel PCL(17) GPRS 900



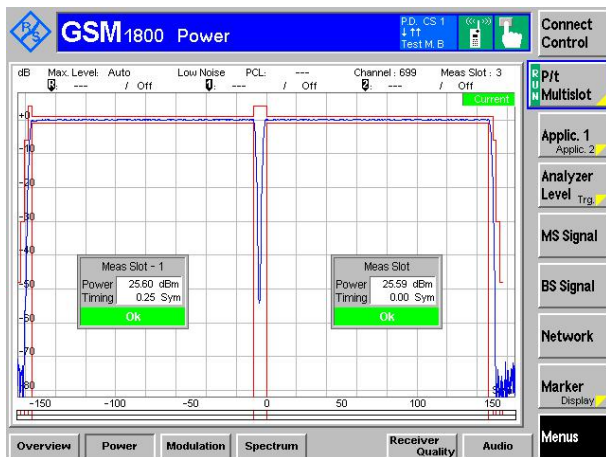
Low channel PCL(3) GPRS 1800



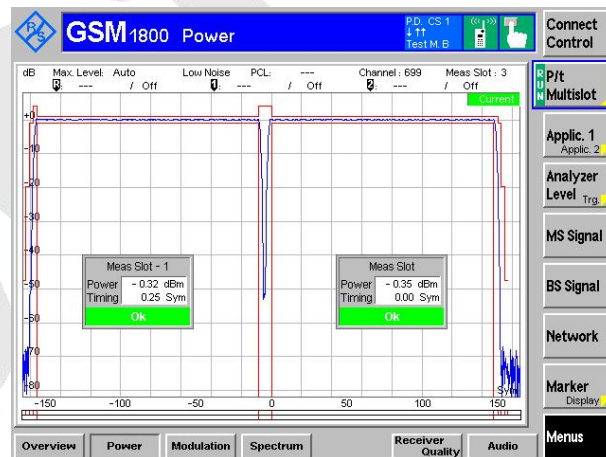
Low channel PCL(18) GPRS 1800



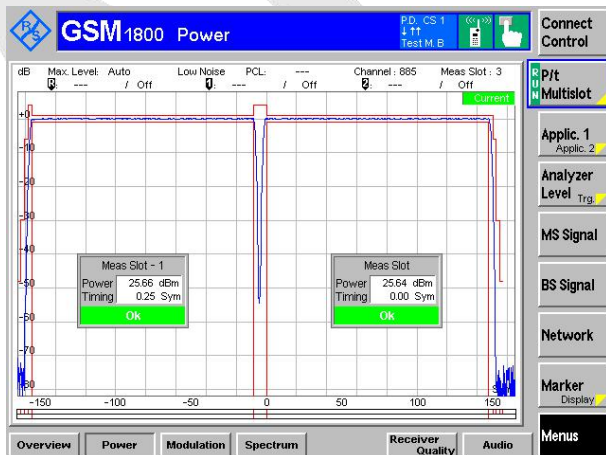
Middle channel PCL(3) GPRS 1800



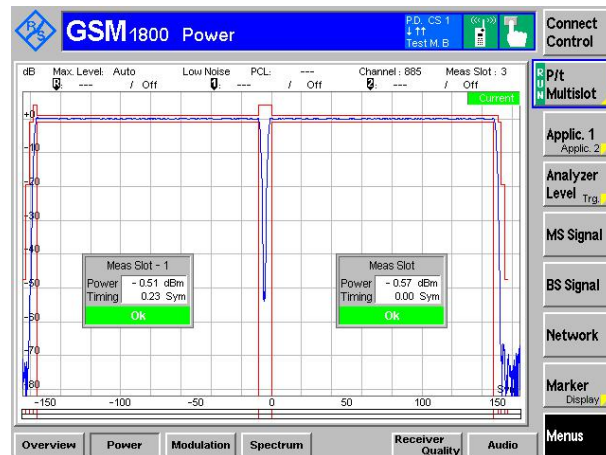
Middle channel PCL(18) GPRS 1800



High channel PCL(3) GPRS 1800



High channel PCL(18) GPRS 1800

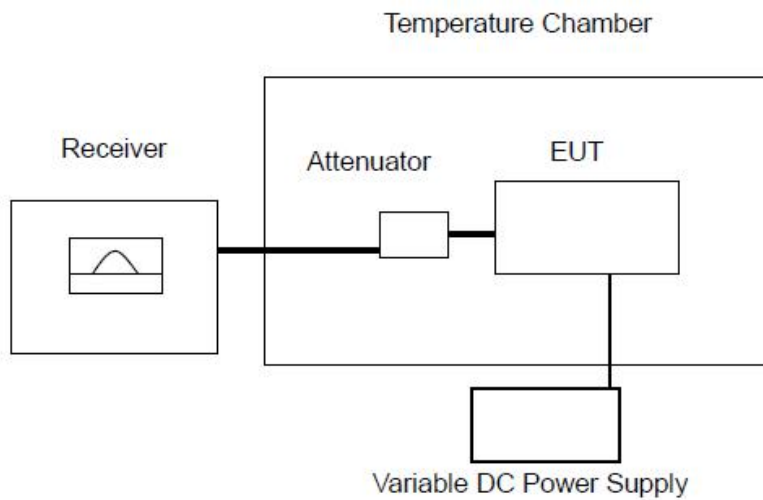


7. Output RF Spectrum in GPRS Multislot Configuration

7.1. Test Limit

Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.3.5

7.2. Test Setup



7.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.3.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 13.16.3.4 for the measurement method.

7.4. Test Result

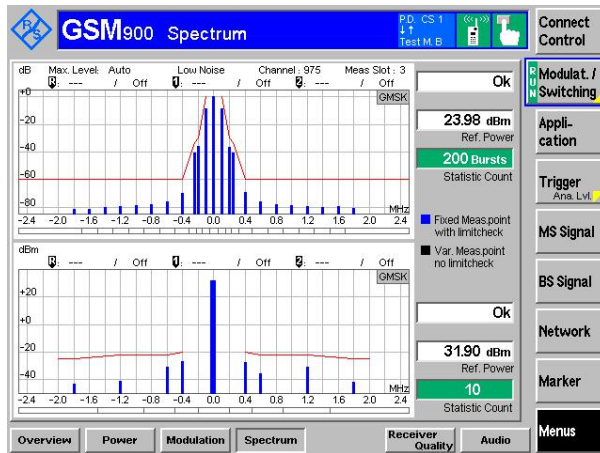
Temperature:	25° C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage:	DC 12 V Battery inside

GPRS900				
Modulation& switch Spectrum	Power level	Result		
		Traffic Channels		
		LCH	MCH	HCH
TN,VN	3	PASS	PASS	PASS
	17	PASS	PASS	PASS
TL,VL	3	PASS	PASS	PASS
	17	PASS	PASS	PASS
TL,VH	3	PASS	PASS	PASS
	17	PASS	PASS	PASS
TH,VL	3	PASS	PASS	PASS
	17	PASS	PASS	PASS
TH,VH	3	PASS	PASS	PASS
	17	PASS	PASS	PASS

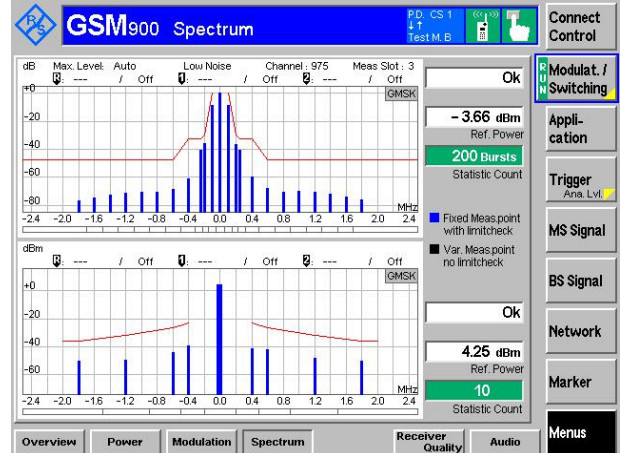
GPRS1800				
Modulation& switch Spectrum	Power level	Result		
		Traffic Channels		
		LCH	MCH	HCH
TN,VN	3	PASS	PASS	PASS
	18	PASS	PASS	PASS
TL,VL	3	PASS	PASS	PASS
	18	PASS	PASS	PASS
TL,VH	3	PASS	PASS	PASS
	18	PASS	PASS	PASS
TH,VL	3	PASS	PASS	PASS
	18	PASS	PASS	PASS
TH,VH	3	PASS	PASS	PASS
	18	PASS	PASS	PASS

Test slot

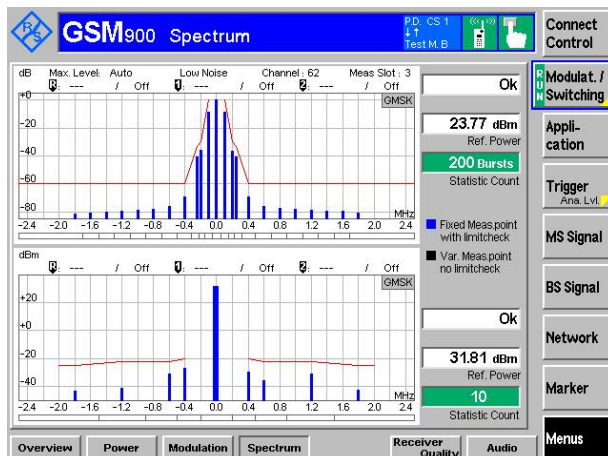
Low Channel PCL(3) GPRS900



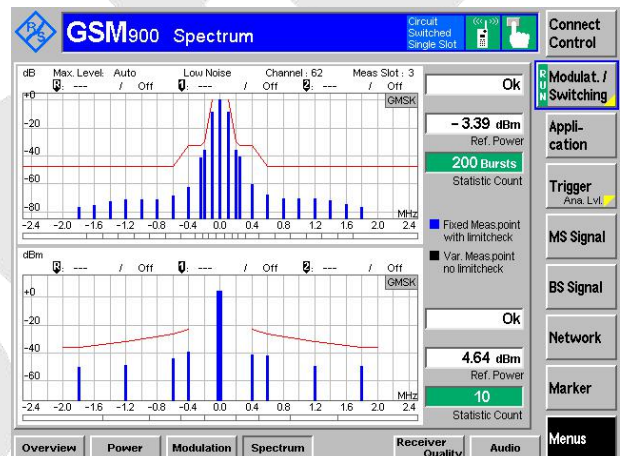
Low Channel PCL(17) GPRS900



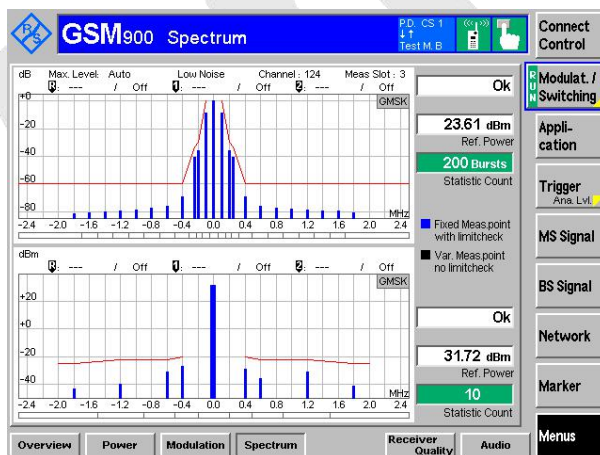
Middle Channel PCL(3) GPRS900



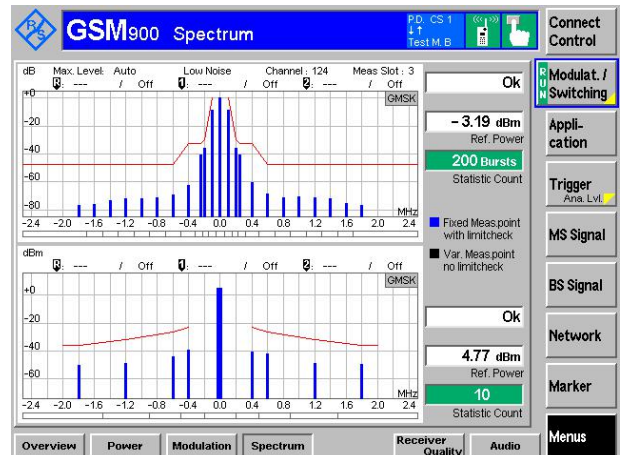
Middle Channel PCL(17) GPRS900



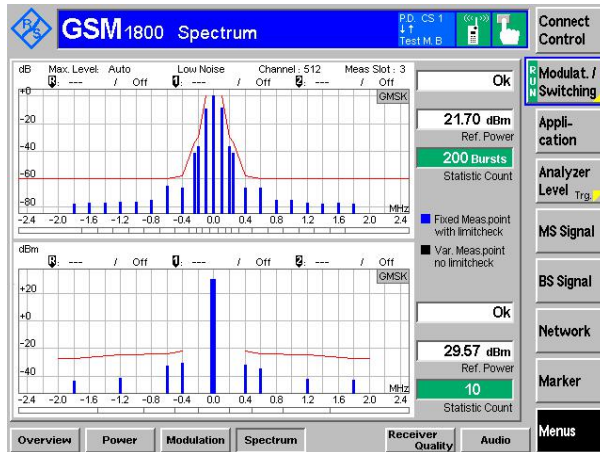
High Channel PCL(3) GPRS900



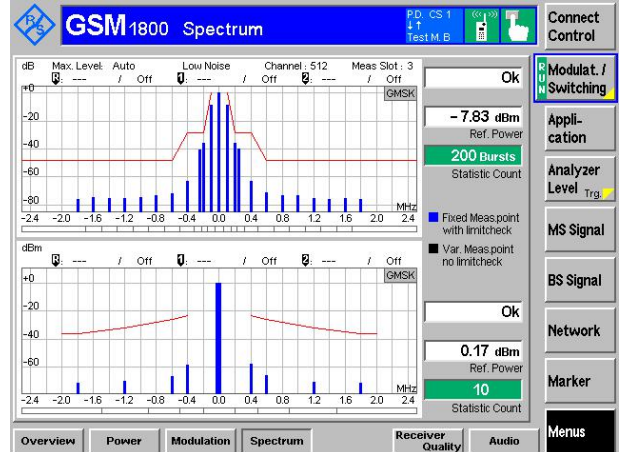
High Channel PCL(17) GPRS900



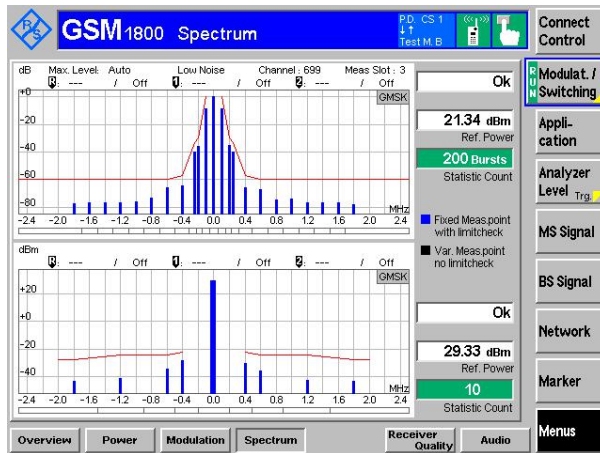
Low Channel PCL(3) GPRS1800



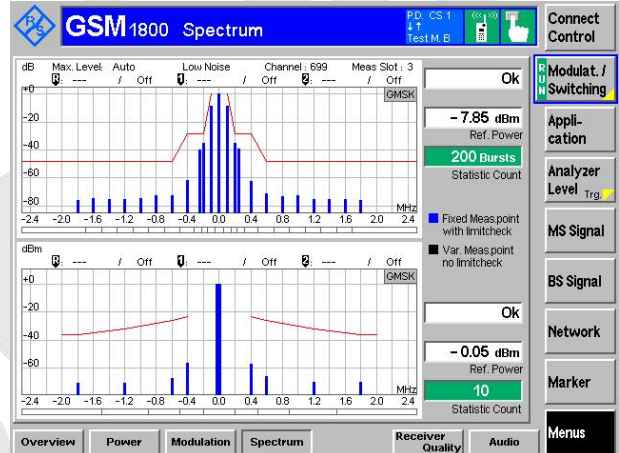
Low Channel PCL(18) GPRS 1800



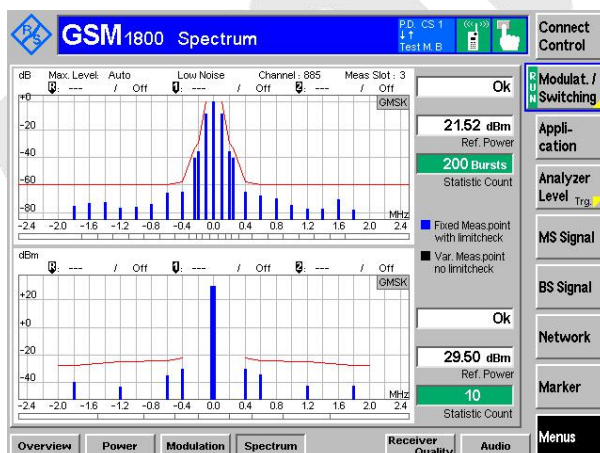
Middle Channel PCL(3) GPRS 1800



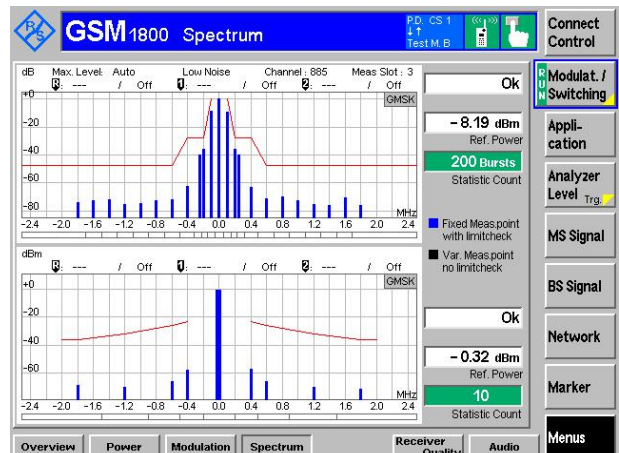
Middle Channel PCL(18) GPRS 1800



High Channel PCL(3) GPRS 1800



High Channel PCL(18) GPRS 1800



8. Conducted Spurious Emissions

8.1. 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 to 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

8.2. Test Setup

Refer to clause 1.6

8.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 12.1.1.3&12.1.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 12.1.1.4&12.1.2.4 for the measurement method.

8.4. Test Result

Mode :GPRS 900			
Conditions	Power control level	Channel	Result
Normal	3	Middle	PASS
L.V	3	Middle	PASS
H.V	3	Middle	PASS

Mode :GPRS1800			
Conditions	Power control level	Channel	Result
Normal	3	Middle	PASS
L.V	3	Middle	PASS
H.V	3	Middle	PASS

9. Radiated Spurious Emissions

9.1. 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
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

9.2. Test Setup

Refer to clause 3

9.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 12.2.1.3&12.2.2.3 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 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.

9.4. Test Result

Test Mode: GPRS 900 Middle Channel CH62:902.4MHz Normal power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-57.90	-36	21.90
459.84	V	-56.29	-36	20.29
715.3	V	-56.29	-36	20.29
1804.8	V	-44.65	-30	14.65
308.6	H	-57.30	-36	21.30
436.6	H	-56.19	-36	20.19
509.3	H	-53.83	-36	17.83
1804.8	H	-45.89	-30	15.89

Test Mode: GPRS 900 Middle Channel CH62:902.4MHz Low power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-54.33	-36	18.33
459.84	V	-56.23	-36	20.23
715.3	V	-53.84	-36	17.84
1804.8	V	-41.51	-30	11.51
308.6	H	-53.74	-36	17.74
436.6	H	-54.69	-36	18.69
509.3	H	-54.10	-36	18.10
1804.8	H	-41.07	-30	11.07

Test Mode: GPRS 900 Middle Channel CH62:902.4MHz High power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-56.97	-36	20.97
459.84	V	-56.72	-36	20.72
715.3	V	-56.31	-36	20.31
1804.8	V	-44.34	-30	14.34
308.6	H	-57.59	-36	21.59
436.6	H	-56.08	-36	20.08
509.3	H	-55.30	-36	19.30
1804.8	H	-44.85	-30	14.85

Test Mode: GPRS 1800 Middle Channel CH699:1747.6MHz Normal power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-56.25	-36	20.25
459.84	V	-57.20	-36	21.20
715.3	V	-57.51	-36	21.51
3495.2	V	-45.33	-30	15.33
308.6	H	-57.57	-36	21.57
436.6	H	-57.26	-36	21.26
509.3	H	-56.19	-36	20.19
3495.2	H	-43.47	-30	13.47

Test Mode: GPRS 1800 Middle Channel CH699:1747.6MHz Low power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-57.38	-36	21.38
459.84	V	-57.14	-36	21.14
715.3	V	-55.88	-36	19.88
3495.2	V	-43.26	-30	13.26
308.6	H	-55.39	-36	19.39
436.6	H	-56.94	-36	20.94
509.3	H	-55.11	-36	19.11
3495.2	H	-43.44	-30	13.44

Test Mode: GPRS 1800 Middle Channel CH699:1747.6MHz High power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-56.60	-36	20.60
459.84	V	-54.93	-36	18.93
715.3	V	-53.64	-36	17.64
3495.2	V	-42.17	-30	12.17
308.6	H	-54.72	-36	18.72
436.6	H	-56.68	-36	20.68
509.3	H	-56.24	-36	20.24
3495.2	H	-42.62	-30	12.62
Conclusion: PASS				

9.5. Test Results for MS in idle mode

Test result (GPRS900)				
Test Mode: Idle mode Normal power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-77.21	-57	20.21
459.84	V	-72.74	-57	15.74
715.3	V	-77.43	-57	20.43
308.6	H	-75.03	-57	18.03
436.6	H	-75.85	-57	18.85
509.3	H	-74.68	-57	17.68

Test Mode: Idle mode Low power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
258.6	V	-78.45	-57	21.45
459.84	V	-78.12	-57	21.12
715.3	V	-77.72	-57	20.72
308.6	H	-78.12	-57	21.12
436.6	H	-77.16	-57	20.16
509.3	H	-76.15	-57	19.15

Test Mode: Idle mode High power supply				
Frequency (MHz)	Antenna polarization	Result (dBm)	Limit (dBm)	Margin (dB)
256.6	V	-77.93	-57	20.93
453.3	V	-78.33	-57	21.33
702.2	V	-76.57	-57	19.57
321.1	H	-75.21	-57	18.21
432.7	H	-76.10	-57	19.10
564.8	H	-75.38	-57	18.38
Conclusion: PASS				

10. Receiver Blocking and Spurious Response

10.1. 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 GPRS mobiles

Blocking and spurious response for GPRS 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/MCS-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/MCS-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/MCS-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/MCS-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/MCS-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/MCS-9	150	0,100000	0,125100	3221	21	00:00:21
USF/MCS-9	150	0,010000	0,012510	32214	215	00:03:35
Four time						

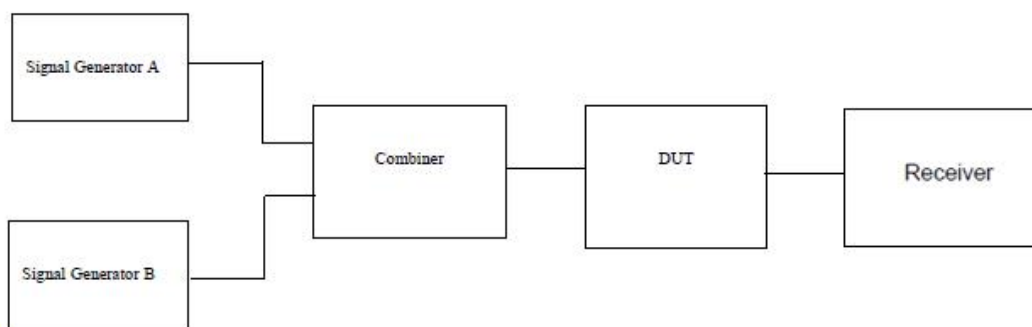
slots						
PDTCH/MCS-4	200	0,100000	0,125100	3221	16	00:00:16
USF/MCS-4	200	0,010000	0,012510	32214	161	00:02:41
PDTCH/MCS-9	200	0,100000	0,125100	3221	16	00:00:16
USF/MCS-9	200	0,010000	0,012510	32214	161	00:02:41

Statistical test limits for blocking performance of GPRS mobiles

Blocking and spurious response for GPRS 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/MCS-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/MCS-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/MCS-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/MCS-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/MCS-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/MCS-9	150	0,100000	0,125100	3221	21	00:00:21
USF/MCS-9	150	0,010000	0,012510	32214	215	00:03:35
Four time slots						
PDTCH/MCS-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/MCS	200	0,100000	0,125100	3221	16	00:00:16

-9						
USF/MCS-9	200	0,010000	0,012510	32214	161	00:02:41

10.2. Test Setup



10.3. Test Procedure

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 14.7.1.5&14.18.5.5 for the test conditions.
2. Please refer to ETSI TS 151 010-1 V12.8.0 clause 14.7.1.4&14.18.5.4 for the measurement method.

10.4. Test Result

GPRS900

Channel(MHz)	Test condition	number of samples	RBER(%)	Limit(%)	Result
880.2	normal	10000	1.206	2.439	PASS
898.4		10000	1.077		
914.8		10000	0.849		

GPRS1800

Channel(MHz)	Test condition	number of samples	RBER(%)	Limit(%)	Result
1710.2	normal	10000	0.407	2.439	PASS
1747.8		10000	0.576		
1784.8		10000	0.655		

11. Am suppression - Speech Channels

11.1. Test Limit

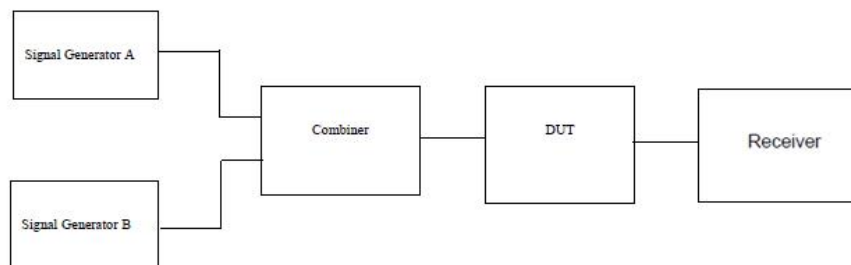
The error rates measured in this test shall not exceed the test limit error rate values given in table

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

11.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 V12.8.0 clause 14.8.1.4 for the measurement method.

15.3. Test Setup



11.4. Test Results

Pass

GPRS900

Channel(MHz)	Test condition	number of samples	RBER(%)	Limit(%)	Result
880.2	normal	10000	0.491	2.439	PASS
898.4		10000	0.453		
914.8		10000	0.599		

GPRS1800

Channel(MHz)	Test condition	number of samples	RBER(%)	Limit(%)	Result
1710.2	normal	10000	0.543	2.439	PASS
1747.8		10000	0.540		
1784.8		10000	0.634		

12. Adjacent Channel Rejection

12.1. 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	FER	$6,742 \cdot \alpha$	8 900	$3,371 \cdot \alpha$	17 800
	class Ib	RBER	$0,420/\alpha$	1 000 000	$0,270/\alpha$	2 000 000
	class II	RBER	8,333	600 000	8,333	1 200 000
400 kHz Interferer TUhigh	TCH/FS	FER	$6,742 \cdot \alpha$	8 900	$3,371 \cdot \alpha$	17 800
	class Ib	RBER	$0,420/\alpha$	1 000 000	$0,270/\alpha$	2 000 000
	class II	RBER	8,333	600 000	8,333	1 200 000
400 kHz Interferer Static	TCH/FS	FER	$11,461 \cdot \alpha$	8 900	$5,714 \cdot \alpha$	10 500
	class Ib	RBER	$0,756/\alpha$	1 000 000	$0,483/\alpha$	1 200 000
	class II	RBER	9,167	600 000	9,167	720 000

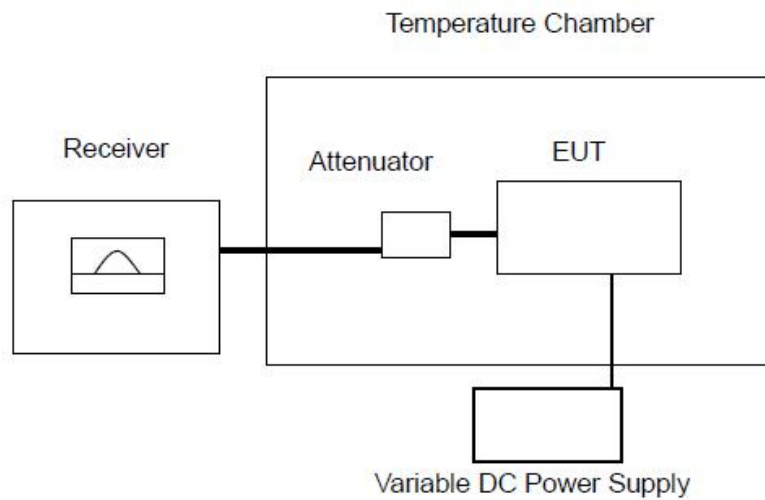
Limits for adjacent channel selectivity- control channels

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

12.2. Test Procedures

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

12.3. Test Setup



12.4. Test Results

Pass

Reference sensitivity - TCH/FS(GPRS900)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	200KHz	898.4	8900	Pass
	400 kHz Interferer TUhigh		8900	Pass
	400 kHz Interferer Static		8900	Pass
class Ib(RBER)	200KHz	898.4	1000000	Pass
	400 kHz Interferer TUhigh		1000000	Pass
	400 kHz Interferer Static		1000000	Pass
class II(RBER)	200KHz	898.4	600000	Pass
	400 kHz Interferer TUhigh		600000	Pass
	400 kHz Interferer Static		600000	Pass
α =1				

Reference sensitivity - TCH/FS(GPRS1800)				
Test style	Test condition	Channel (MHz)	No. of samples	Result
FER	200KHz	1747.8	17800	Pass
	400 kHz Interferer TUhigh		17800	Pass
	400 kHz Interferer Static		17800	Pass
class Ib(RBER)	200KHz	1747.8	2000000	Pass
	400 kHz Interferer TUhigh		2000000	Pass
	400 kHz Interferer Static		2000000	Pass
class II(RBER)	200KHz	1747.8	120000	Pass
	400 kHz Interferer TUhigh		120000	Pass
	400 kHz Interferer Static		120000	Pass
α=1				

13. Reference Sensitivity

13.1. Test Limit

The block error rate (BLER) performance shall not exceed 10 % at input levels according to the table below

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	-104	-104	-104	-103
PDTCH/CS-2 dBm	-104	-100	-101	-101	-99
PDTCH/CS-3 dBm	-104	-98	-99	-98	-96
PDTCH/CS-4 dBm	-101	-90	-90	*	*
DCS 1 800 and PCS 1 900					
PDTCH/CS-1 dBm	-104	-104	-104	-104	-103
PDTCH/CS-2 dBm	-104	-100	-100	-101	-99
PDTCH/CS-3 dBm	-104	-98	-98	-98	-94
PDTCH/CS-4 dBm	-101	-88	-88	*	*

The input levels given in the above Table are referenced to normal GSM 900 MS, and have to be corrected by the following values for other MS:

GSM 400, GSM 700, GSM 850 and GSM 900 small MS +2 dB

DCS 1800 class 1 or 2 MS +2/+4 dB**

DCS 1800 class 3 and PCS 1 900 class 1 or 2 MS +2 dB

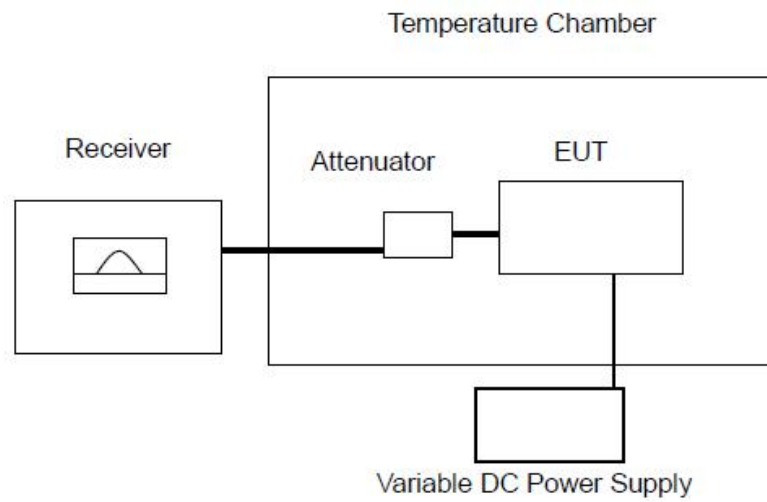
PCS 1 900 class 3 MS 0 dB

** For all DCS 1 800 class 1 and class 2 MS, a correction offset of +2dB shall apply for the reference sensitivity performance as specified in table 1a for the normal conditions defined in Annex D and an offset of +4 dB shall be used to determine all other MS performances.

13.2. Test Procedures

1. Please refer to ETSI TS 151 010-1 clause 14.16.1.4 for the measurement method.

13.3. Test Setup



13.4. Test Results

Pass

GPRS900					
Test style	Test condition	Channel (MHz)	Input level(dBm)	Reading (%)	Limit (%)
PDTCH/CS-1	static	898.4	-104	1.01	10
	TUhigh (no FH)		-104	0.80	
	TUhigh (ideal FH)		-104	1.38	
	RA (no FH)		-104	0.78	
	HT (no FH)		-103	0.65	
PDTCH/CS-2	static	898.4	-104	0.82	10
	TUhigh (no FH)		-100	1.24	
	TUhigh (ideal FH)		-101	1.54	
	RA (no FH)		-101	1.48	
	HT (no FH)		-99	1.15	
PDTCH/CS-3	static	898.4	-104	0.57	10
	TUhigh (no FH)		-98	0.66	
	TUhigh (ideal FH)		-99	1.45	
	RA (no FH)		-98	0.58	
	HT (no FH)		-96	1.36	
PDTCH/CS-4	static	898.4	-101	1.33	10
	TUhigh (no FH)		-90	1.08	
	TUhigh (ideal FH)		-90	1.18	

GPRS1800					
Test style	Test condition	Channel (MHz)	Input level(dBm)	Reading (%)	Limit (%)
PDTCH/CS-1	static	1747.8	-104	1.39	10
	TUhigh (no FH)		-104	1.51	
	TUhigh (ideal FH)		-104	1.03	
	RA (no FH)		-104	0.73	
	HT (no FH)		-103	0.72	
PDTCH/CS-2	static	1747.8	-104	0.71	10
	TUhigh (no FH)		-100	0.51	
	TUhigh (ideal FH)		-101	1.26	
	RA (no FH)		-101	0.48	
	HT (no FH)		-99	0.60	
PDTCH/CS-3	static	1747.8	-104	0.90	10
	TUhigh (no FH)		-98	1.24	
	TUhigh (ideal FH)		-99	1.20	
	RA (no FH)		-98	1.15	
	HT (no FH)		-94	1.43	
PDTCH/CS-4	static	1747.8	-101	0.59	10
	TUhigh (no FH)		-88	0.70	
	TUhigh (ideal FH)		-88	1.26	

14. PICS/PIXIT Information of The EUT

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

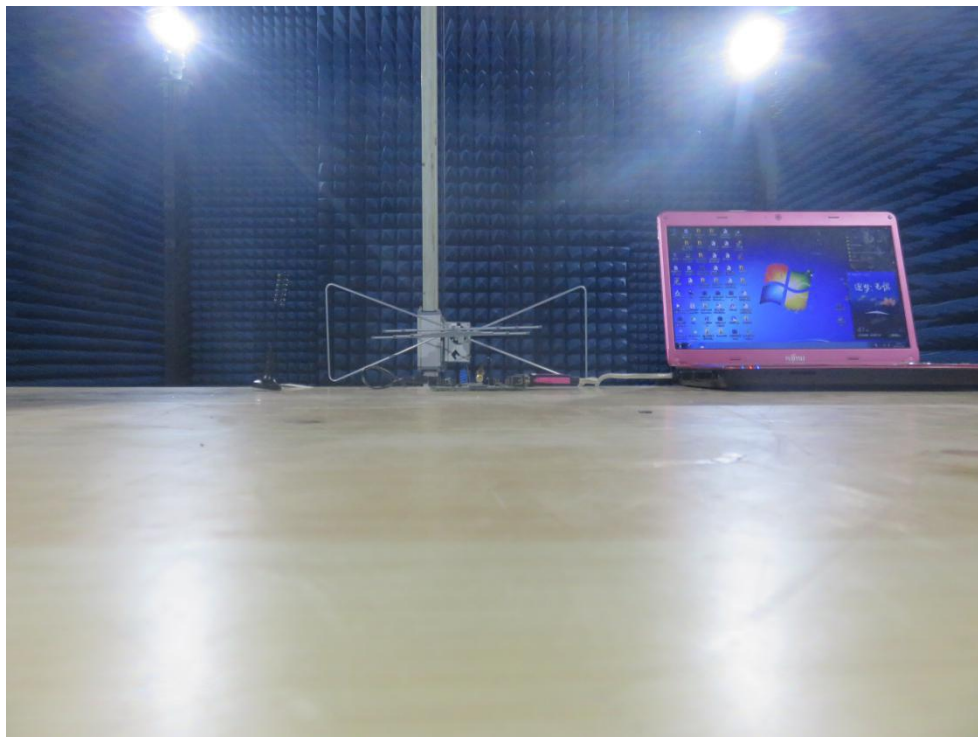
Item	Type of Mobile Station	Support	Mnemonic
1	HSCSD Multislot MS	N	Type_HSCSD_Multislot
2	Support of GPRS Multislot class on the uplink	Y	Type_GPRS_Multislot_uplink

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

15. Test setup photo

Photo of Radiation Emission Test



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