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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

TEST REPORT

Application No.:	GLEMO10010058RF
Applicant:	Comba Telecom Limited
FCC ID:	PX8RD-8132
Frequency Band:	Downlink: 869MHz to 894MHz
	Uplink: 824MHz to 849MHz
Equipment under Test (EUT)	
Name:	RD8132 CDMA Repeater
Model No:	RD-8132 (43); RD-8132 (40); RD-8132 (37); RD-8132 (33); RD-8132 (30); RD-8132 (27); RD-8132 (23); RD-8132 (19) ♣
♣	Please refer to section 3 of this report which indicates which item was actually tested and which were electrically identical.
Standards:	FCC part 22H,
Date of Test:	05 January to 21 January 2010
Date of Issue:	28 January 2010
Test Result :	**PASS ***

*In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 3 of this report for further details.

Authorized Signature:

Stephen Guo
Lab Manager

2 Version

Version No.	Date	Description
01	12 January 2010	Original
02	28 January 2010	Add Multi-type test for the identical system (The original type is RD-8132 (43))

Prepared By:	***Jeffrey Chen***	***Date***	***26 January 2010***
	Project Engineer		
Check By:	***Strong Yao***	***Date***	***28 January 2010***
	Reviewer		

3 Test Summary

Test Item	Test Requirement	Test Method	Result
Output Power	FCC part 22.913	FCC part 2.1046 2-11-04/EAB/RF	PASS
Conducted Spurious Emissions	FCC part 22.917	FCC part 2.1051 2-11-04/EAB/RF	PASS
Band Edge& Intermodulation	FCC part 22.917	FCC part 2.1051 2-11-04/EAB/RF	PASS
Radiated Spurious Emissions	FCC part 22.917	FCC part 2.1053 2-11-04/EAB/RF	PASS
Occupied Bandwidth	2-11-04/EAB/RF	FCC part 2.1049 2-11-04/EAB/RF	PASS
Out of Band Rejection	2-11-04/EAB/RF	2-11-04/EAB/RF	PASS
Frequency Stablility	FCC part 22.355	FCC part 2.1055	PASS

Remark:

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

♣ Model No:

RD-8132 (43); RD-8132 (40); RD-8132 (37); RD-8132 (33); RD-8132 (30); RD-8132 (27); RD-8132 (23); RD-8132 (19)

the electrical circuit design, layout, internal wiring, components used in above model are all the same , The difference among them is the different output power, and this is can be controlled by identical sortware in device, for software control function, please refer to user manual and tune up procedure.(the client has also made the Declaration Letter)

Model RD-8132 (43) achieve 43dBm for downlink and 25dBm for uplink,

Model RD-8132 (40) achieve 40dBm for downlink and 25dBm for uplink,

Model RD-8132 (37) achieve 37dBm for downlink and 25dBm for uplink,

Model RD-8132 (33) achieve 33dBm for downlink and 25dBm for uplink.

Model RD-8132 (30) achieve 30dBm for downlink and 25dBm for uplink.

Model RD-8132 (27) achieve 27dBm for downlink and 25dBm for uplink.

Model RD-8132 (23) achieve 23dBm for downlink and 25dBm for uplink.

Model RD-8132 (19) achieve 19dBm for downlink and 25dBm for uplink.

Remark : for uplink, the output power are all the same for all model, and do no need to adjust it with software control function.

4 Contents

5 General Information

5.1 Client Information

Applicant Name:	Comba Telecom Limited
Applicant Address:	611 East Wing, No. 8 Science Park West Avenue, Hong Kong Science Park,Tai Po, Hong Kong

5.2 General Description of E.U.T.

Name:	RD8132 CDMA Repeater
Model No.:	RD-8132 (43); RD-8132 (40); RD-8132 (37); RD-8132 (33); RD-8132 (30); RD-8132 (27); RD-8132 (23); RD-8132 (19)
Power Supply:	220V AC
DC Voltage & Current into Final AMPLIFIER	DC 28~28.5 V, 6.0 A
Operating Temperature:	-33 to +55
Operating Humidity:	≤ 95%

5.3 Description of EUT operation

Type of Modulation	CDMA
Emission Designator:	1M25F9W(CDMA)
Frequency Band:	Celluar Band Downlink: 869MHz to 894MHz Uplink: 824MHz to 849MHz
Working Band:	Band 1: Downlink: adjusted wordking band from 1.25 to 15MHz for supporting 1 to 12 channels and can be moved wthin Frequency Band (869MHz to 894MHz); Uplink: adjusted wordking band from 1.25 to 15MHz for supporting 1 to 12 channels and can be moved wthin Frequency Band (824MHz to 849MHz); Band 2: Downlink: adjusted wordking band from 1.25 to 5MHz for supporting 1 to 4 channels and can be moved wthin Frequency Band (869MHz to 894MHz); Uplink: adjusted wordking band from 1.25 to 5MHz for supporting 1 to 4 channels and can be moved wthin Frequency Band (824MHz to 849MHz); Remark: for band 1and band 2, they couldn't be overlapped.
Norminal Power Output:	RD-8132 (43): 43dBm for downlink and 25dBm for uplink, RD-8132 (40): 40dBm for downlink and 25dBm for uplink, RD-8132 (37): 37dBm for downlink and 25dBm for uplink, RD-8132 (33): 33dBm for downlink and 25dBm for uplink, RD-8132 (30): 30dBm for downlink and 25dBm for uplink, RD-8132 (27): 27dBm for downlink and 25dBm for uplink,

RD-8132 (23): 23dBm for downlink and 25dBm for uplink,

RD-8132 (19): 19dBm for downlink and 25dBm for uplink,

5.4 Product Description

The RD-8132 split band-selective repeater is designed for CDMA850 networks. Band-specific linear MCPA and filtering effectively amplifies the desired BTS carriers and provides superior out-of-band rejection. The unit can incorporate two adjustable bandwidth segments. Remote configuration and surveillance is possible through Comba's remote control and monitoring system via PC or wireless modem to the OMT/OMC. Internal Li-ion backup battery ensures alarm signals are sent out during power failure. The unit comes in a sealed, cast aluminum enclosure, suitable for operation in all weather conditions.

5.5 Standards Applicable for Testing

The standard used was FCC part 2 & FCC part 22

5.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, Guangdong, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

5.7 Other Information Requested by the Customer

None.

5.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **FCC – Registration No.: 282399**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorized test laboratory for the DoC process.

6 Equipments Used during Test

	RE in Chamber					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	N/A	N/A
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	19-02-2009	19-02-2010
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	10036	18-07-2009	18-07-2010
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	09-12-2009	09-12-2010
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	20-12-2009	20-12-2010
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	20-12-2009	20-12-2010
EMC0517	Horn Antenna	Rohde & Schwarz	HF906	100095	15-09-2009	15-09-2010
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2009	05-12-2010
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	24-02-2009	24-02-2010
EMC0075	310N Amplifier	Sonama	310N	272683	26-10-2009	26-10-2010
EMC0523	Active Loop Antenna	EMCO	6502	00042963	17-11-2009	17-11-2010
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	02-06-2009	02-06-2010

	Conducted Emission					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m^3	N/A	N/A	N/A
EMC0102	LISN	Schaffner Chase	MNZ050D/1	1421	24-11-2009	24-11-2010
EMC0118	Two-line v-netwok	Rohde & Schwarz	ENV216	3560.6550.02	18-08-2009	18-08-2010
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	24-11-2009	24-11-2010
EMC0107	Coaxial Cable	SGS	2m	N/A	25-11-2009	25-11-2010
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	N/A
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	21-02-2009	21-02-2010
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	21-02-2009	21-02-2010
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	21-02-2009	21-02-2010

	General used equipment					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0006	DMM	Fluke	73	70681569	16-12-2009	16-12-2010
EMC0007	DMM	Fluke	73	70671122	16-12-2009	16-12-2010

	Other equipment					
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal. Due Date (dd-mm-yy)**
NA	Power Meter	Agilent	E4419B	MY45100856	2009.6.12	2010.6.11
NA	Signal Generator	Agilent	E4437B	US39260800	2009.6.17	2010.6.16
NA	Signal Generator	Agilent	E4438C	US39260800	2009.6.14	2010.6.14
NA	Spectrum Analyzer	Agilent	N9020A	MY48011385	2009.6.14	2010.6.14
NA	Spectrum Analyzer	Rohde&Schwarz	FSQ 8	SN0805772	2009.6.14	2010.6.14
NA	Attenuator	SHX manufacturer	30dB/50W	09031816	----	----
NA	Attenuator	SHX manufacturer	40dB/50W	09031312	----	----
NA	Attenuator	SHX manufacturer	50dB/50W	09053023	----	----
NA	Signal Generator	Rohde&Schwarz	SMU 200A	08103303	2009.6.12	2010.6.11

7 Test Result

7.1 E.U.T. Operation

Input voltage:	220V DC
Operating Environment:	
Temperature:	22°C ~26°C
Humidity:	46%~56% RH
Atmospheric Pressure:	990~1005mbar
Test Requirement:	The RF output power of the EUT was measured at the antenna port, by adjusting the input power of signal generter to drive the EUT to get to maximum output power point and keep the EUT at maximum gain setteing for all tests. The device should be tested on both uplink and downlink. For detail test Modulation and Frequency, please refer to 7.2.

Remark:
GENERAL DEFINITIONS FOR CERTIFICATION PURPOSES:
The following three general definitions follow from those stated in the Part 22, 24, and 90 rule sections as listed above. Two of the definitions replace previous EAB internal definitions given for booster, repeater and extender. The general term “extender” is the same as booster, but booster should be used rather than extender. The general term “translator” is the same as repeater, but repeater should be used rather than translator.
External radio frequency power amplifier (ERFPA) - any device which, (1) when used in conjunction with a radio transmitter signal source, is capable of amplification of that signal, and (2) is not an integral part of a radio transmitter as manufactured. The EAS equipment class AMP is used only for an ERFPA device inserted between a transmitter (TNB/PCB) and an antenna (has only one antenna port)
Booster is a device that automatically reradiates signals from base transmitters without channel translation, for the purpose of improving the reliability of existing service by increasing the signal strength in dead spots. An “in-building radiation system” is a signal booster. These devices are not intended to extend the size of coverage from the originating base station. A booster can be either single or multiple channels***.***
Repeater is a device that retransmits the signals of other stations. Repeaters are different from boosters in that they can include frequency translation and can extend coverage beyond the design of the original base station. A repeater is typically single channel but can also be multiple channels.
ERFPA (AMP) and boosters/repeaters (TNB/PCB) can generally be authorized for all rule parts except 15 and 18.
Tests should be done with each typical signal. e.g., for F3E emissions use 2500 Hz with 2.5 or 5 kHz deviation. Use of CW signal for some tests is acceptable in lieu of actual emission, in some cases when CW signal gives worst case.

The EUT is a Repeater and belongs to *TNB* class.

7.2 Test Procedure & Measurement Data

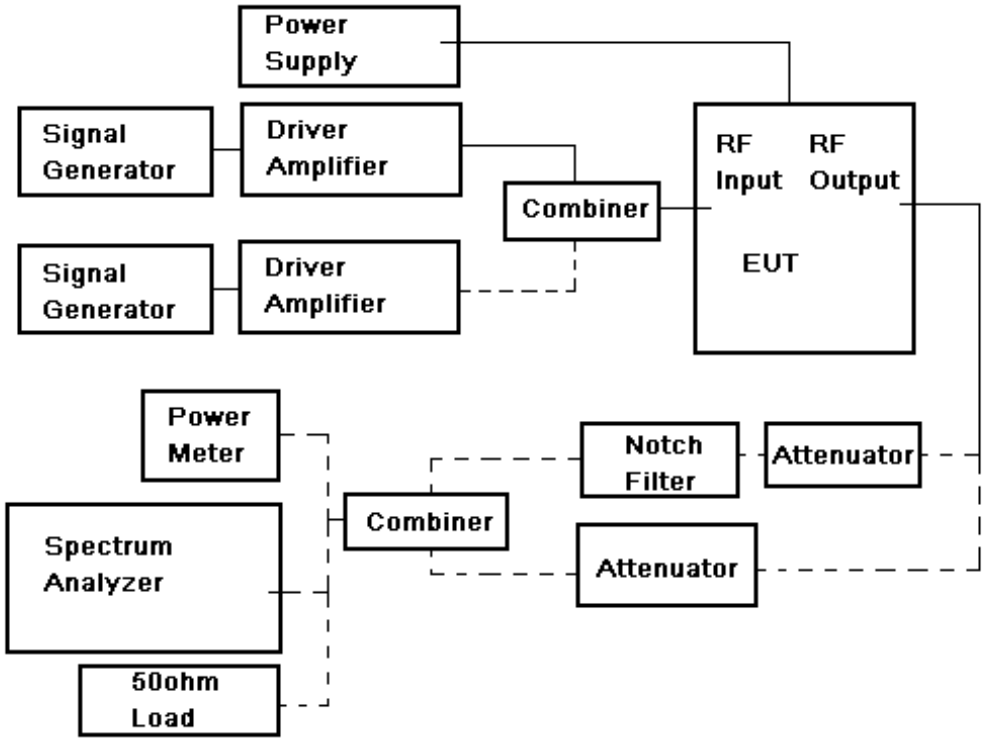
Test Modulation and Frequency
Celluar Band

Modulation	Lowest frequency	Middle frequency	Highest frequency
Downlink: 869MHz to 894MHz (MHz)			
CDMA	870.5	881.5	892.5
Uplink: 824MHz to 849MHz (MHz)			
CDMA	825.5	836.5	847.5

Remark:

1) For band 1 and band 2, we adjusted the working band in the lowest band; the middle band; the hightest band and test the respective frequency as above table;
2) In this report, for band 1 test, we pretested the adjusted working band at 1.25MH and 15MHz two extreme states, found the worse case is 15MHz and report it;
3) In this report, for band 2 test, we pretested the adjusted working band at 1.25MH and 5MHz two extreme states, found the worse case is 5MHz and report it.

General Test Setup:



According to the tune up procedure, test the EUT DT port (Downlink) and MT port (Uplink) to achieve the the maximum output power,

7.2.1 RF Output Power

Test Date:	05 January to 21 January 2010
Test Requirement:	FCC part 22.913(a)
	22.913(a):Maximum ERP. In general, the effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts.
Test Method:	FCC part 2.1046
EUT Operation:	
Status:	Drive the EUT to maximum output power.
Conditions:	Normal conditions
Application:	Cellular Band RF output ports
Test Configuration:	

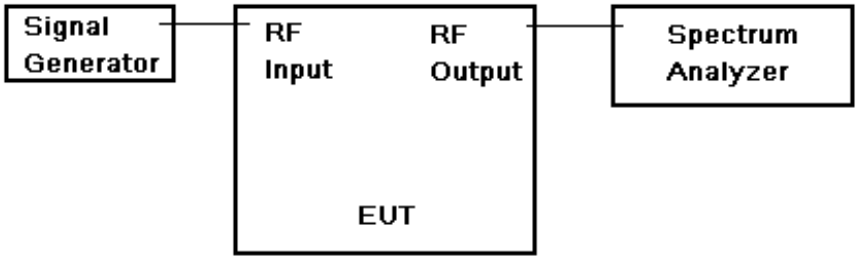


Fig.1 RF Output Power test configuration

Test Procedure:	RF output power test procedure: 1. a) Connect the equipment as illustrated, when the output power is over the max value of the Spectrum Analyzer, add the attenuator to avoid destroying the facility. b) Set the center frequency of the spectrum analyzer to the assigned transmitter frequency, key the transmitter, and set the level of the carrier to the full scale reference line. c) do not apply any tone to modulate the EUT. d1) Adjust the spectrum analyzer for the following settings: 1) Resolution Bandwidth >> the carrier bandwidth, 2) Video Bandwidth refer to standard requirement. d2) Use spectrum analyzer channel power measurement function; e) Record the frequencies and levels of carrier power; f) Calculate the signal link way loss and final power value. Or 2. a) Connect the equipment as illustrated; b) Read the value from the power meter; c) Calculate the signal link way loss and final power value.
Remark:	Output power – . Power on Form 731 should be clearly understood as either composite of multichannels or per carrier. If power is composite include in comments field: "Power output listed is composite for multi-channel operation." . Check that the input drive level is at maximum input rating and maximum gain settings for all tests. Check both uplink and downlink input levels. See manual or brochures/technical description for maximum rating. May need to check FCC identifier of transmitter used for tests. . Confirm device can not operate in saturation. Are there means to control maximum power and to assure linear operation (use in system configuration may be necessary)? How is saturation or over-modulation prevented for pulsed signal inputs?

7.2.1.1 Measurement Record:

Test for all configuration

7.2.1.1.1 RD-8132 (43)

Band 1:

Per channel Power, Input=-52dBm for downlink and -70dBm for uplink.			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	42.5dBm (17.8W)	42.5dBm (17.8W)	42.6dBm (18.2W)
Uplink:Working Band(824MHz ~ 849MHz),Measure Maximum Out put power			
CDMA	24.7dBm (0.3W)	24.5dBm (0.281W)	24.6dBm (0.288W)

Band 2:

Per channel Power, Input=-52dBm for downlink and -70dBm for uplink.			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	42.6dBm (18.2W)	42.5 (17.8W)	42.7dBm (18.6W)
Uplink:Working Band(824MHz ~ 849MHz),Measure Maximum Out put power			
CDMA	24.5dBm (0.281W)	24.8dBm (0.3W)	24.7dBm (0.3W)

7.2.1.1.2 RD-8132 (40)

Band 1:

Per channel Power, Input=-55dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	39.7dBm (9.4W)	39.8dBm (9.5W)	39.8dBm (9.5W)

Band 2:

Per channel Power, Input=-55dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	39.8dBm (9.5W)	39.8dBm (9.5W)	39.9dBm (9.8W)

RD-8132 (40) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.1.1.3 RD-8132 (37)

Band 1:

Per channel Power, Input=-58dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	37.0dBm (5.0W)	36.8dBm (4.8W)	36.9dBm (4.9W)

Band 2:

Per channel Power, Input=-58dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	36.8dBm (4.8W)	36.8dBm (4.8W)	36.9dBm (4.9W)

RD-8132 (37) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.1.1.4 RD-8132 (33)

Band 1:

Per channel Power, Input=-62dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	33.1dBm (2.0W)	33.1dBm (2.0W)	32.9dBm (2.0W)

Band 2:

Per channel Power, Input=-62dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	33.0dBm (2.0W)	32.8dBm (1.9W)	32.9dBm (2.0W)

RD-8132 (33) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.1.1.5 RD-8132 (30)

Band 1:

Per channel Power, Input=-65dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	30.1dBm (1.0W)	29.8dBm (0.95W)	30.0dBm (1.0W)

Band 2:

Per channel Power, Input=-65dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	30.0dBm (1.0W)	29.8dBm (0.95W)	29.8dBm (0.95W)

RD-8132 (30) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.1.1.6 RD-8132 (27)

Band 1:

Per channel Power, Input=-68dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	26.9dBm (0.49W)	26.8dBm (0.48W)	26.8dBm (0.48W)

Band 2:

Per channel Power, Input=-68dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	26.8dBm (0.48W)	26.9dBm (0.49W)	26.8dBm (0.48W)

RD-8132 (27) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.1.1.7 RD-8132 (23)

Band 1:

Per channel Power, Input=-72dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	22.7dBm (0.19W)	22.8dBm (0.19W)	22.9dBm (0.2W)

Band 2:

Per channel Power, Input=-72dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	22.8dBm (0.19W)	22.8dBm (0.19W)	22.9dBm (0.2W)

RD-8132 (23) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.1.1.8 RD-8132 (19)

Band 1:

Per channel Power, Input=-76dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	19.4dBm (0.087W)	19.5dBm (0.09W)	19.4dBm (0.087W)

Band 2:

Per channel Power, Input=-76dBm for downlink			
Modulation	**Lowest frequency**	**Middle frequency**	**Highest frequency**
Downlink: Working Band(869MHz ~ 894MHz),Measure Maximum Out put power			
CDMA	19.4dBm (0.087W)	19.4dBm (0.087W)	19.5dBm (0.09W)

RD-8132 (19) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

Remark: test in single channel status, output power is tested in full amplifying status.

Kept the EUT working in maximum gain, adjusted the input power until to get the EUT to maximum output power (ALC point).

Note: Conducted output power tested. ERP was not tested because the amplifier does not come with an antenna.

7.2.2 Conducted Spurious Emissions

Test Date:	05 January to 21 January 2010
Test Requirement:	FCC part 22.917(a) 22.917(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
Test Method:	FCC part 2.1051
EUT Operation:	
Status:	Drive the EUT to maximum output power.
Conditions:	Normal conditions
Application:	Cellular Band RF output ports
Test Configuration:	

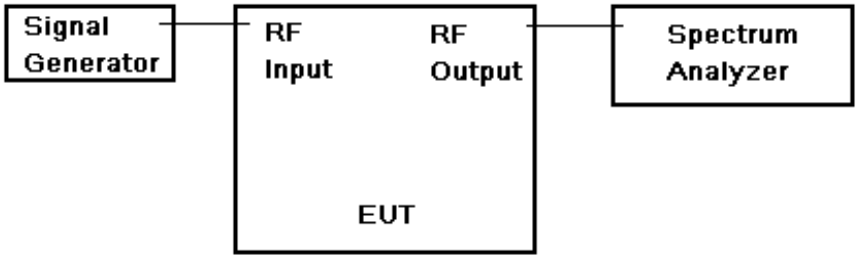
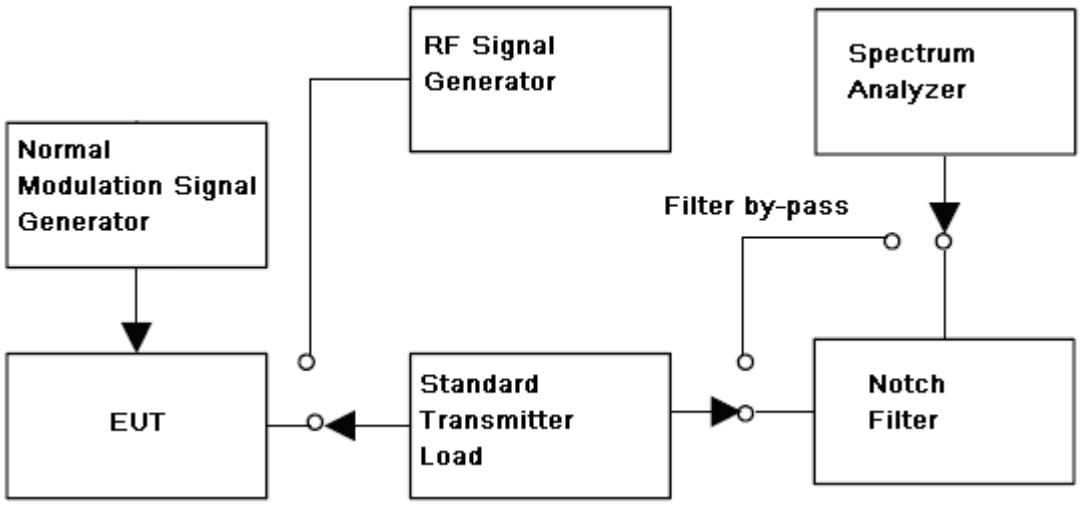


Fig.2. Conducted Spurious Emissions test configuration



Test Procedure:

Conducted Emissions test procedure:

a) Connect the equipment as illustrated, with the notch filter by-passed, when the output power is over the max value of the Spectrum Analyzer, add the attenuator to avoid destroying the facility.

b) Set the center frequency of the spectrum analyzer to the assigned transmitter frequency, key the transmitter, and set the level of the carrier to the full scale reference line.

c) do not apply any tone to modulate the EUT.

d) Adjust the spectrum analyzer for the following settings:

1) Resolution Bandwidth,(base the standard, apply the different set),her is 100KHz for frequency band less than 1GHz, 1MHz for frequency over 1GHz;

2) Video Bandwidth refer to standard requirement.

e) Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from:

1) the lowest radio frequency generated in the equipment, it can be 9KHz base the test method, here select 30MHz as lowest frequency start point;

2) the highest radion frequency shall higher than 10 times of carrier frequency;

f) Record the frequencies and levels of spurious emissions from step e)

Remark:

The notch filter is used for avoid the EUT fundamental carrier output power making the spectrum overload and the harmonic spurious brought by it.

When the EUT fundamental carrier is not enough to make the status, the notch filter could be not used.

7.2.2.1 Measurement Record:

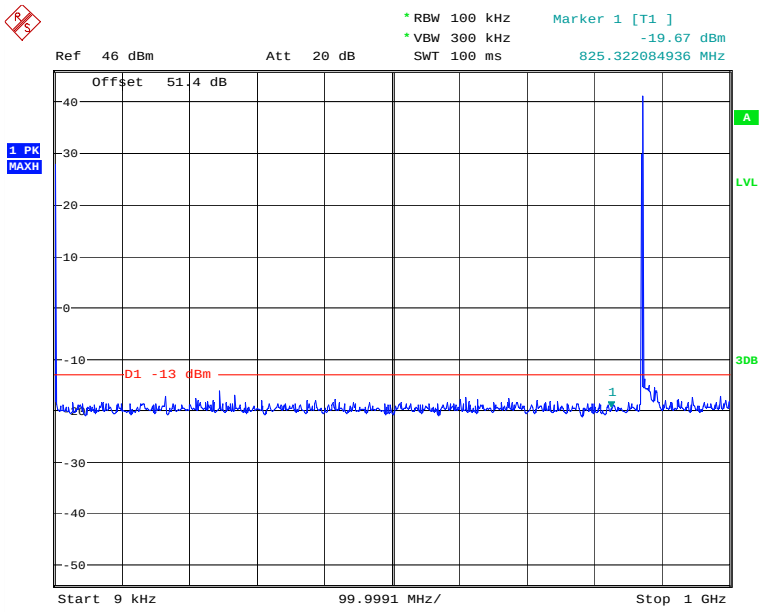
Pretest 43dBm\ 40dBm\ 37dBm\ 33dBm\ 30dBm\ 27dBm\ 23dBm and 19dBm output system and found the worse case in 43dBm system and report it.

7.2.2.1.1 RD-8132 (43)

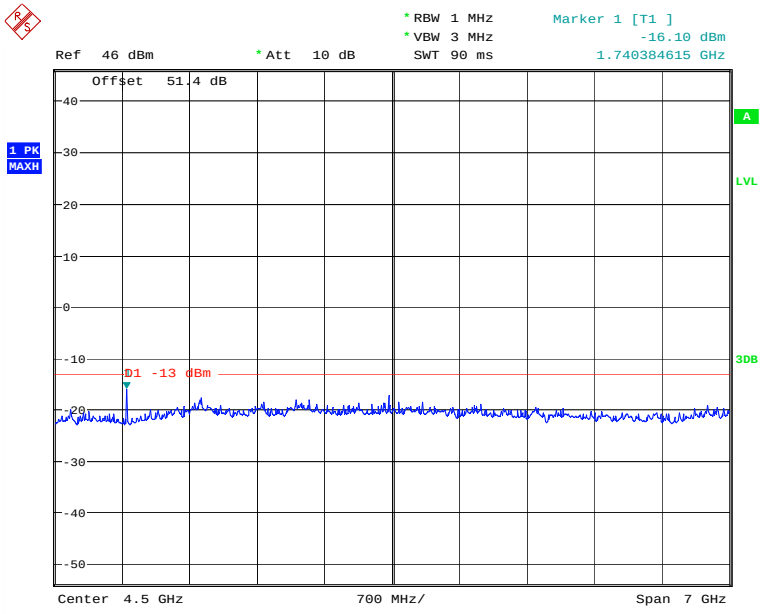
Test in Band 1:

Test for Downlink:

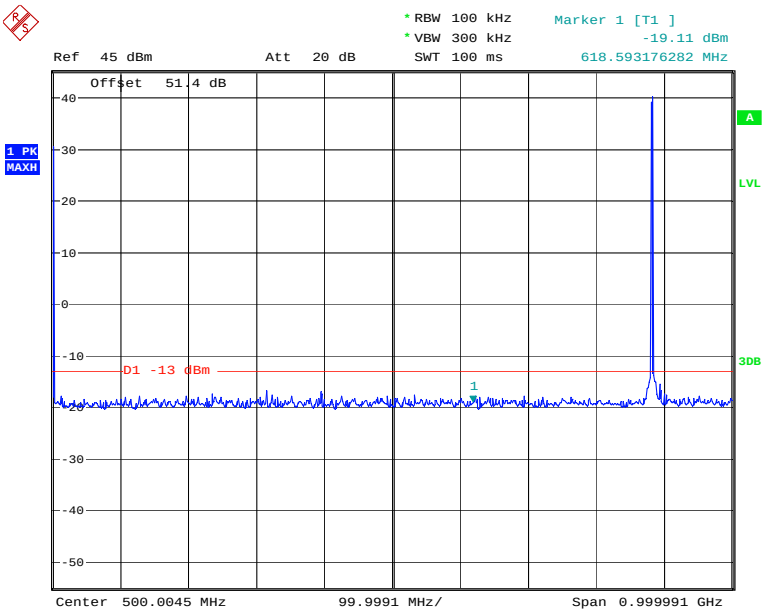
Cellular—CDMA downlink(lowest frequency)



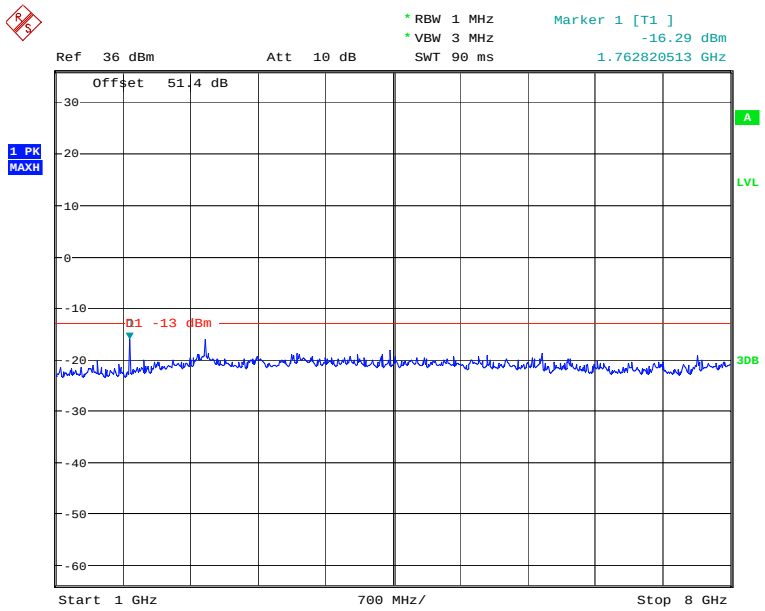
Cellular—CDMA downlink(lowest frequency)



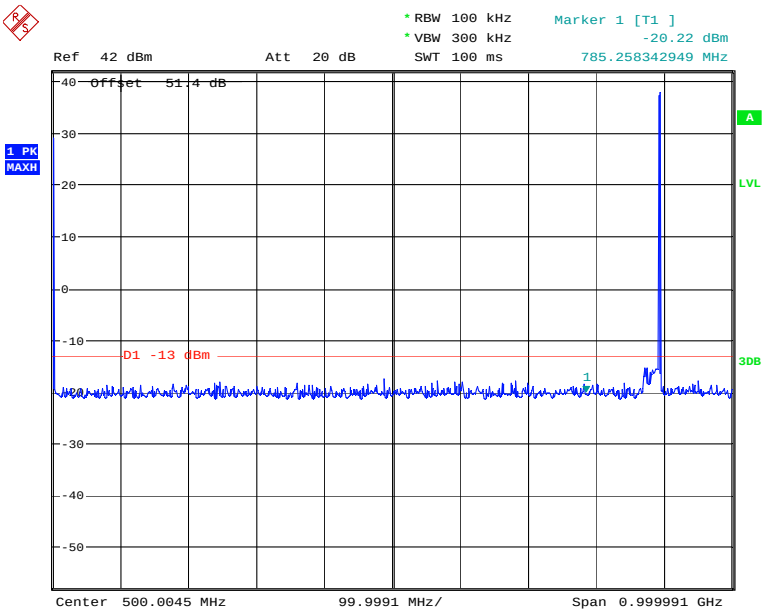
Cellular—CDMA downlink(middle frequency)



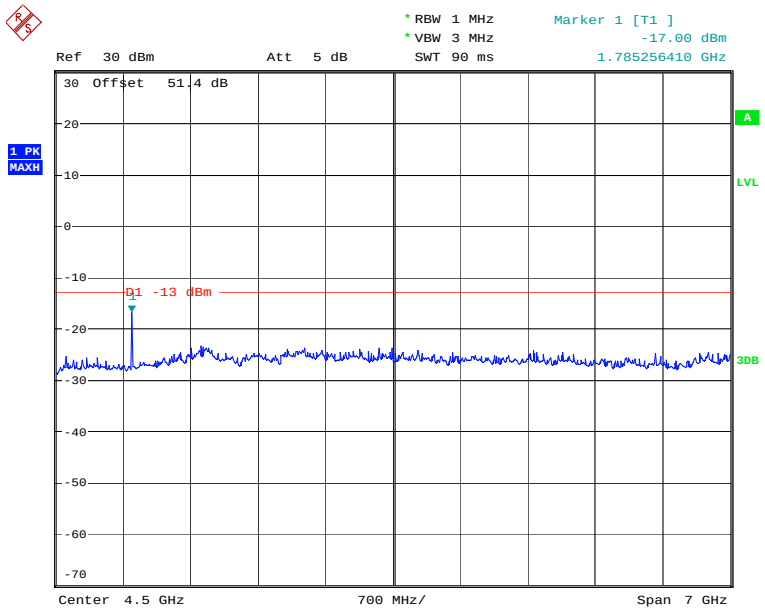
Cellular—CDMA downlink(middle frequency)



Cellular—CDMA downlink(highest frequency)

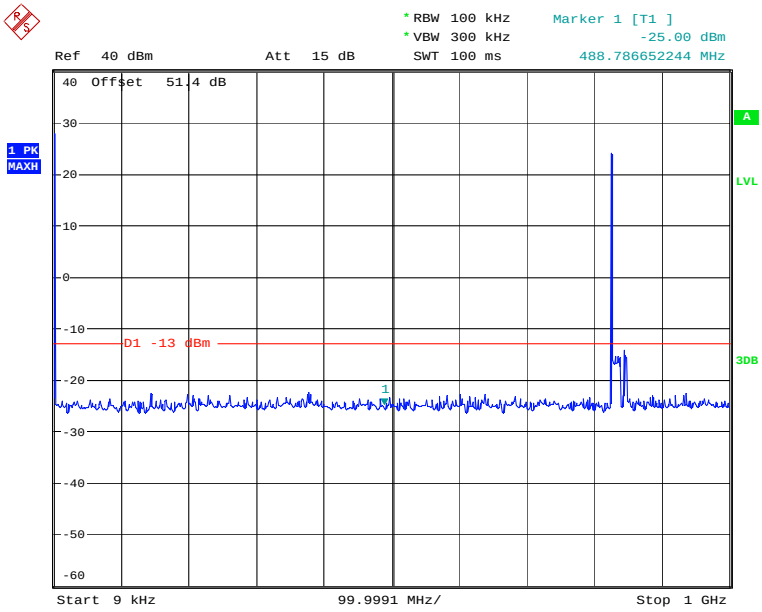


Cellular—CDMA downlink(highest frequency)

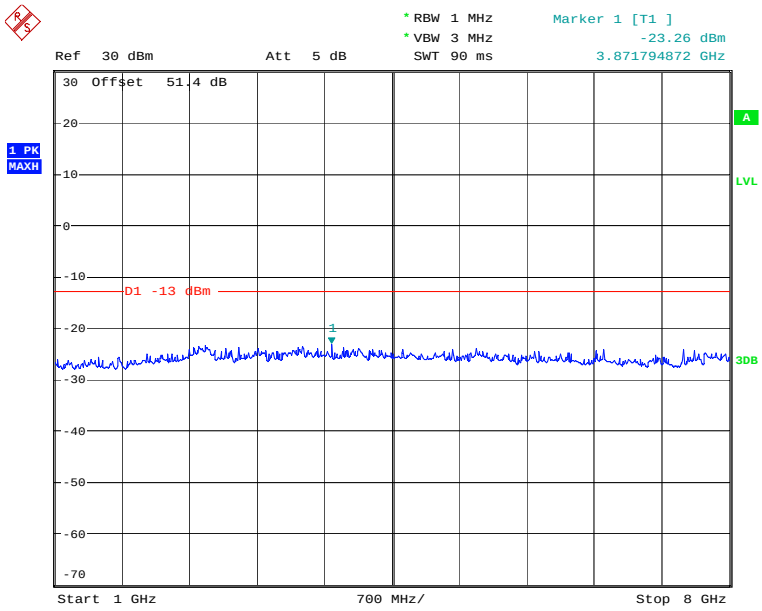


Test for Uplink:

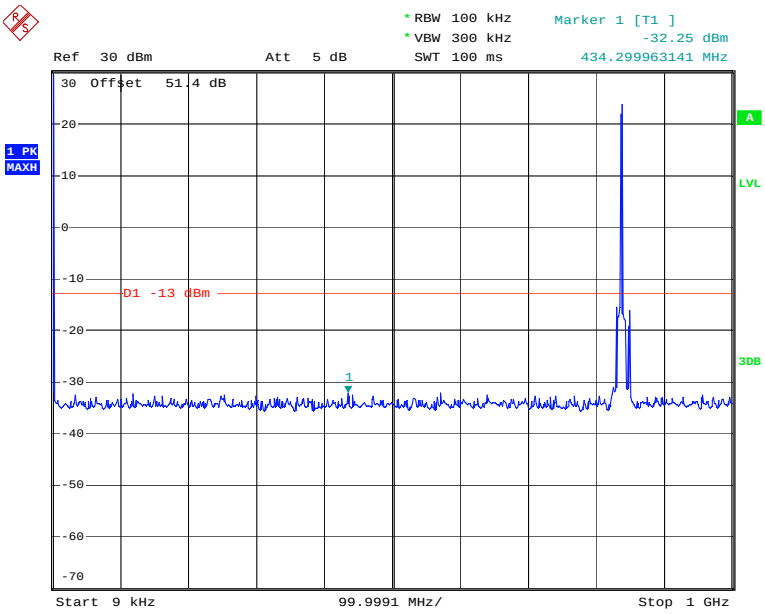
Cellular—CDMA uplink(lowest frequency)



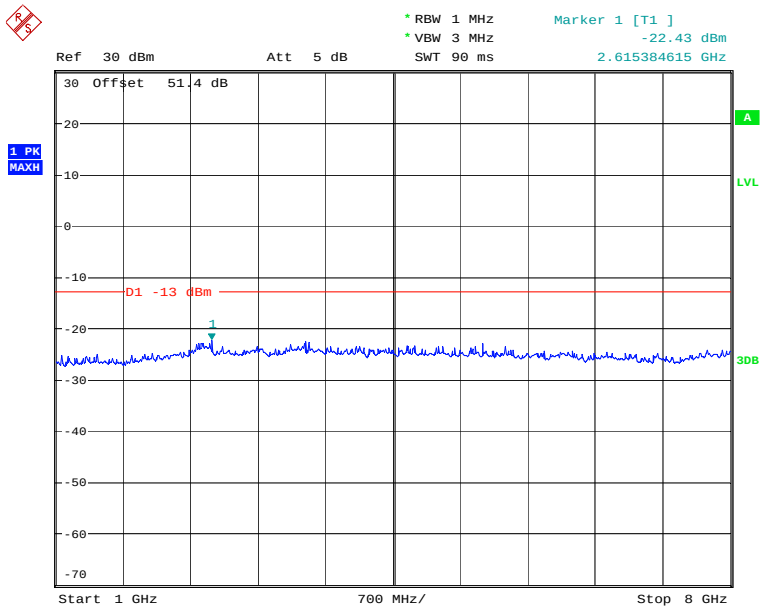
Cellular—CDMA uplink(lowest frequency)



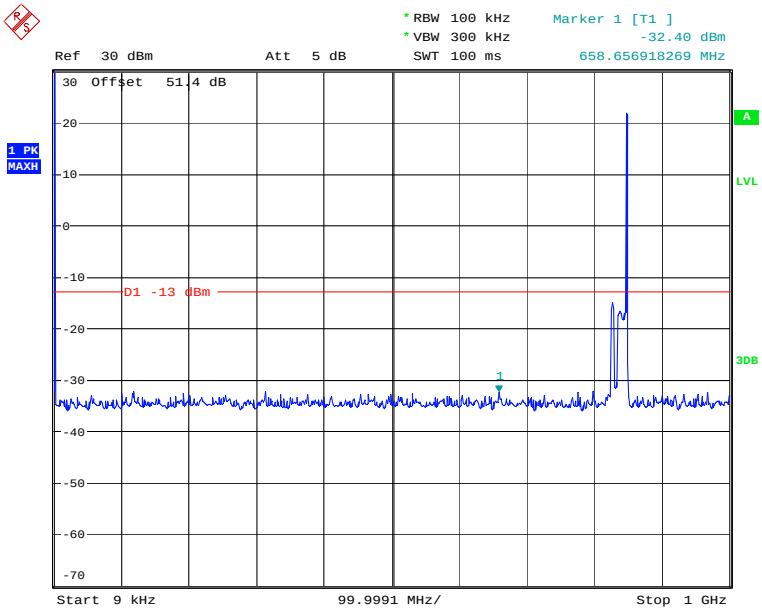
Cellular—CDMA uplink(middle frequency)



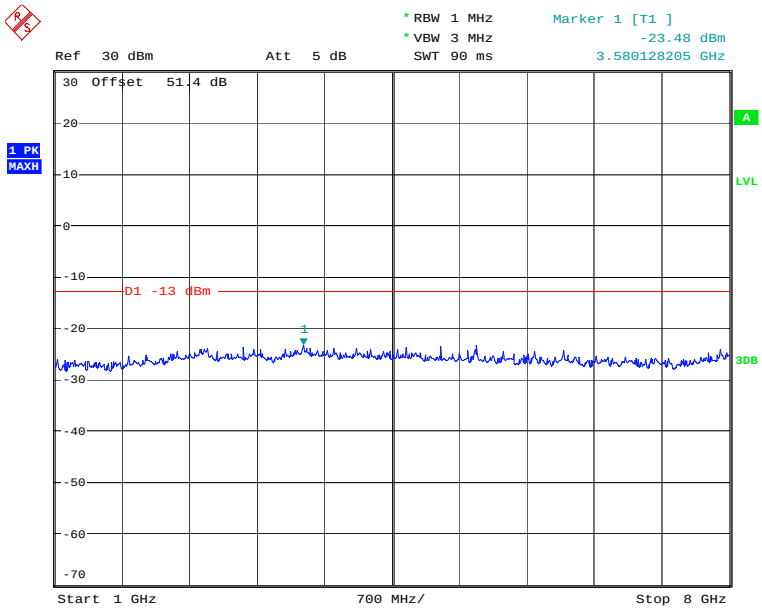
Cellular—CDMA uplink(middle frequency)



Cellular—CDMA uplink(highest frequency)

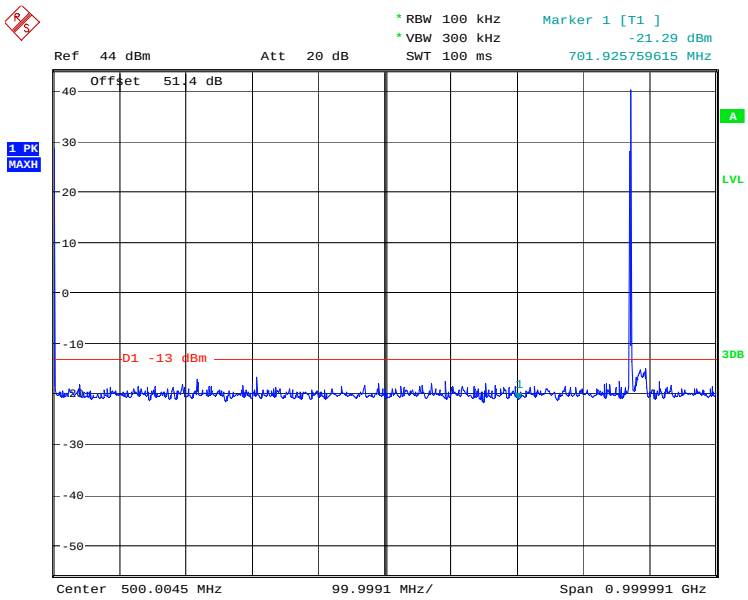


Cellular—CDMA uplink(highest frequency)

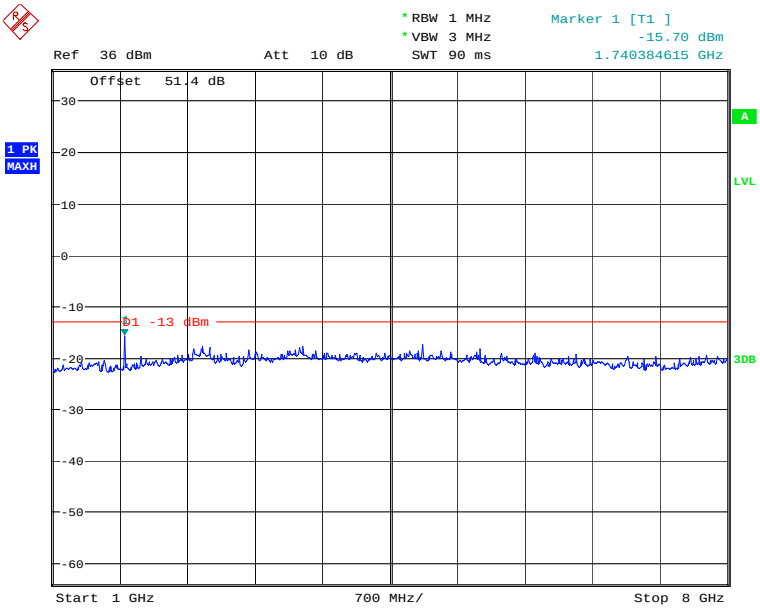


Test in Band 2:
Test for Downlink:

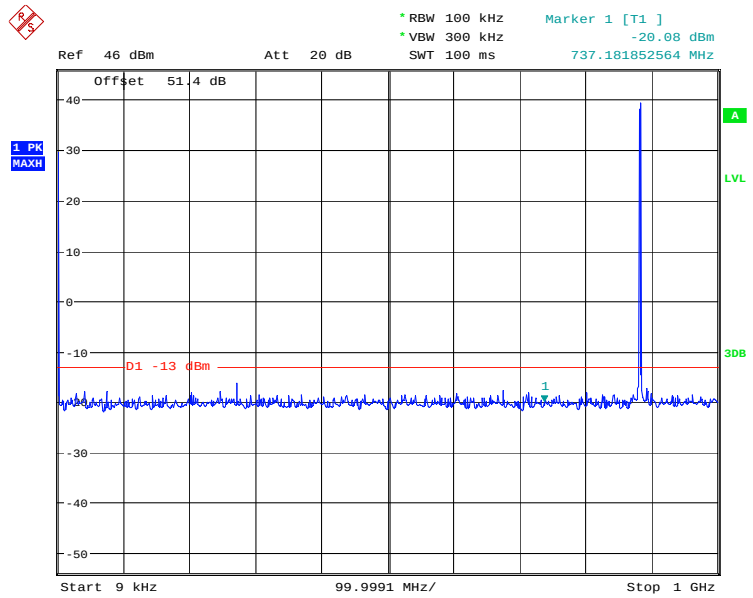
Cellular—CDMA downlink(lowest frequency)



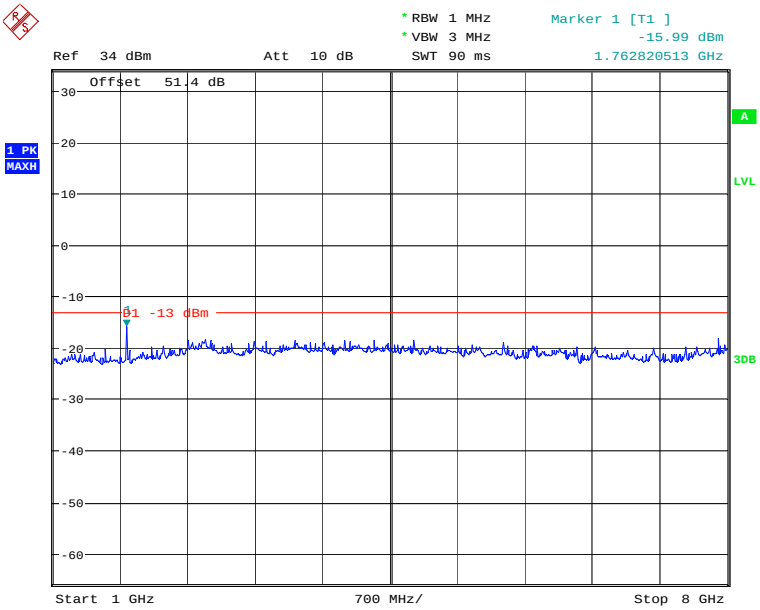
Cellular—CDMA downlink(lowest frequency)



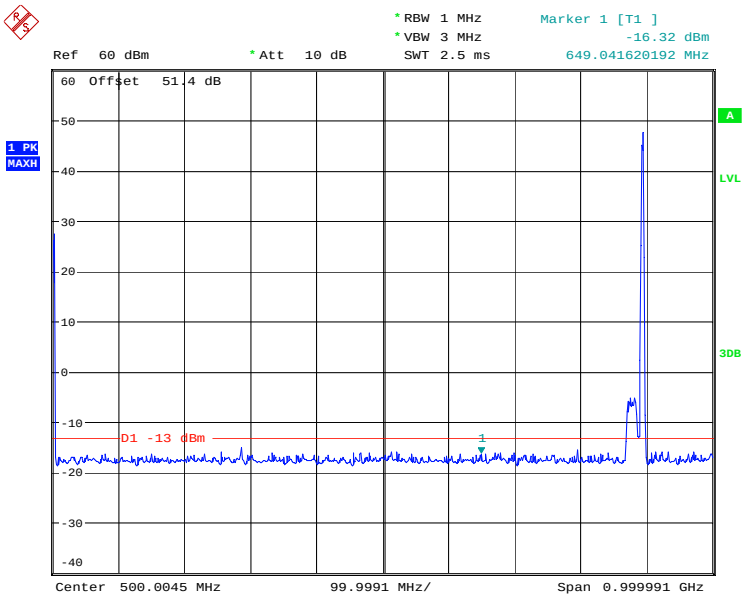
Cellular—CDMA downlink(middle frequency)



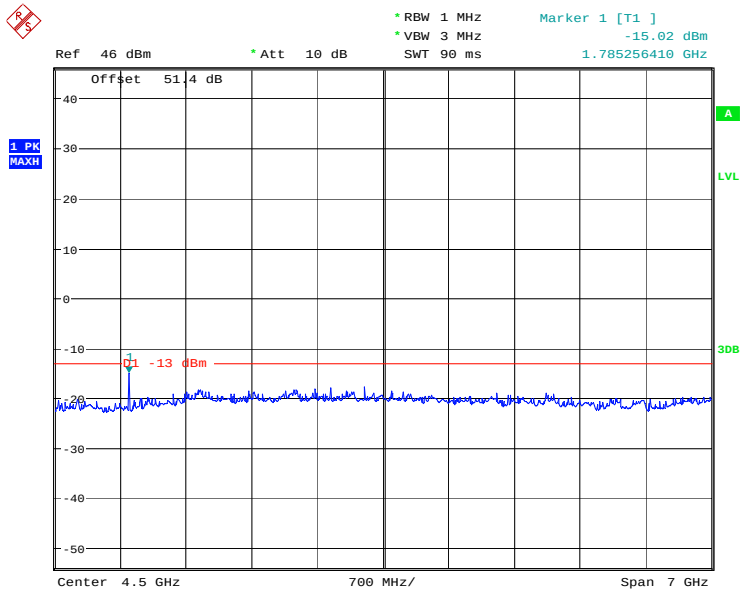
Cellular—CDMA downlink(middle frequency)



Cellular—CDMA downlink(highest frequency)

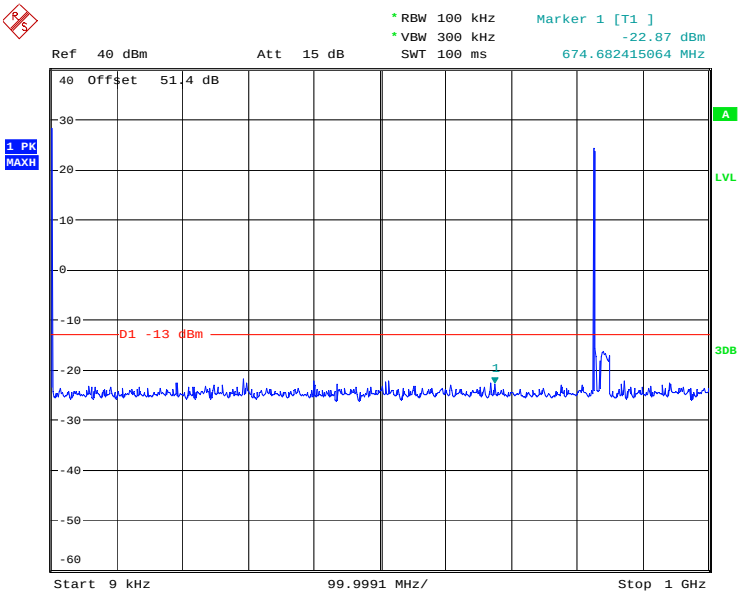


Cellular—CDMA downlink(highest frequency)

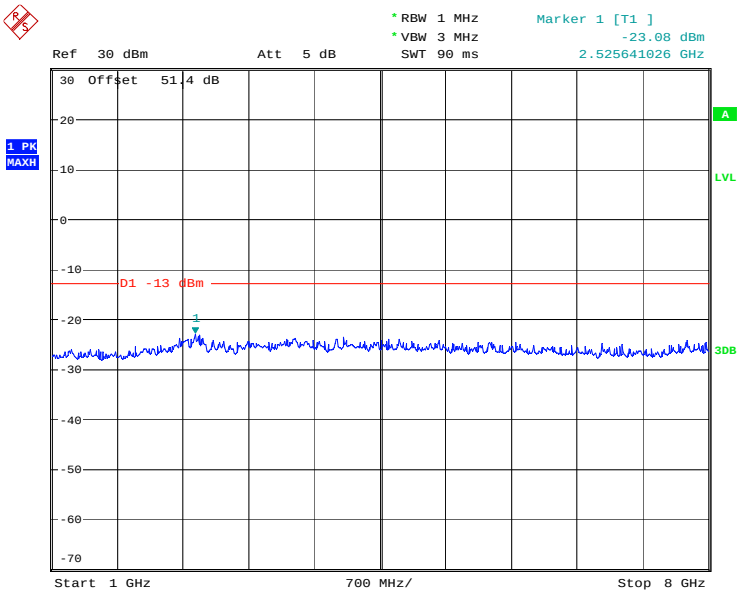


Test for Uplink:

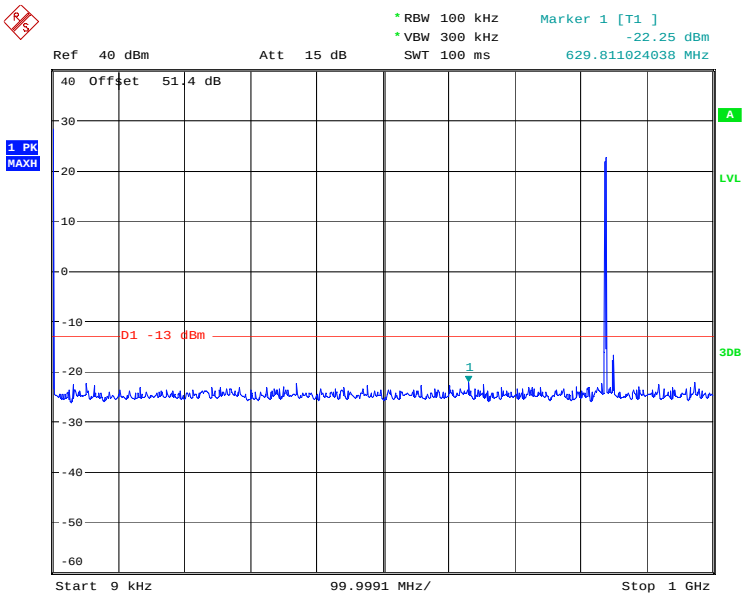
Cellular—CDMA uplink(lowest frequency)



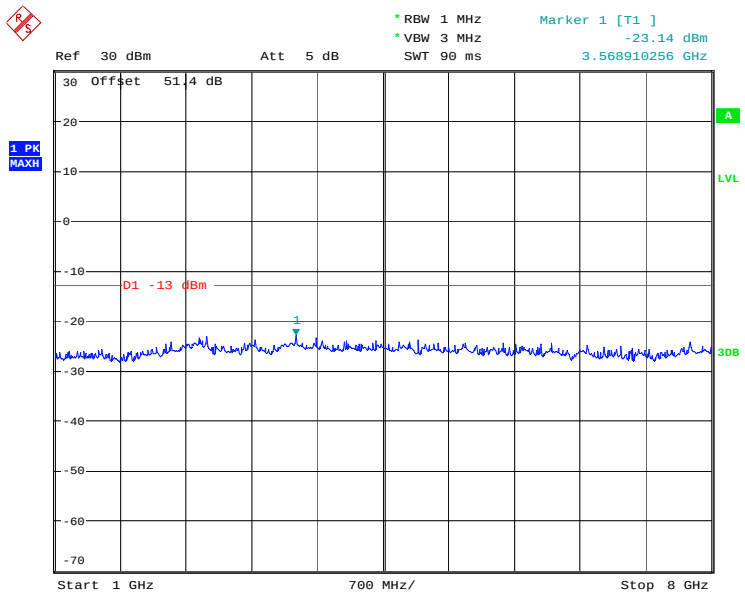
Cellular—CDMA uplink(lowest frequency)



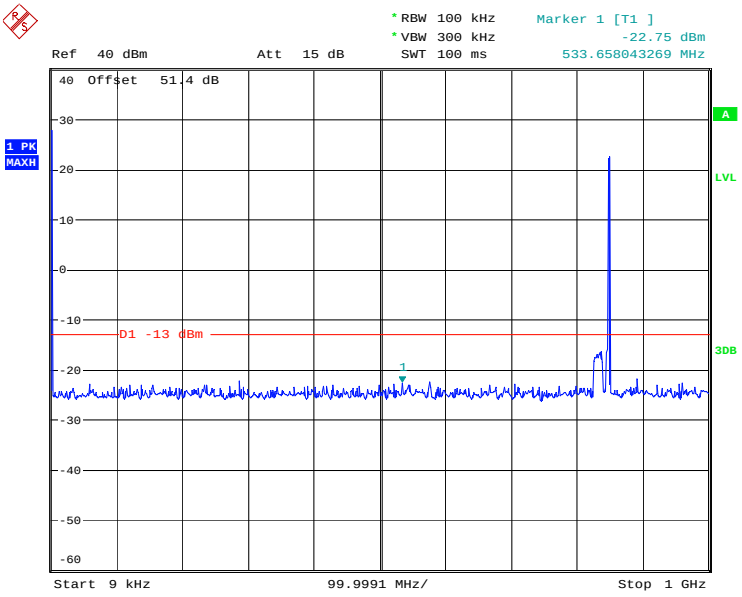
Cellular—CDMA uplink(middle frequency)



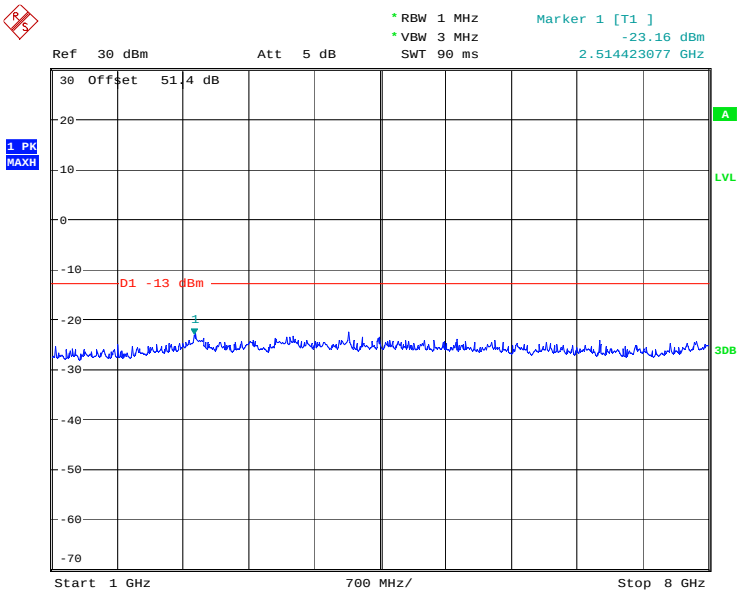
Cellular—CDMA uplink(middle frequency)



Cellular—CDMA uplink(highest frequency)



Cellular—CDMA uplink(highest frequency)



7.2.3 Band Edge& Intermodulation

Test Date:	05 January to 21 January 2010
Test Requirement:	FCC part 22.917(b)
	22.917(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
Test Method:	FCC part 2.1051&2-11-04/EAB/RF
EUT Operation:	
Status:	Drive the EUT to maximum output power.
Conditions:	Normal conditions
Application:	Cellular Band RF output ports
Test Configuration:	

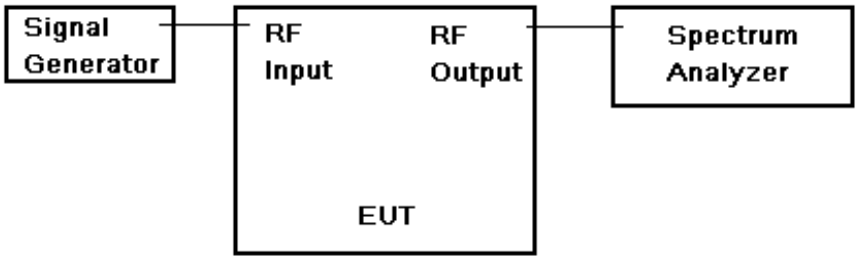
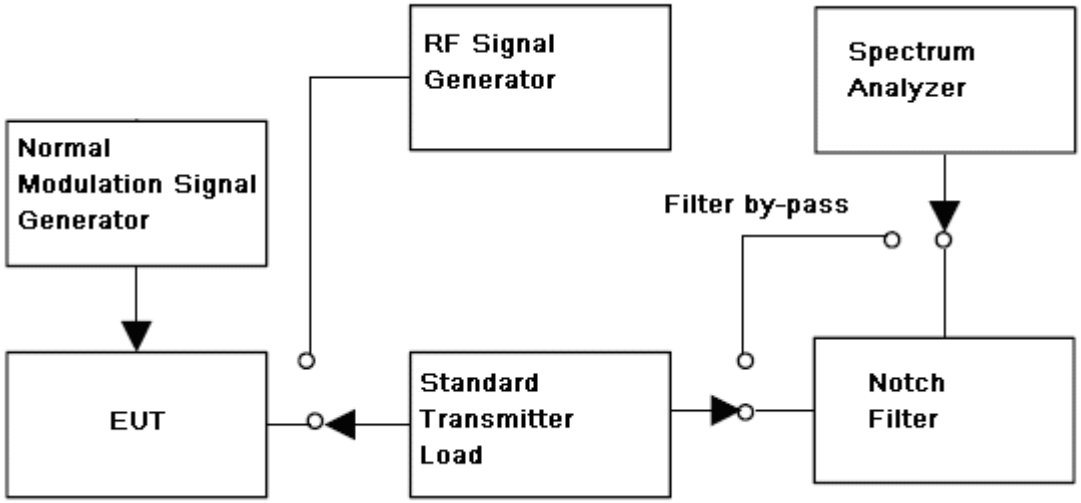


Fig.3. Band edge and Intermodulation test configuration



Test Procedure: Conducted Emissions test procedure:

a) Connect the equipment as illustrated, with the notch filter by-passed, when the output power is over the max value of the Spectrum Analyzer, add the attenuator to avoid destroying the facility.

b) Set the center frequency of the spectrum analyzer to the assigned transmitter frequency, key the transmitter, and set the level of the carrier to the full scale reference line.

c) do not apply any tone to modulate the EUT.

d) Adjust the spectrum analyzer for the following settings:

1) Resolution Bandwidth,(base the standard, apply the different set),here is 100KHz for frequency band less than 1GHz, 1MHz for frequency over 1GHz;

2) Video Bandwidth refer to standard requirement.

e) Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from:

1) the lowest radio frequency generated in the equipment, it can be 9KHz base the test method, here select 30MHz as lowest frequency start point;

2) the highest radion frequency shall higher than 10 times of carrier frequency;

f) Record the frequencies and levels of spurious emissions from step e)

Remark:

The notch filter is used for avoid the EUT fundamental carrier output power making the spectrum overload and the harmonic spurious brought by it.

When the EUT fundamental carrier is not enough to make the status, the notch filter could be not used.

Intermodulation Test Procedure:	1. Connect the equipment as illustrated; 2. Test the background noise level with all the test facilities; 3. Keep one transmitting path, all other connectors shall be connected by normal power or RF leads; 4. Select the attenuator to avoid the test receiver or spectrum analyzer being destroied; 5. Keep the EUT continuously transmitting in max power; 6. Keep two signals are same in modulation type and level; 7. Measure the 3 order intermodulated product by the EUT(the sum of the two unwanted signal should be rated power); 8. Correct for all losses in the RF path; 9. Read the conducted spurious emissioins of the EUT antenna port. Remark: · CW signal rather than typical signal is acceptable (for FM). · At maximum drive level, for each modulation: one test with three tones, or two tests (high-, low-band edge) with two tones · Limit usually is -13dBm conducted. · Not needed for Single Channel systems. · Combination of modulation types not needed.

7.2.3.1 Measurement Record:

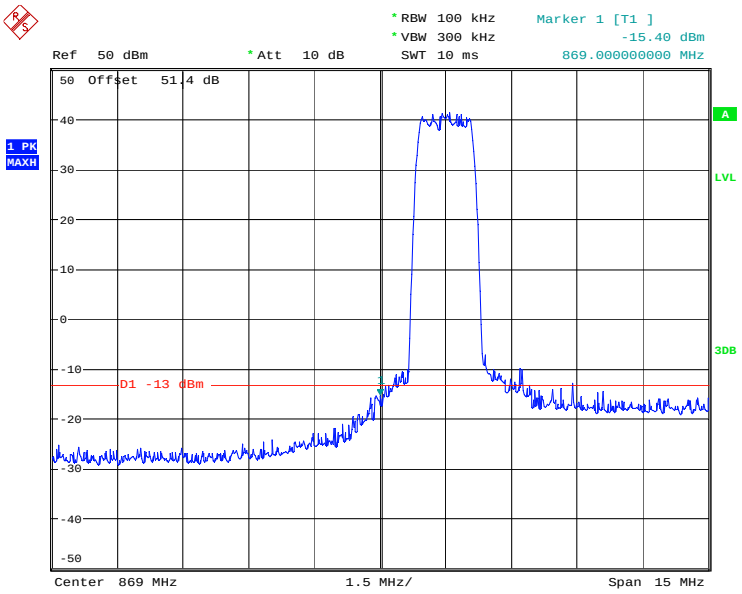
Pretest 43dBm\ 40dBm\ 37dBm\ 33dBm\ 30dBm\ 27dBm\ 23dBm and 19dBm output system and found the worse case in 43dBm system and report it.

7.2.3.1.1 RD-8132 (43)

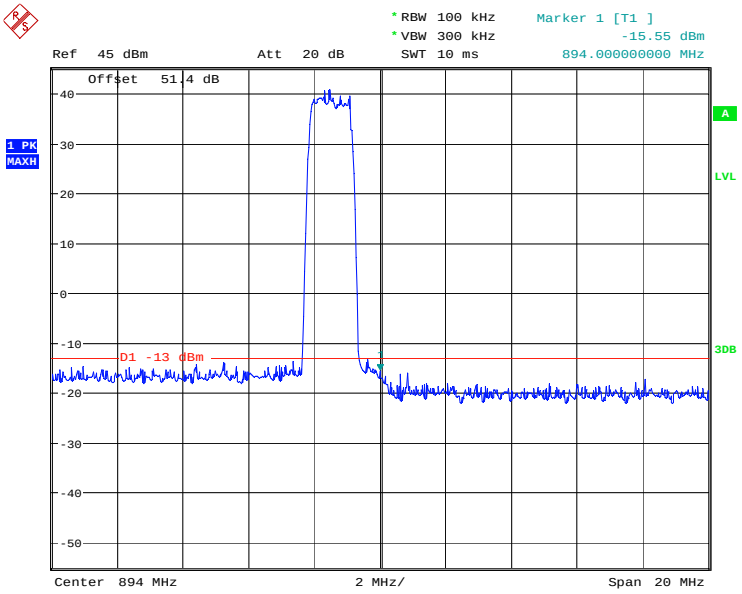
Test in Band 1:

Test for Downlink:

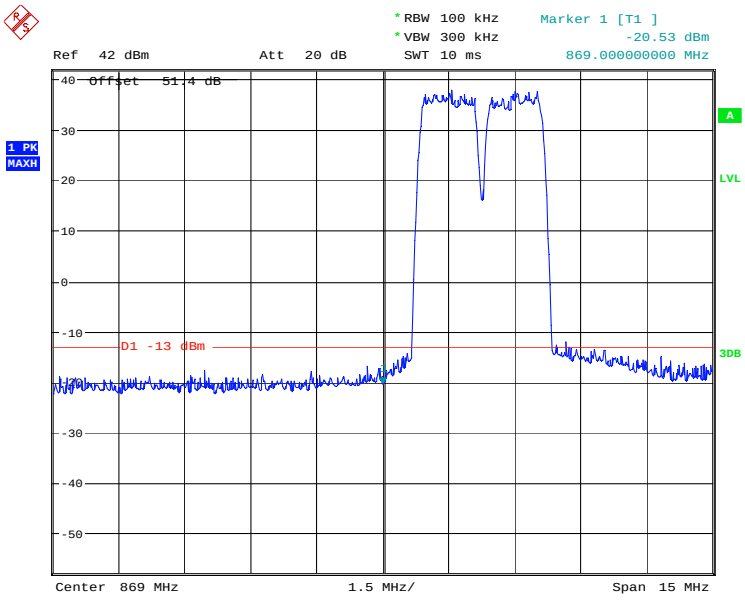
Cellular—CDMA one signal input downlink– Lower Edge



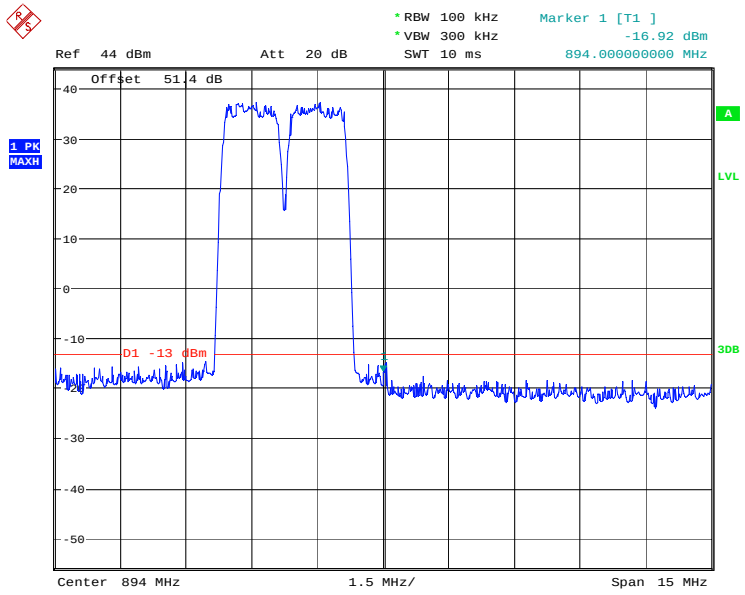
Cellular—CDMA one signal input downlink– Upper Edge



Cellular—CDMA two signal input downlink—Lower Edge

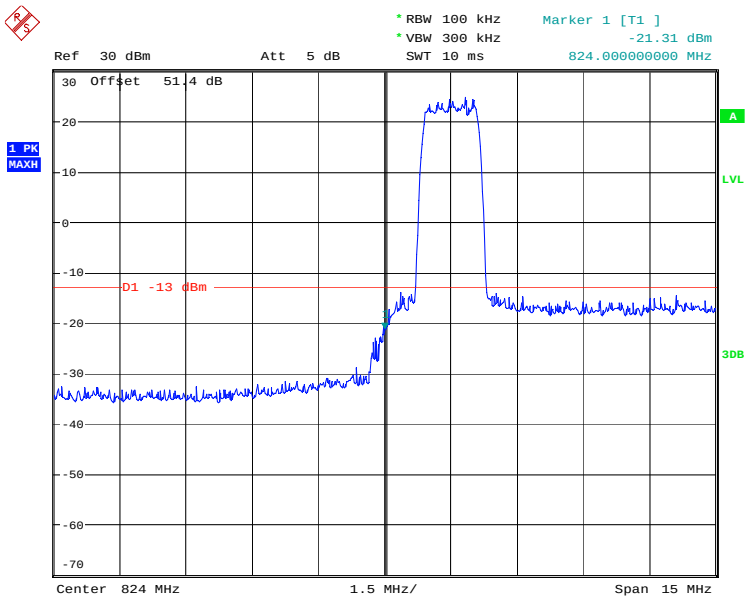


Cellular—CDMA two signal input downlink—Upper Edge

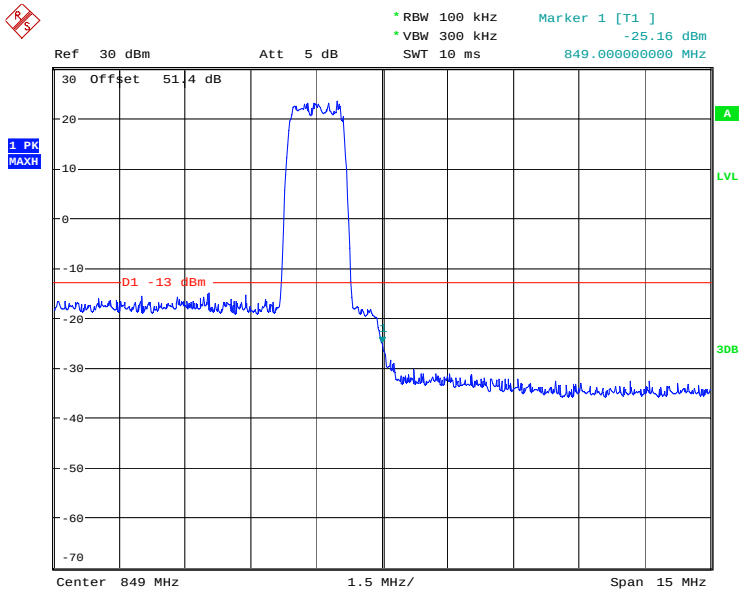


Test for Uplink:

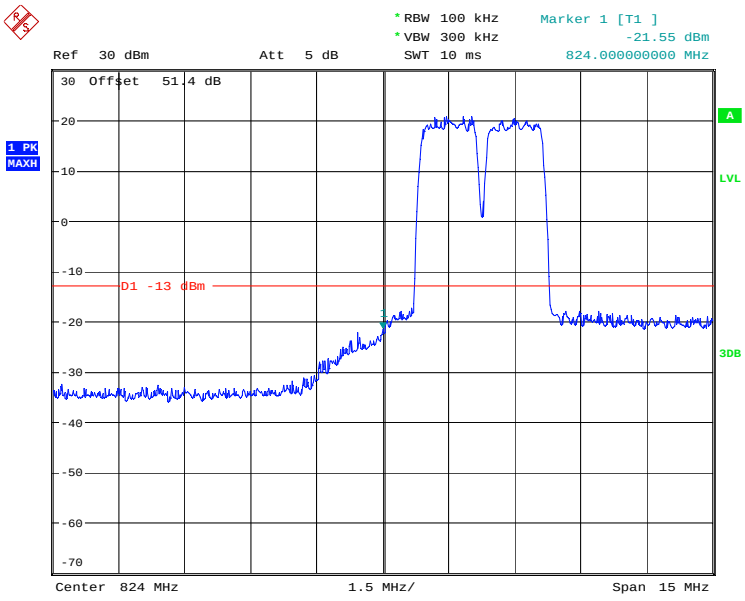
Cellular—CDMA one signal input uplink– Lower Edge



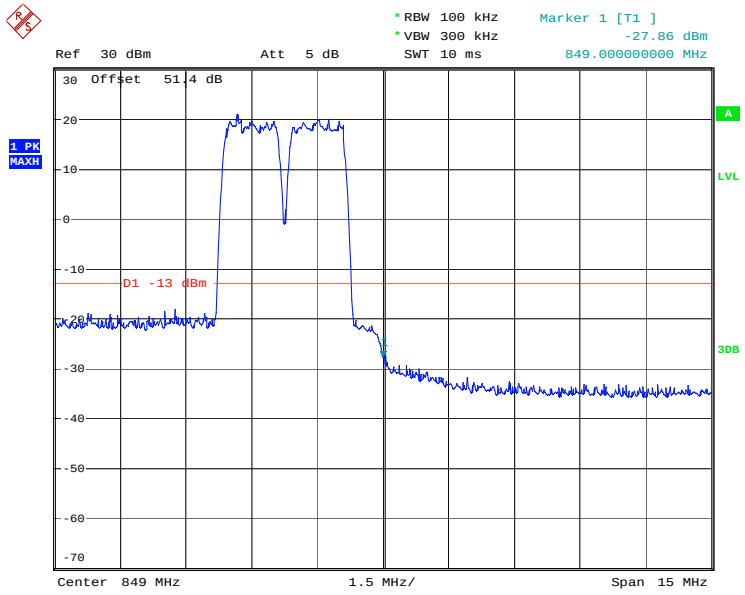
Cellular—CDMA one signal input uplink– Upper Edge



Cellular—CDMA two signal input uplink—Lower Edge

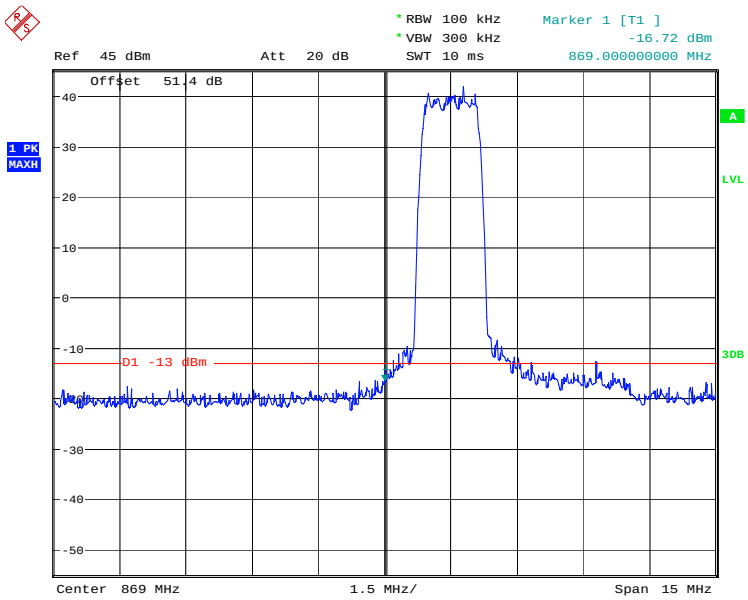


Cellular—CDMA two signal input uplink—Upper Edge

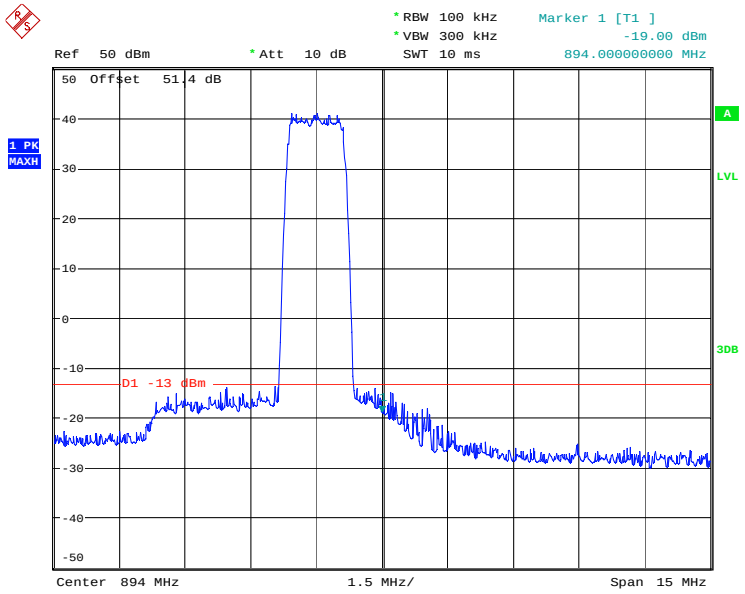


Test in Band 2:
Test for Downlink:

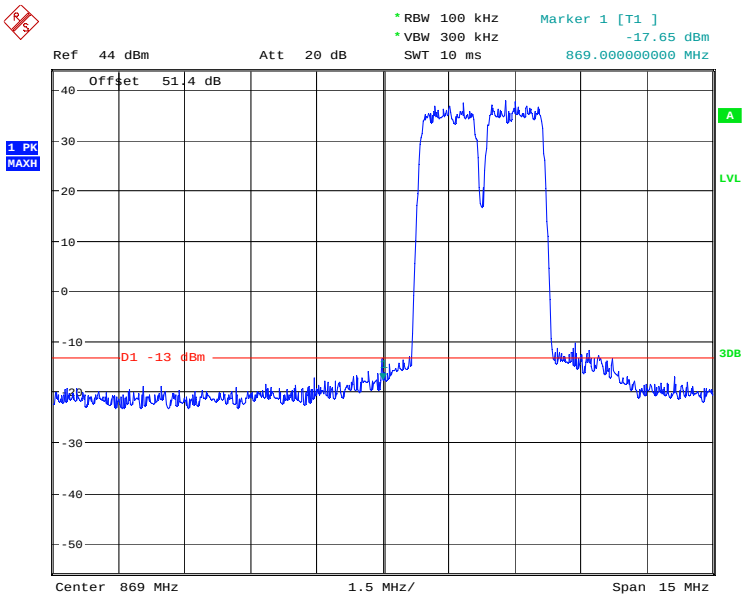
Cellular—CDMA one signal input downlink– Lower Edge



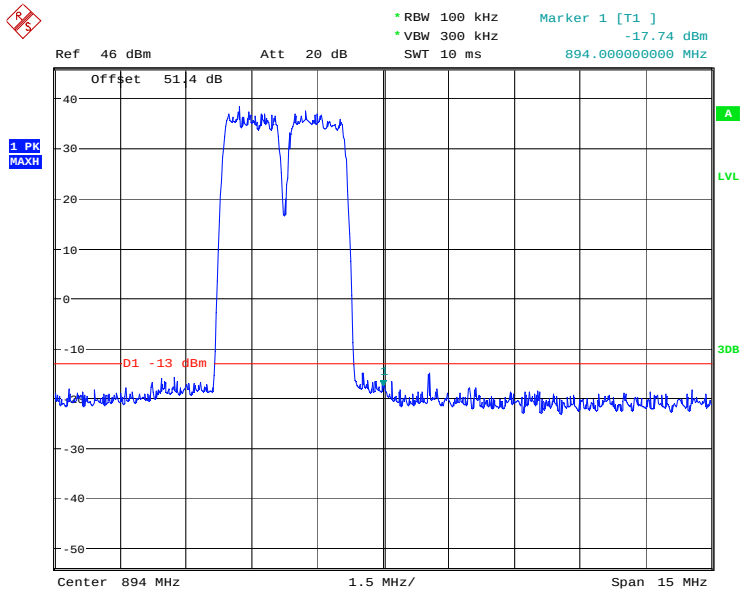
Cellular—CDMA one signal input downlink– Upper Edge



Cellular—CDMA two signal input downlink—Lower Edge

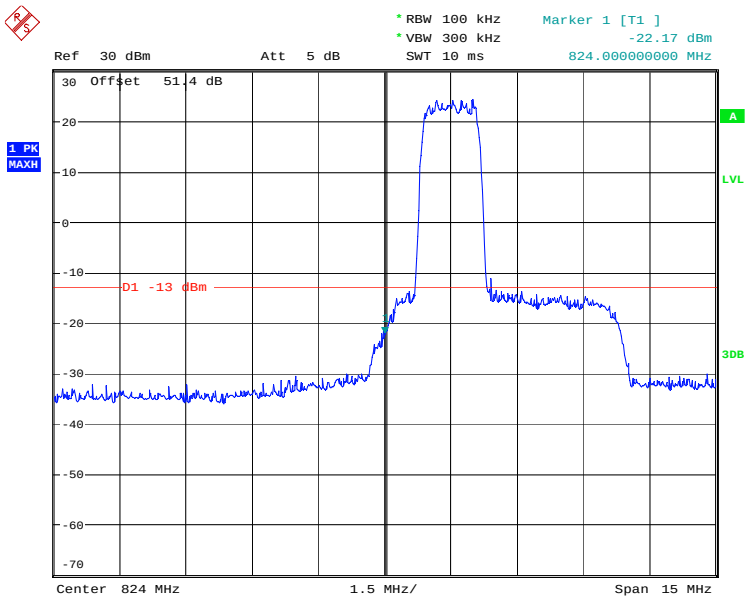


Cellular—CDMA two signal input downlink—Upper Edge

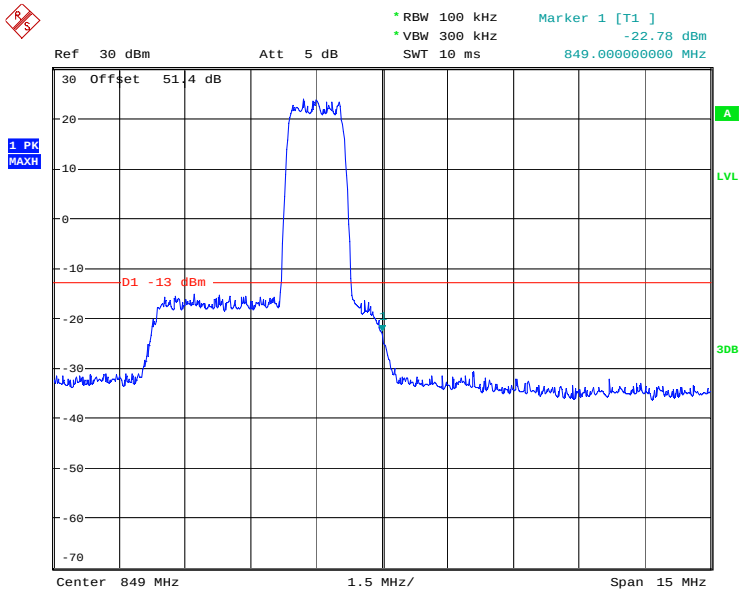


Test for Uplink:

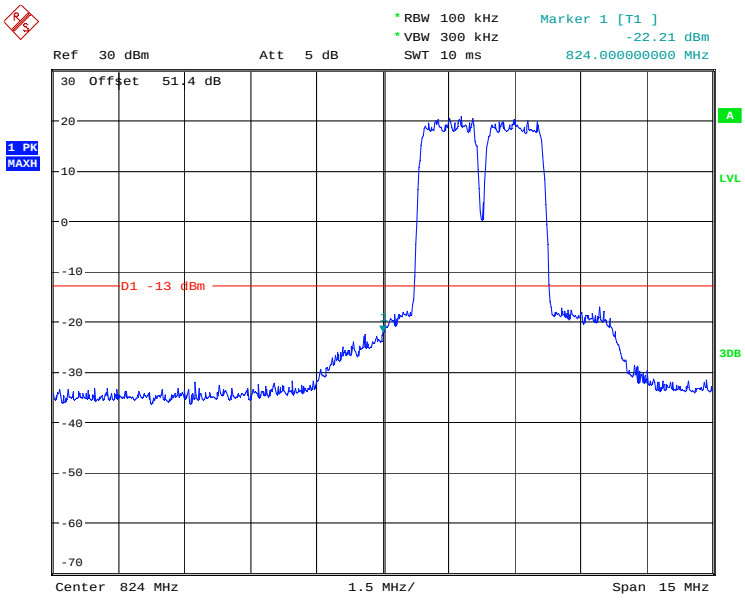
Cellular—CDMA one signal input uplink– Lower Edge



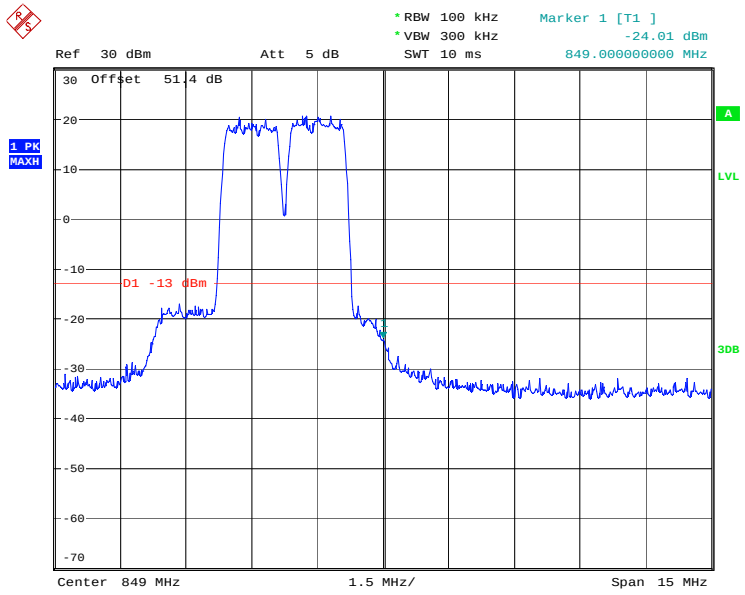
Cellular—CDMA one signal input uplink– Upper Edge



Cellular—CDMA two signal input uplink—Lower Edge



Cellular—CDMA two signal input uplink—Upper Edge



Remark:

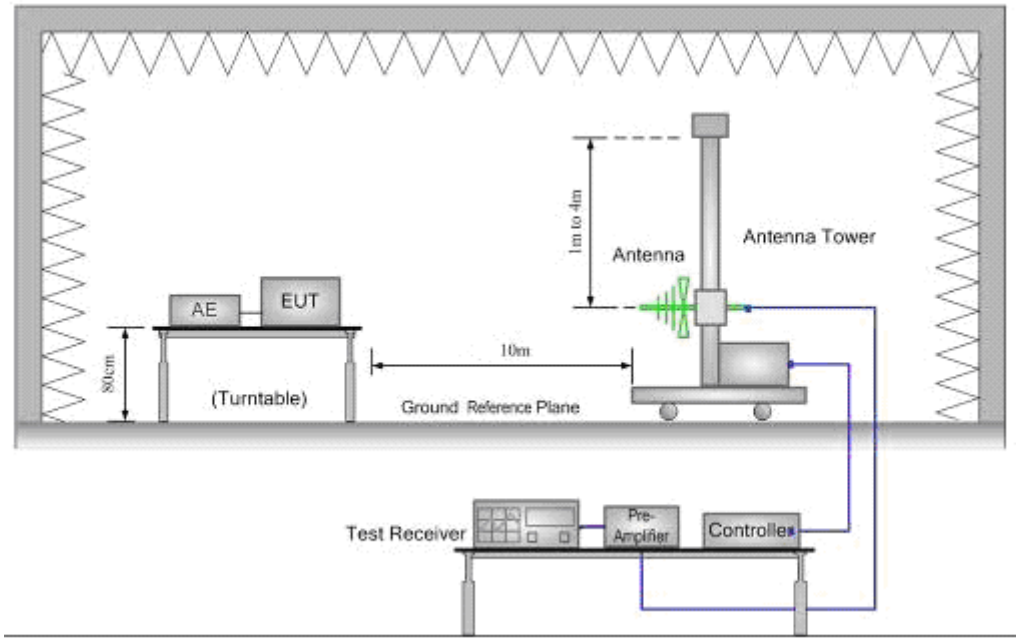
For the test in two signal input or intermodulation, test input signal f1 and f2 will consider as follows conditions:

1) EUT frequency band span and the amount of channels;
2) f1 is the frequency lower, f2 is the frequency higher, △f is the channel spacing;
3) in lower edge test, f1 is the lower edge frequency +1 channel frequency, and f2 is +2 channel frequency;
4) in higher edge test, f1 is the higher edge frequency -2 channel frequency, and f2 is -1 channel frequency;
5) according to the amplifier characteristic, the 3rd product will appear when two signals input;
6) base the 3rd product frequency F1= 2f1-f2 and F2=2f2-f1, when the f1 and f2 frequency select above,
   a) in lower edge test, F1=2f1-(f1+△f)=f1-△f=lower edge frequency;
   b) in higher edge test, F2=2f2-(f2-△f)=f2+△f=higher edge frequency.

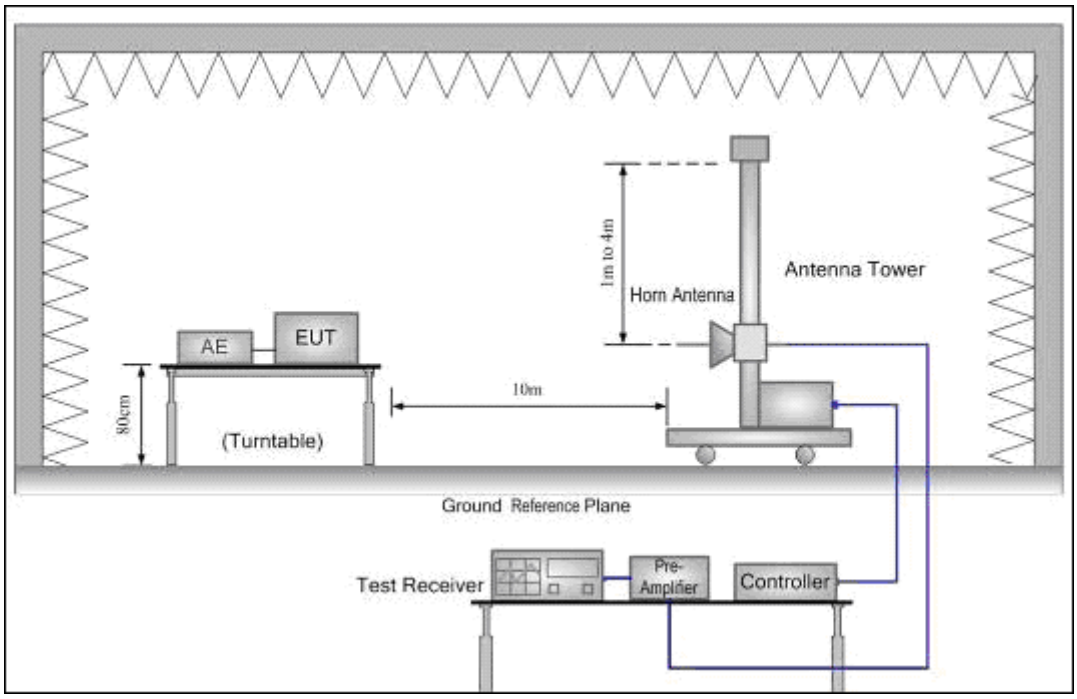
7.2.4 Radiated Spurious Emissions

Test Date:	05 January to 21 January 2010
Test Requirement:	FCC part 22.917(a) 22.917(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
Test Method:	FCC part 2.1053 ANSI/TIA-603-C-2004
EUT Operation:	
Status:	Drive the EUT to maximum output power.
Conditions:	Normal conditions
Application:	Enclosure
Test Configuration:	

30MHz to 1GHz emissions:



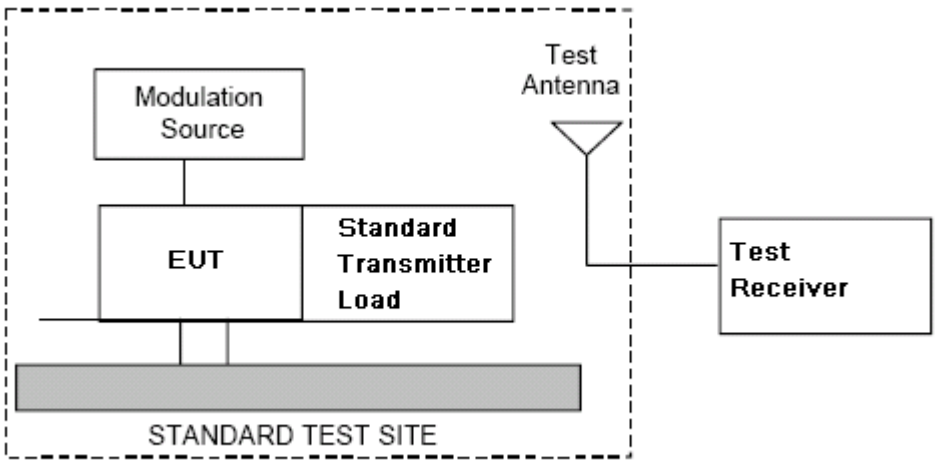
1GHz to 40GHz emissions:



Test Procedure:

1. Test the background noise level with all the test facilities;
2. Keep one transmitting path, all other connectors shall be connected by normal power or RF leads;
3. Select the suitable RF notch filter to avoid the test receiver or spectrum analyzer produce unwanted spurious emissions;
4. Keep the EUT continuously transmitting in max power;
5. Read the radiated emissioins of the EUT enclosure.

Radiated Emissions Test Procedure:



a) Connect the equipment as illustrated.

b) Adjust the spectrum analyzer for the following settings:

1) Resolution Bandwidth = 100 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1GHz.

2) Video Bandwidth = 300 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.

3) Sweep Speed slow enough to maintain measurement calibration.

4) Detector Mode = Positive Peak.

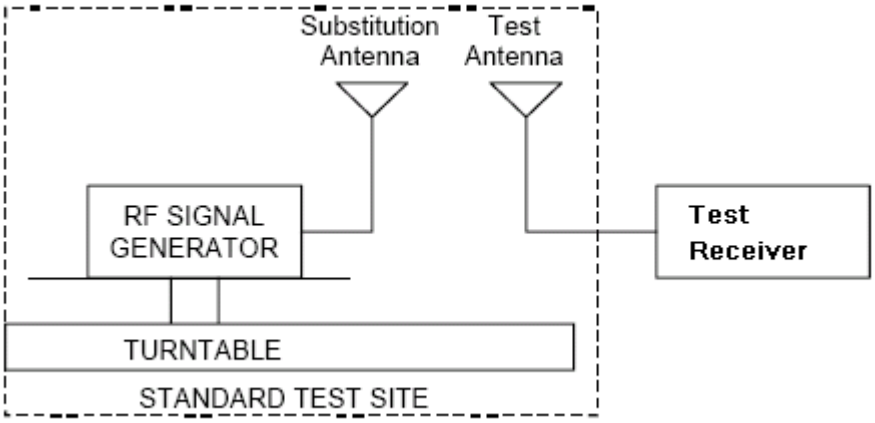
c) Place the transmitter to be tested on the turntable in the standard test site, The transmitter is transmitting into a nonradiating load that is placed on the turntable. The RF cable to this load should be of minimum length.

d) Measurements shall be made from30MHz to 10 tims of fundamental carrier, except for the region close to the carrier equal to ± the carrier bandwidth.

e) Key the transmitter without modulation or normal modulation base the standard.

f) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Then the turntable should be rotated 360° to determine the maximum reading. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

g) Repeat step f) for each spurious frequency with the test antenna polarized vertically.



h) Reconnect the equipment as illustrated.

i) Keep the spectrum analyzer adjusted as in step b).

j) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At the lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

k) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to

obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

l) Repeat step k) with both antennas vertically polarized for each spurious frequency.

m) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps k) and l) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole

antenna by the following formula:

Pd(dBm) = *Pg*(dBm) – *cable loss* (dB) + *antenna gain* (dB)

where:

Pd is the dipole equivalent power and

Pg is the generator output power into the substitution antenna.

NOTE: It is permissible to use other antennas provided they can be referenced to a dipole.
NOTE: Effective radiated power (e.r.p) refers to the radiation of a half wave tuned dipole instead of an isotropic antenna. There is a constant difference of 2.15 dB between e.i.r.p. and e.r.p.
e.r.p (dBm) = e.i.r.p. (dBm) – 2.15

7.2.4.1 Measurement Record:

Pretest 43dBm\ 40dBm\ 37dBm\ 33dBm\ 30dBm\ 27dBm\ 23dBm and 19dBm output system and found the worse case in 43dBm system and report it.

7.2.4.1.1 RD-8132 (43)

Test in Band 1:
No emissions were detected within 20dB below the limit for the Downlin direction.
No emissions were detected within 20dB below the limit for the Upin direction.

Test in Band 2:
No emissions were detected within 20dB below the limit for the Downlin direction.
No emissions were detected within 20dB below the limit for the Upin direction.

Remark:
The cabinet radiation was measured with the equipment transmitting a CW signal into a non-radiating 50 Ohm load at maximum output power on a signal frequency .
Measured were performed in the lowest, middle and hightest frequency for both the Downlink and Uplink.
The spectrum was searched from 30MHz to 9GHz (10th Harmonic).

7.2.5 Occupied Bandwidth

Test Date:	05 January to 21 January 2010
Test Requirement:	2-11-04/EAB/RF
Test Method:	FCC part 2.1049, 2-11-04/EAB/RF
	The spectral shape of the output should look similar to input for all modulations.
EUT Operation:	
Status:	Drive the EUT to maximum output power. .
Conditions:	Normal conditions
Application:	Cellular Band RF output ports

Test Configuration:

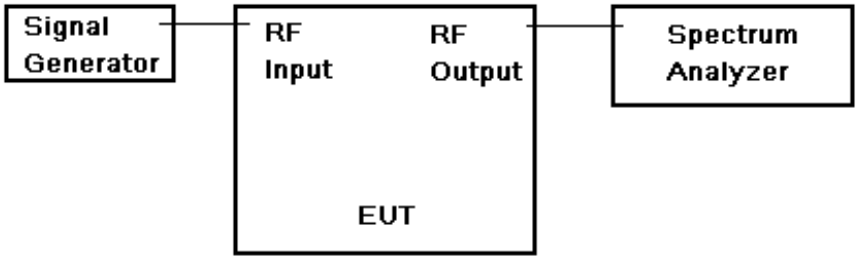


Fig.2. Conducted Spurious Emissions test configuration

Test Procedure:

a) Set the spectrum analyzer RBW 300 Hz or >1%&<2% emission bandwidth of carrier.

b) Capture the trace of input signal;

c) Connect the equipment as illustrated;

d) Capture the trace of output signal;

7.2.5.1 Measurement Record:

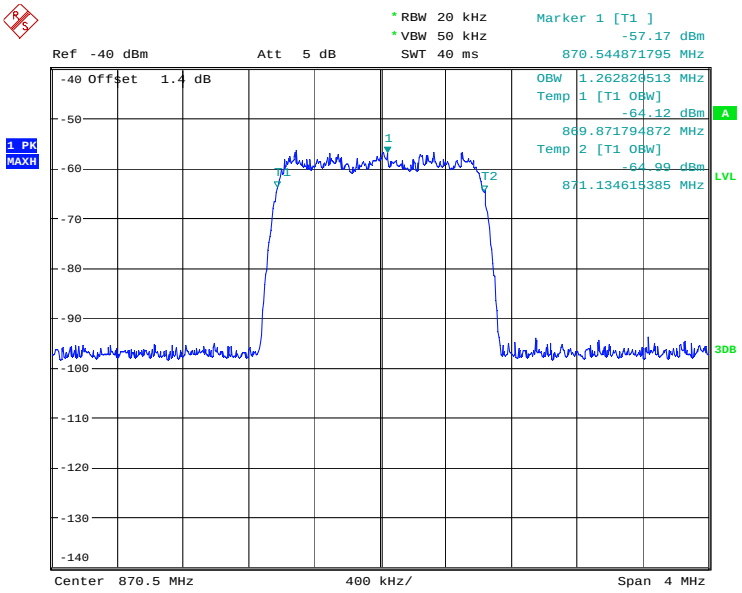
Test for all configuration

7.2.5.1.1 RD-8132 (43)

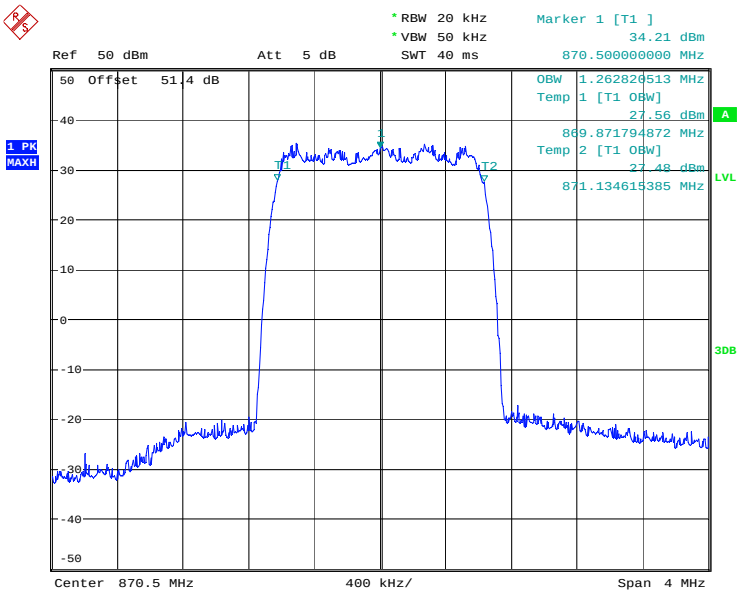
Test in Band 1:

Test for Downlink:

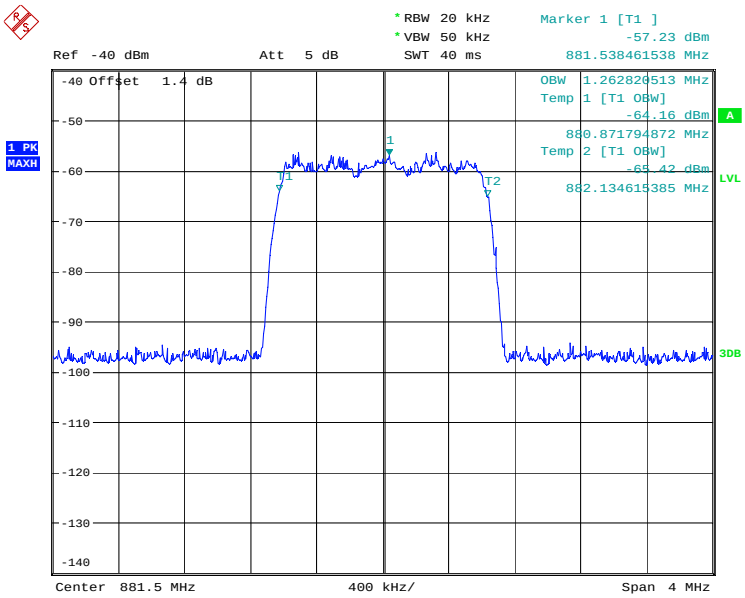
Cellular—CDMA downlink(lowest frequency) -- Input



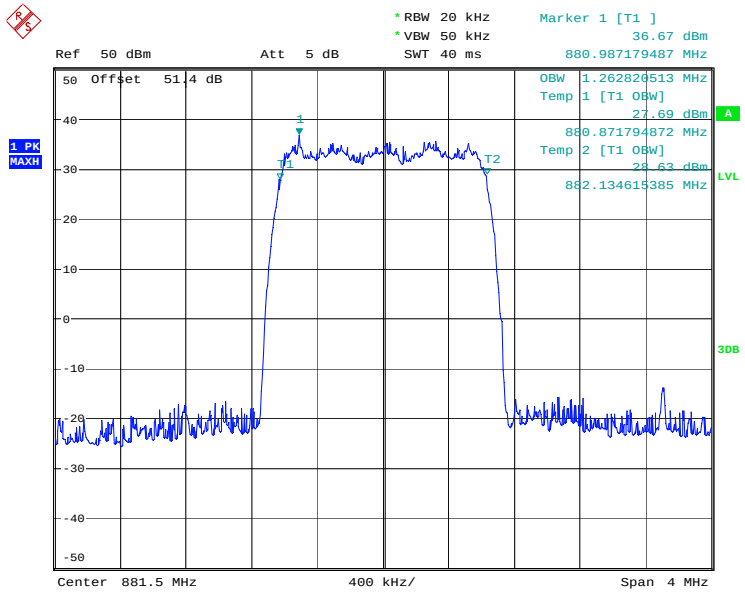
Cellular—CDMA downlink(lowest frequency)-- Output



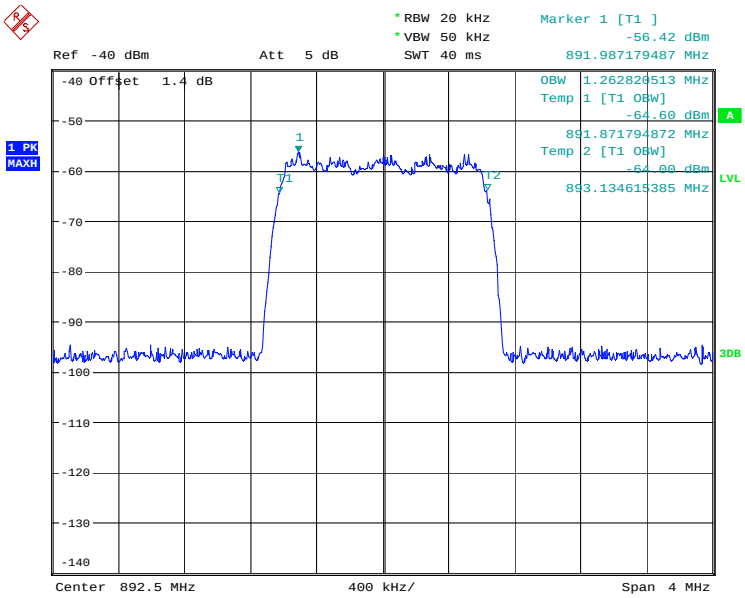
Cellular—CDMA downlink (middle frequency)-- Input



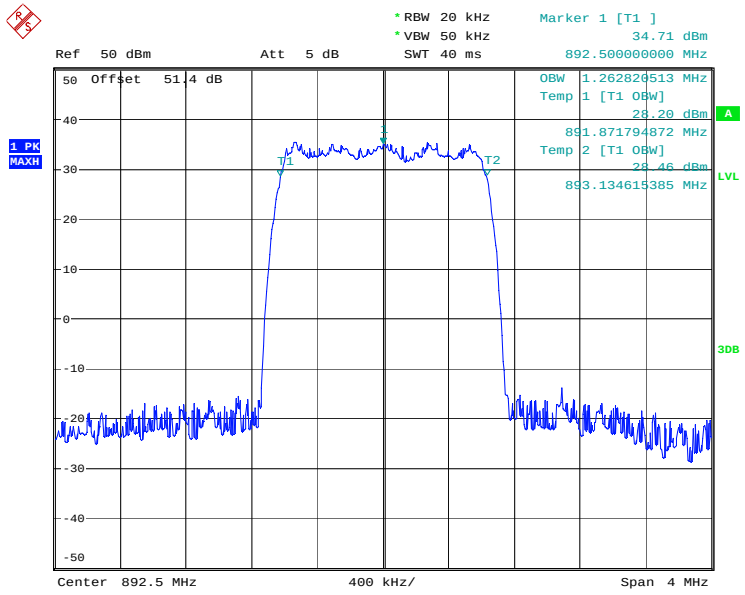
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

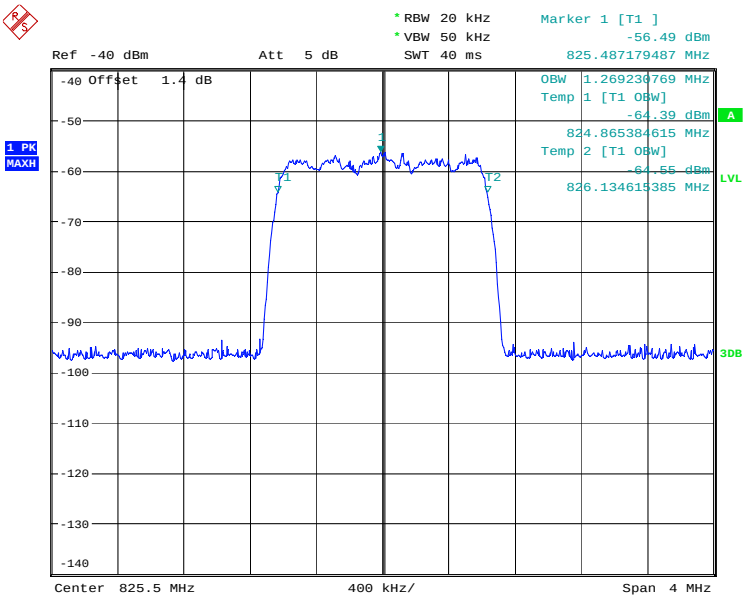


Cellular—CDMA downlink (highest frequency)--Output

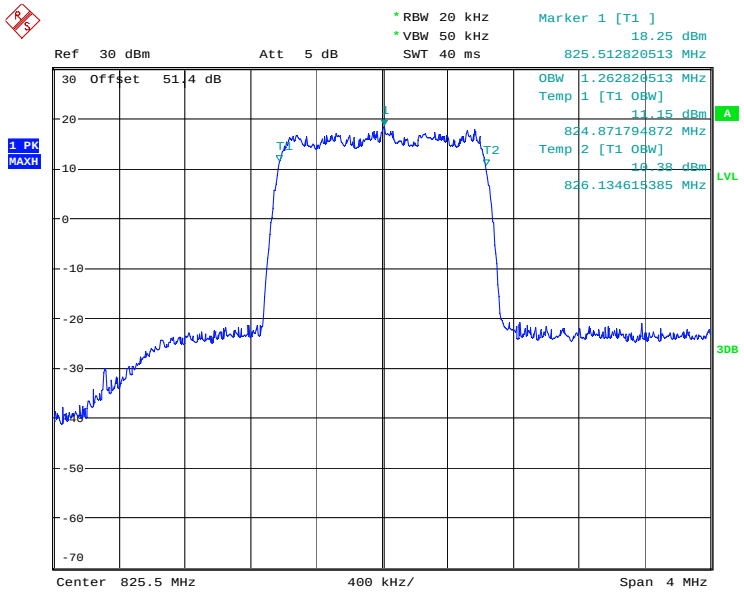


Test for Uplink:

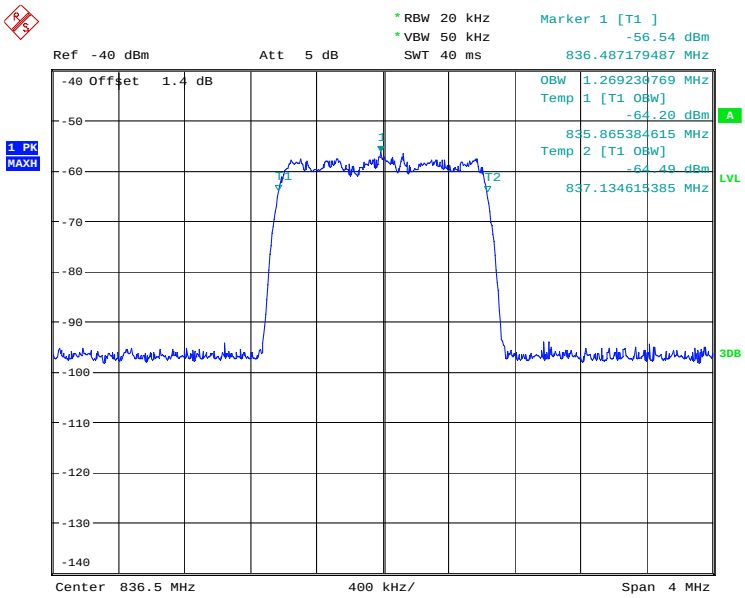
Cellular—CDMA uplink(lowest frequency) -- Input



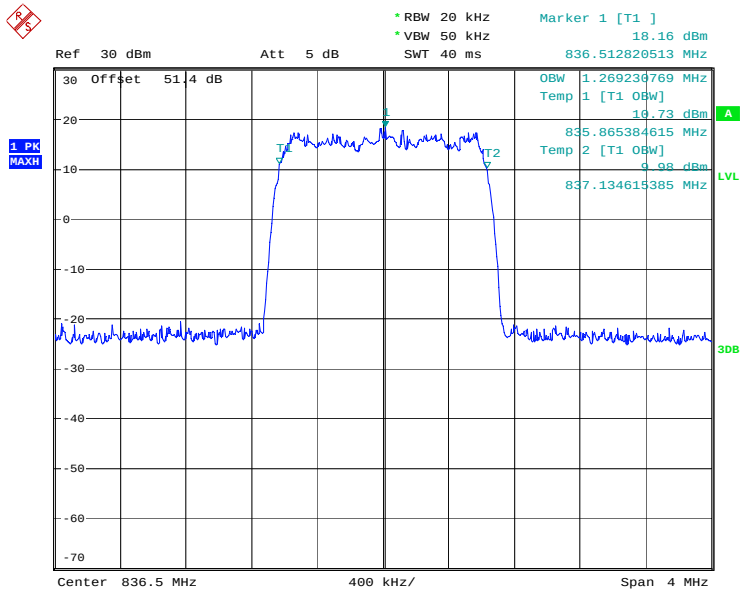
Cellular—CDMA uplink(lowest frequency)-- Output



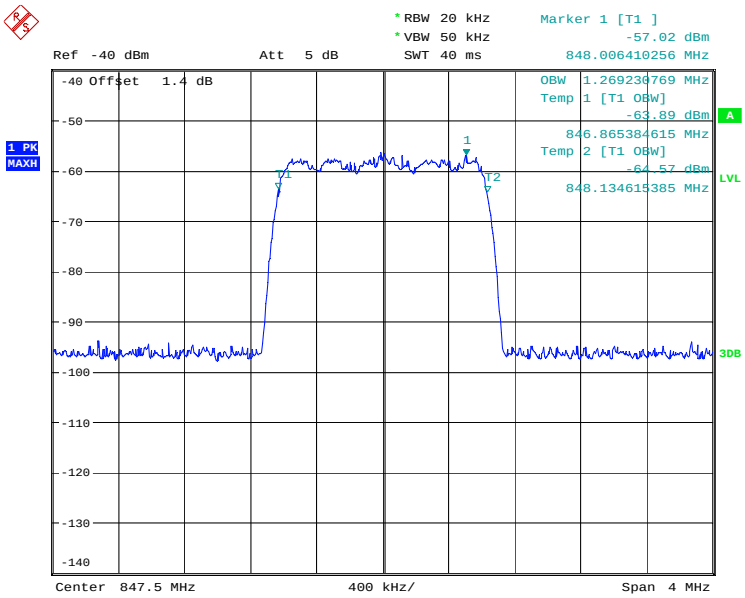
Cellular—CDMA uplink (middle frequency)-- Input



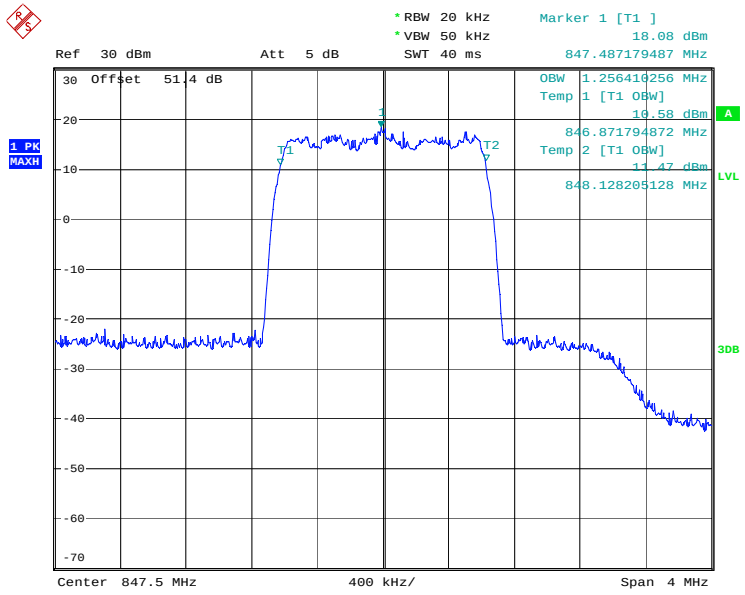
Cellular—CDMA uplink (middle frequency)-- Output



Cellular— CDMA uplink (highest frequency)—Input



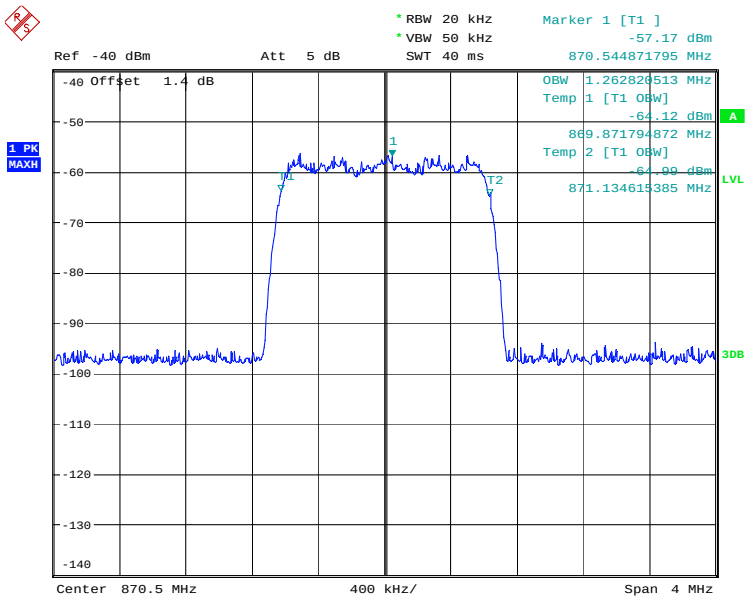
Cellular—CDMA uplink (highest frequency)--Output



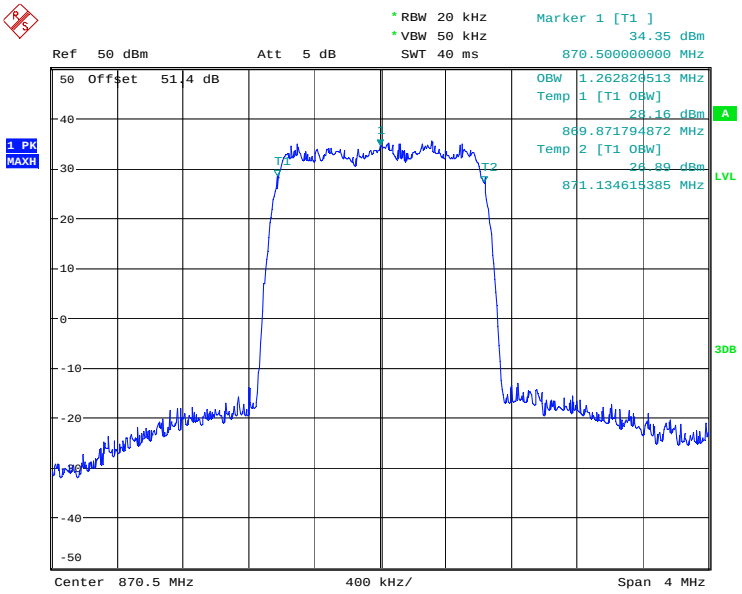
Test in Band 2:

Test for Downlink:

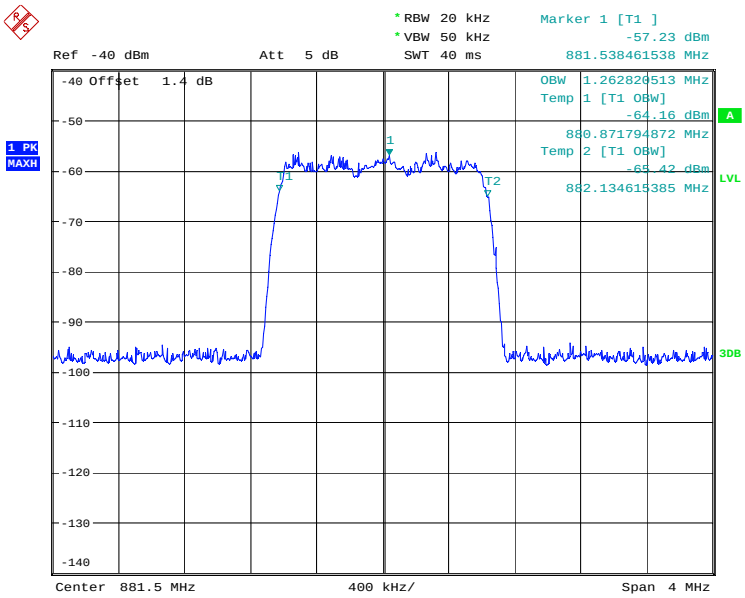
Cellular—CDMA downlink(lowest frequency) -- Input



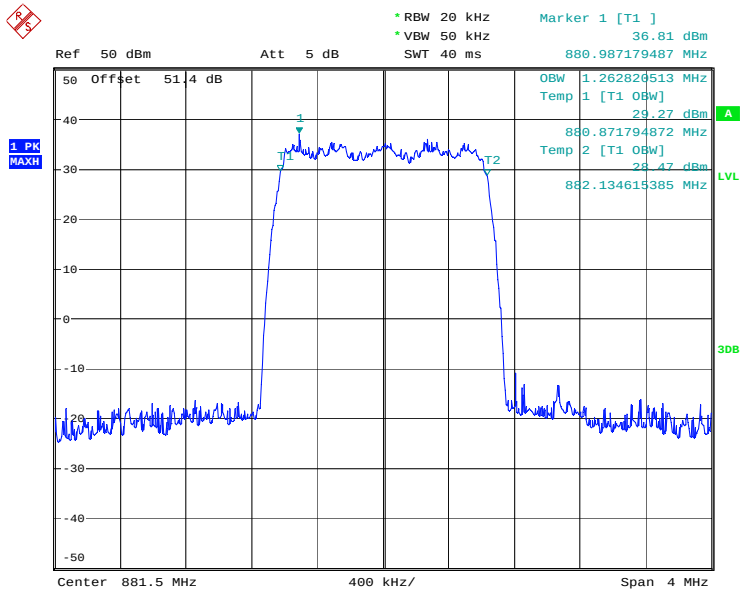
Cellular—CDMA downlink(lowest frequency)-- Output



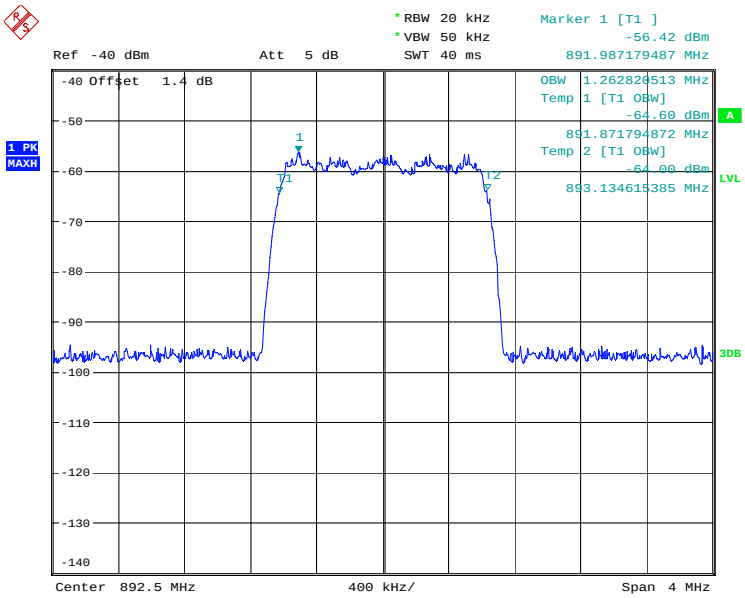
Cellular—CDMA downlink (middle frequency)-- Input



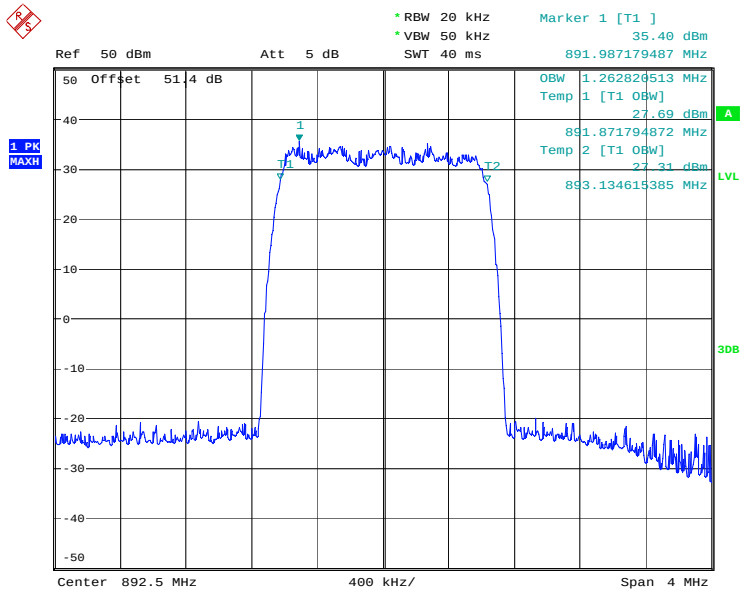
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

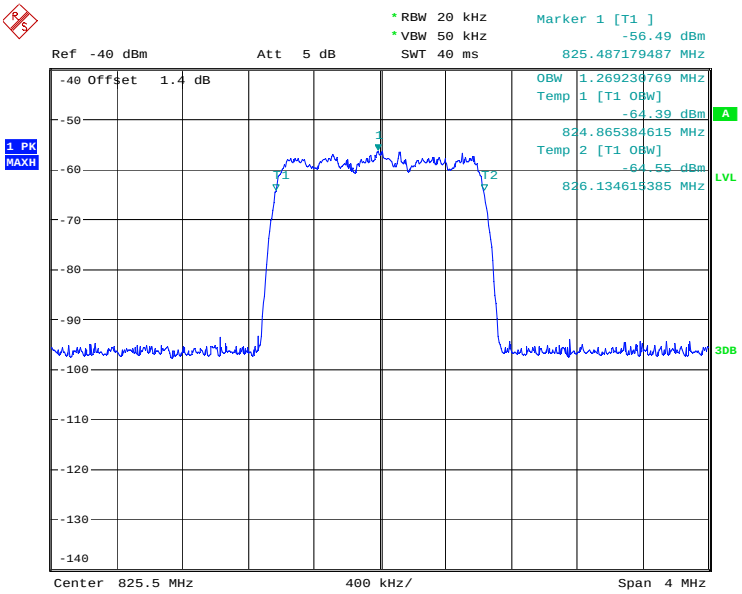


Cellular—CDMA downlink (highest frequency)--Output

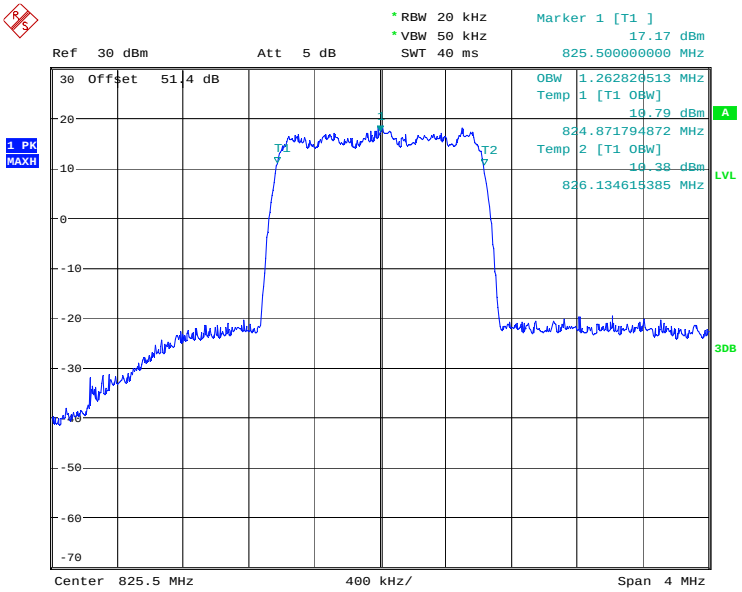


Test for Uplink:

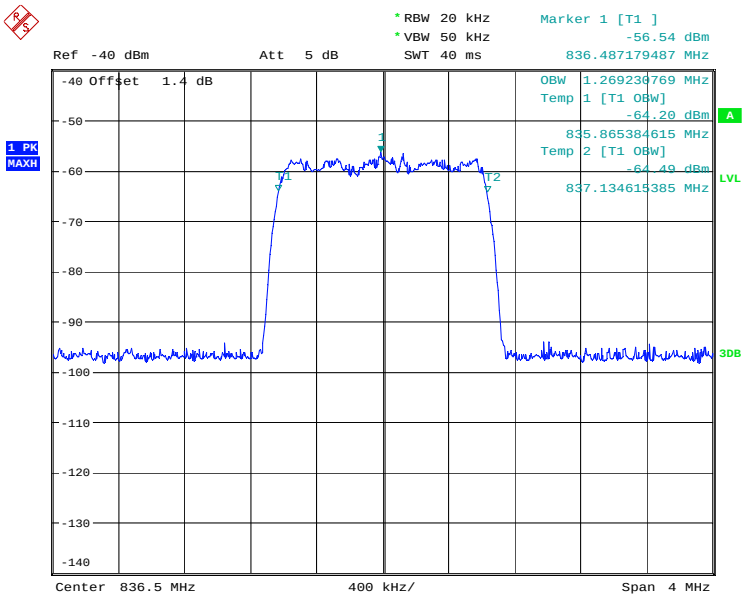
Cellular—CDMA uplink(lowest frequency) -- Input



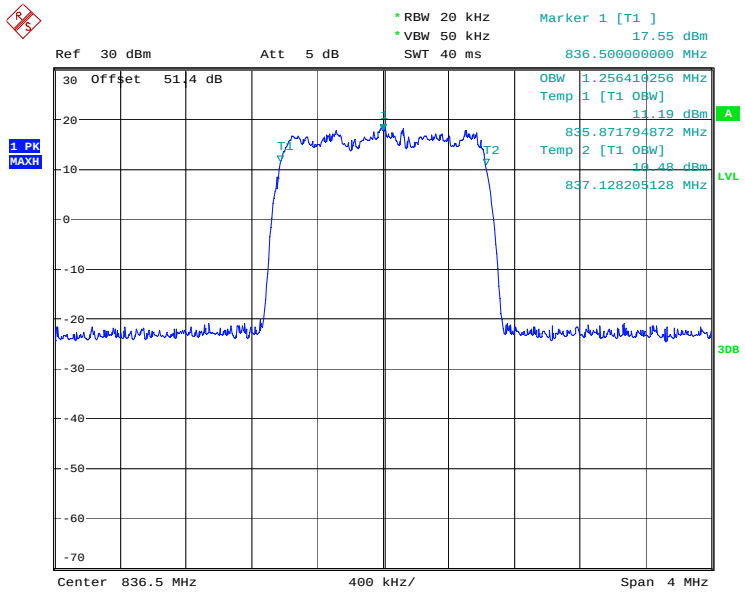
Cellular—CDMA uplink(lowest frequency)-- Output



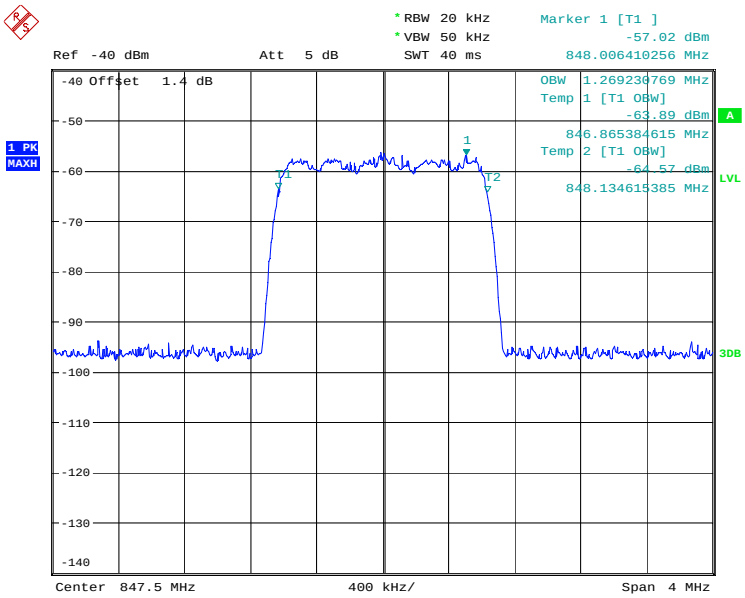
Cellular—CDMA uplink (middle frequency)-- Input



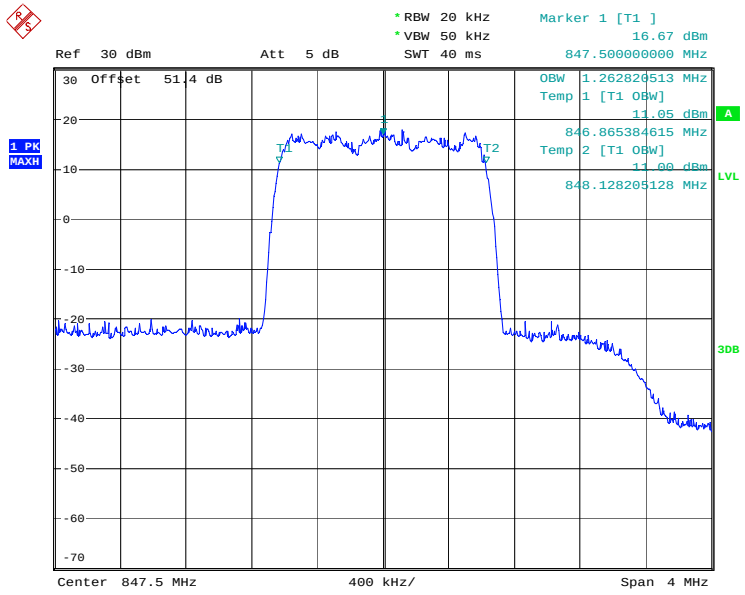
Cellular—CDMA uplink (middle frequency)-- Output



Cellular— CDMA uplink (highest frequency)—Input



Cellular—CDMA uplink (highest frequency)--Output

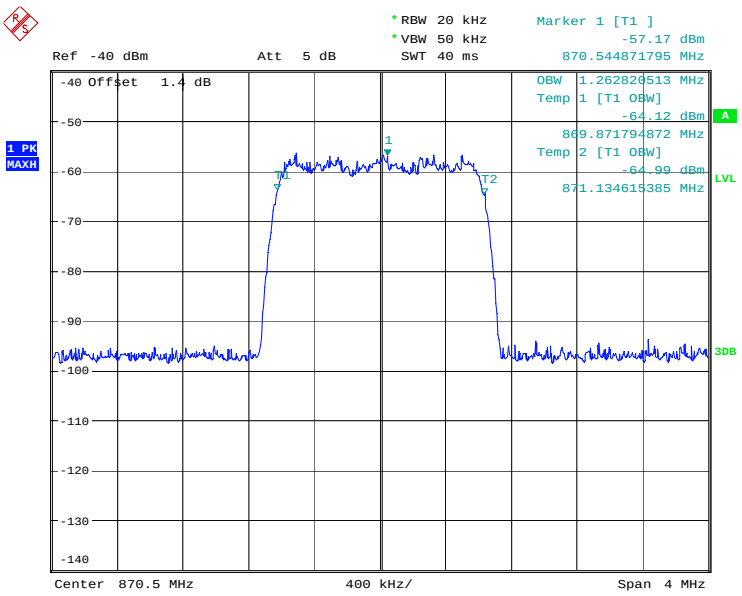


7.2.5.1.2 RD-8132 (40)

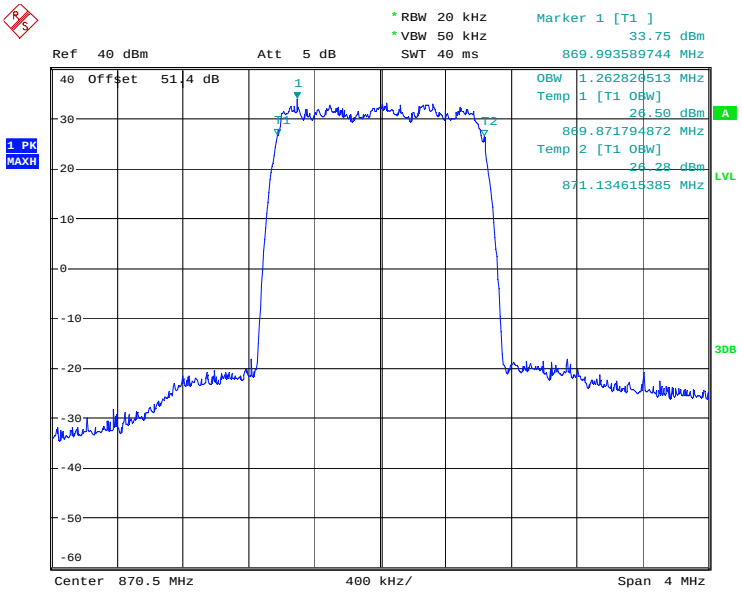
Test in Band 1:

Test for Downlink:

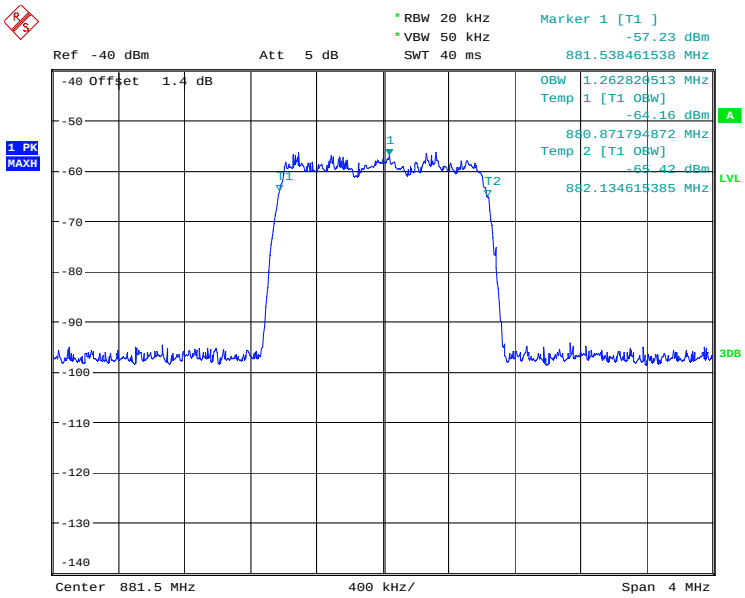
Cellular—CDMA downlink(lowest frequency) -- Input



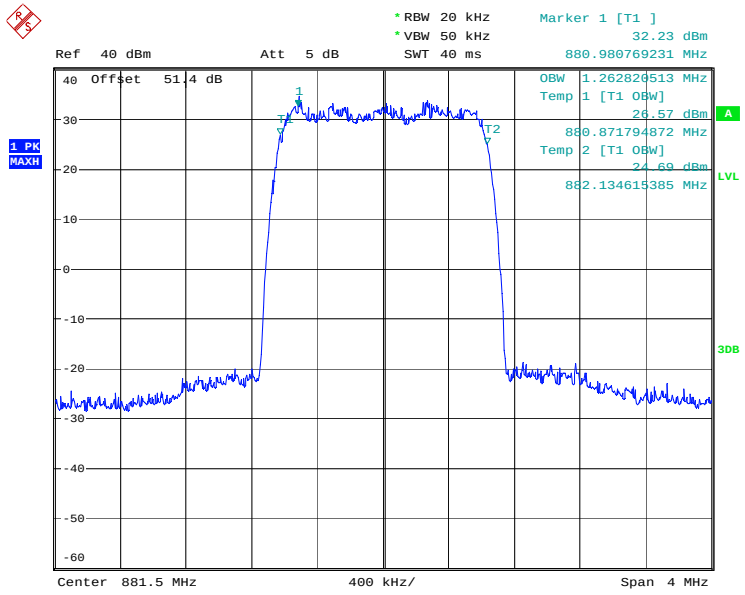
Cellular—CDMA downlink(lowest frequency)-- Output



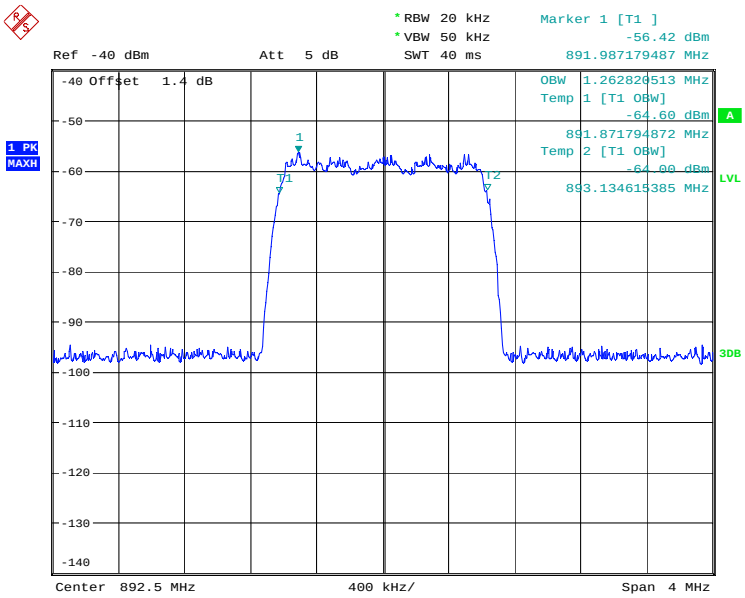
Cellular—CDMA downlink (middle frequency)-- Input



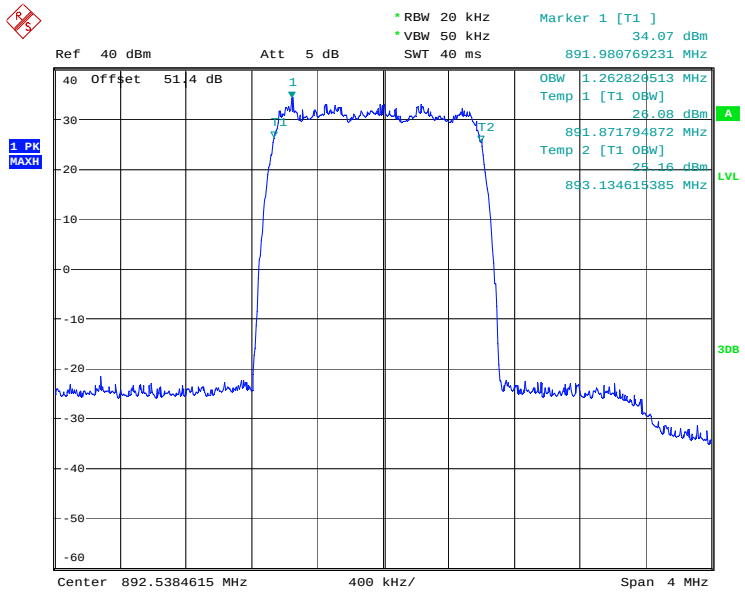
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

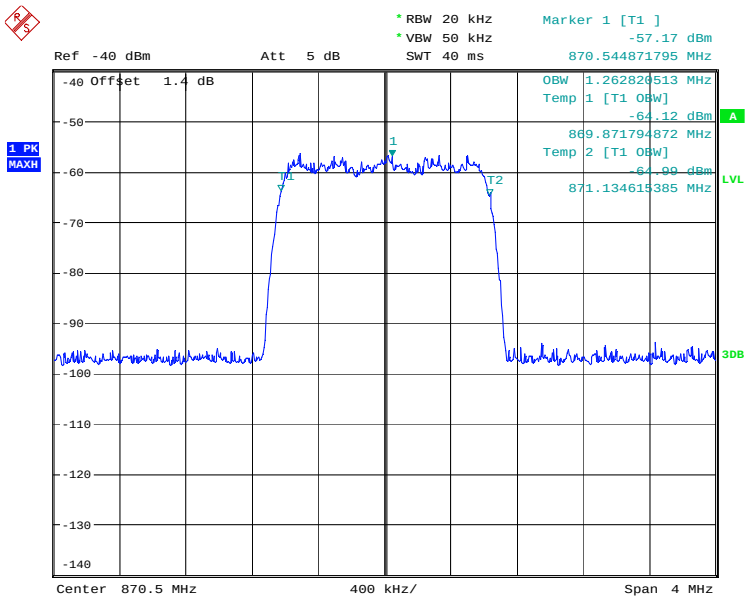


Cellular—CDMA downlink (highest frequency)--Output

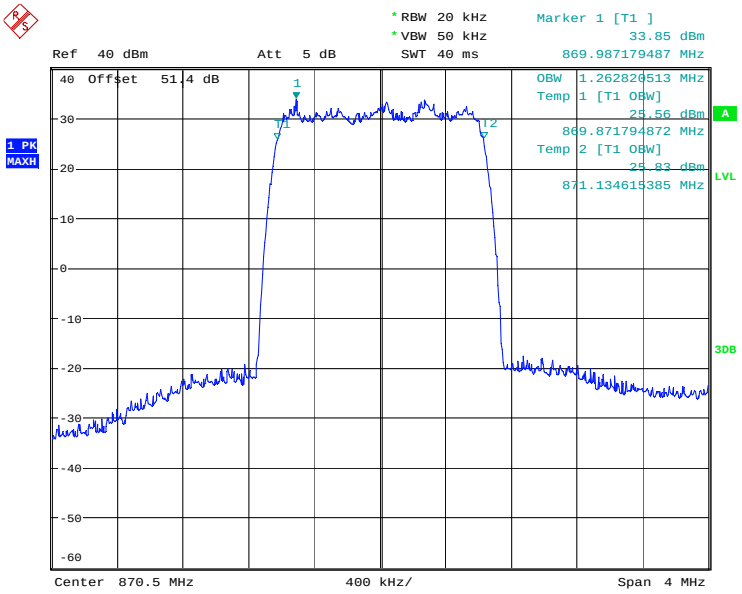


Test in Band 2:
Test for Downlink:

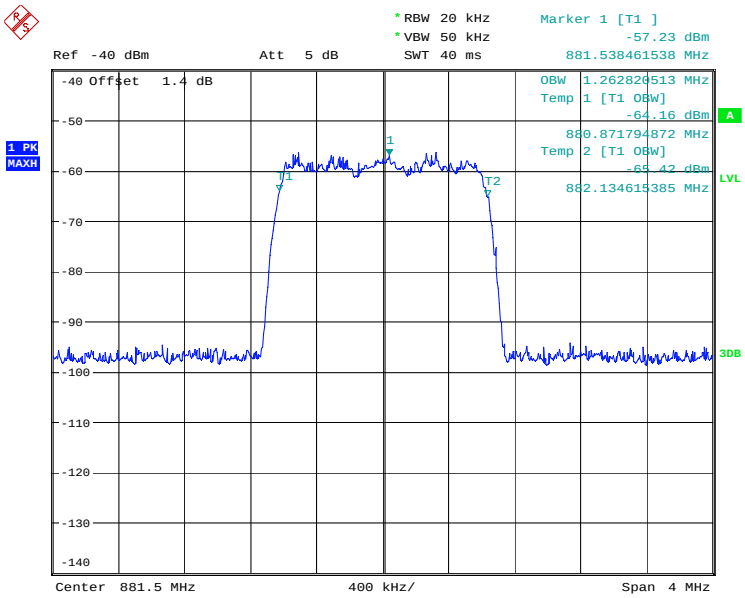
Cellular—CDMA downlink(lowest frequency) -- Input



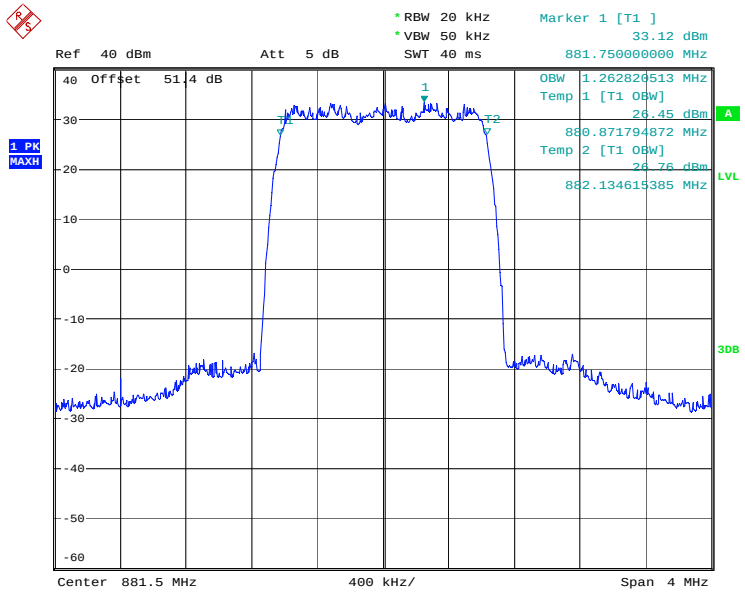
Cellular—CDMA downlink(lowest frequency)-- Output



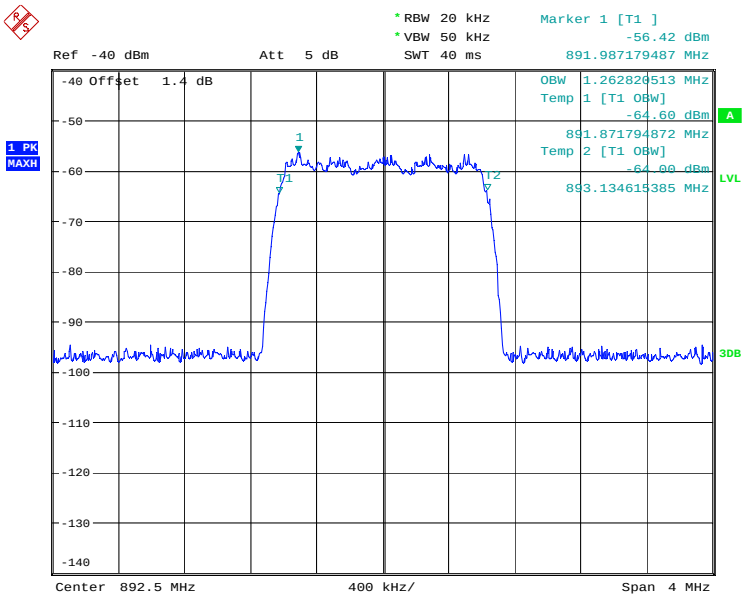
Cellular—CDMA downlink (middle frequency)-- Input



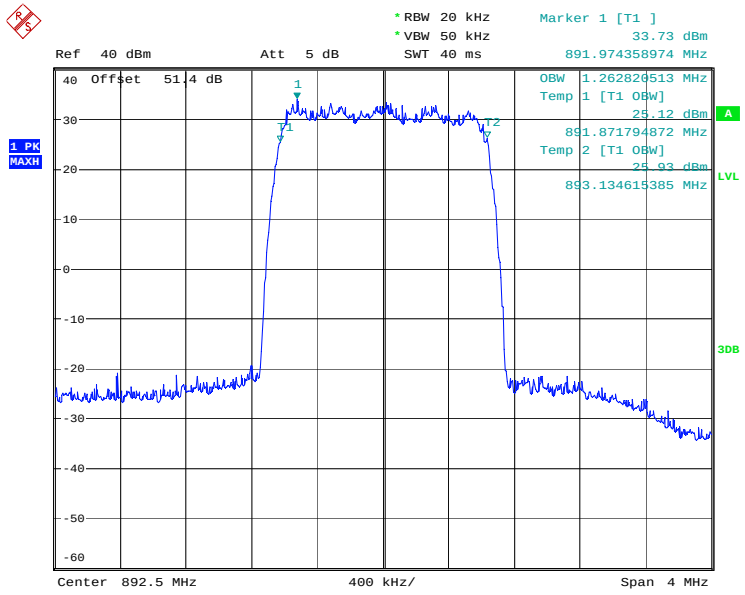
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (40) for Uplink:

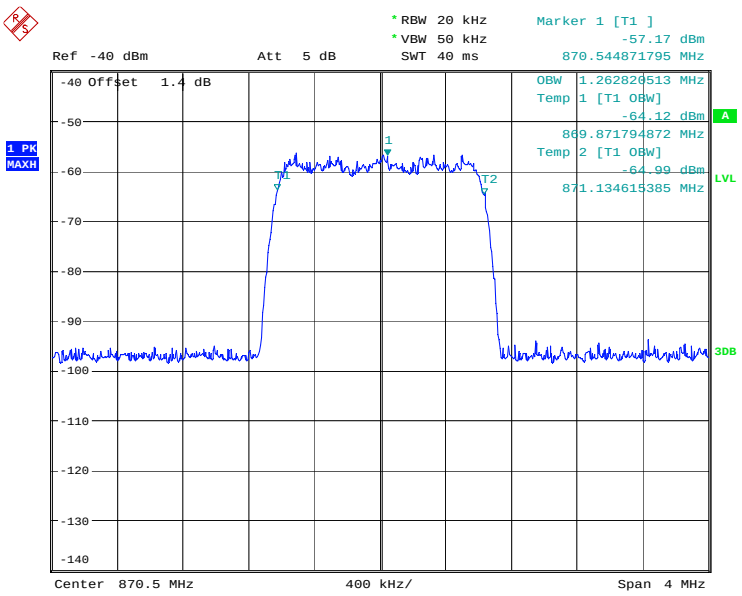
As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.5.1.3 RD-8132 (37)

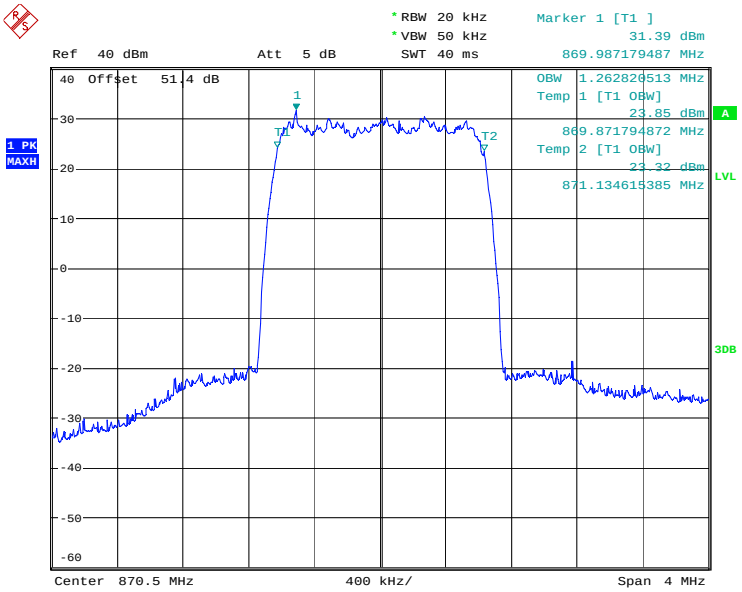
Test in Band 1:

Test for Downlink:

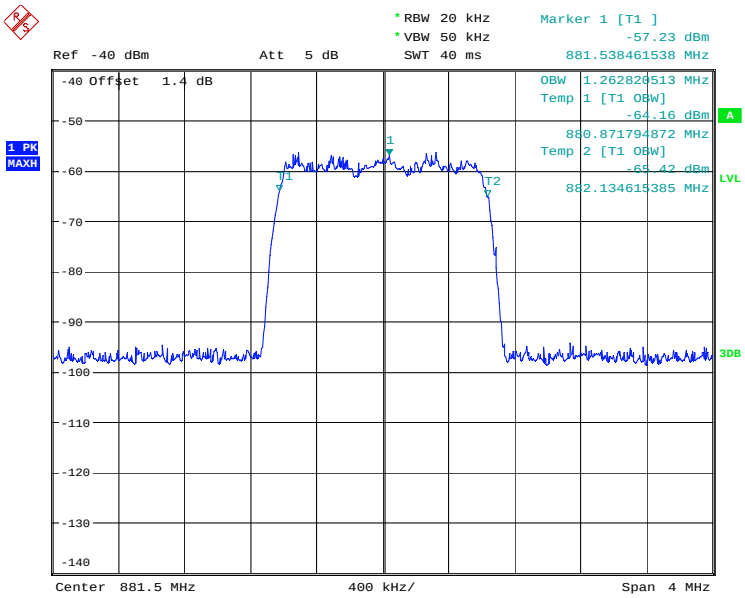
Cellular—CDMA downlink(lowest frequency) -- Input



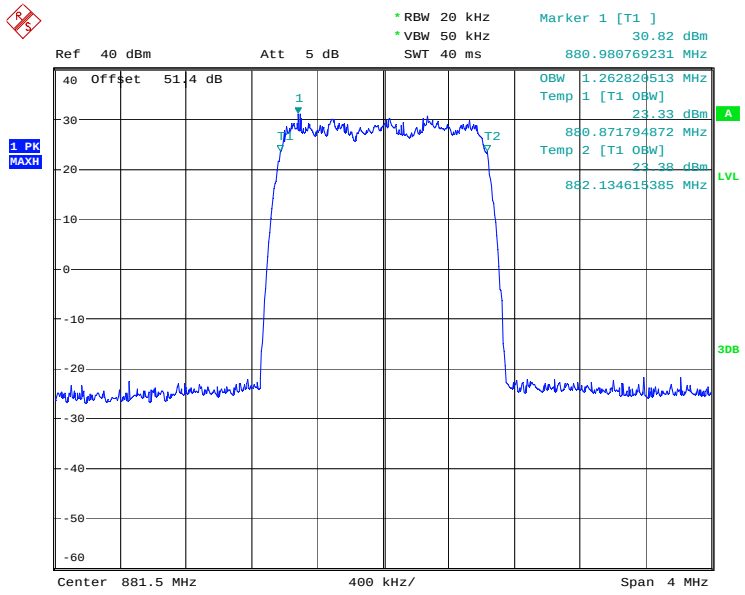
Cellular—CDMA downlink(lowest frequency)-- Output



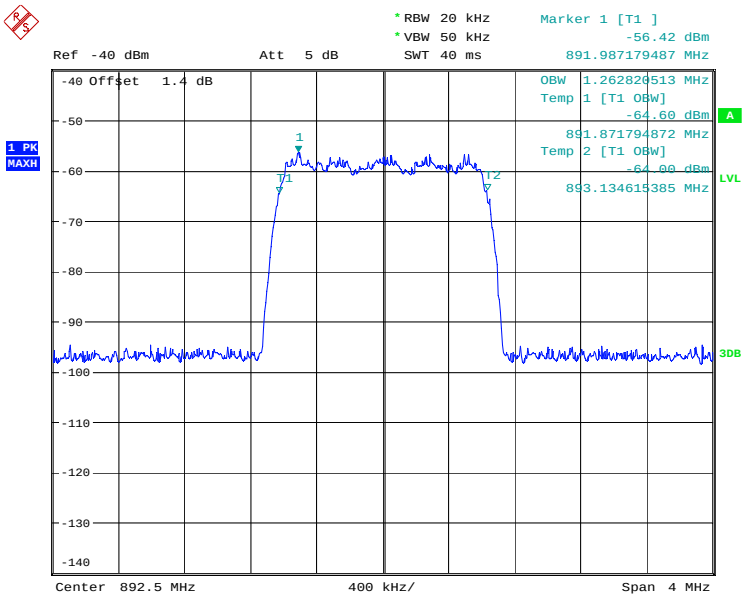
Cellular—CDMA downlink (middle frequency)-- Input



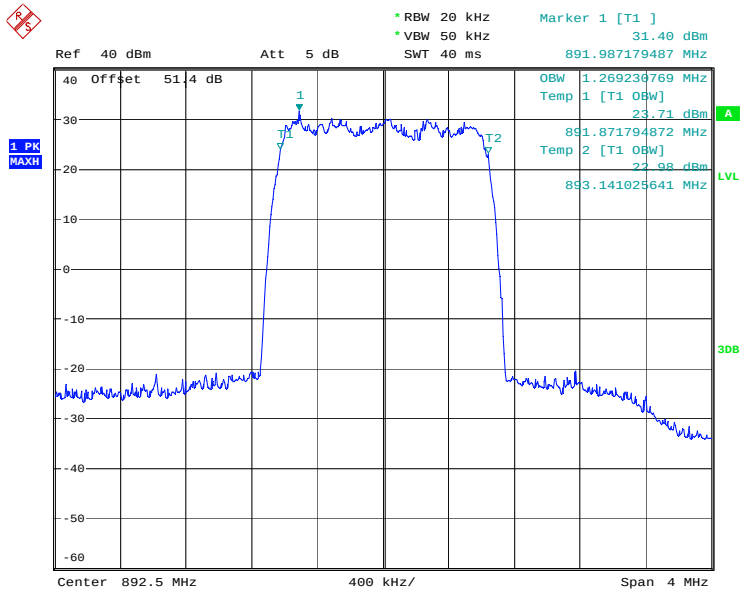
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

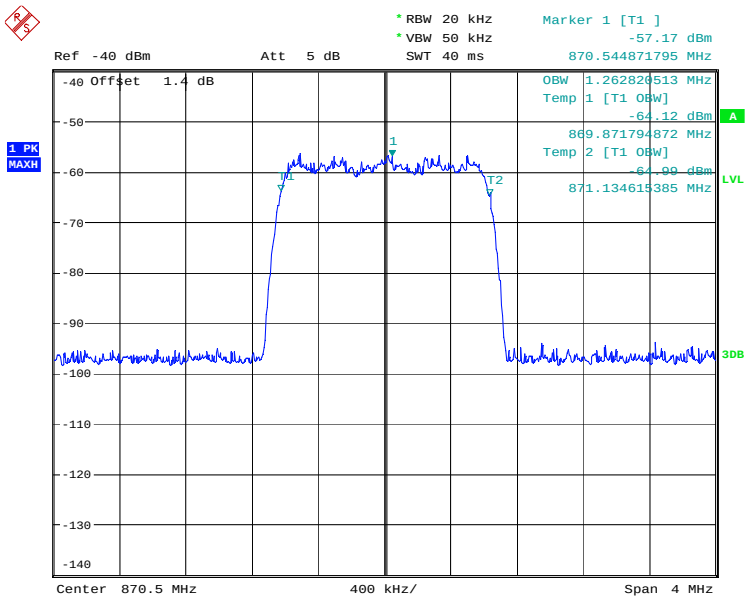


Cellular—CDMA downlink (highest frequency)--Output

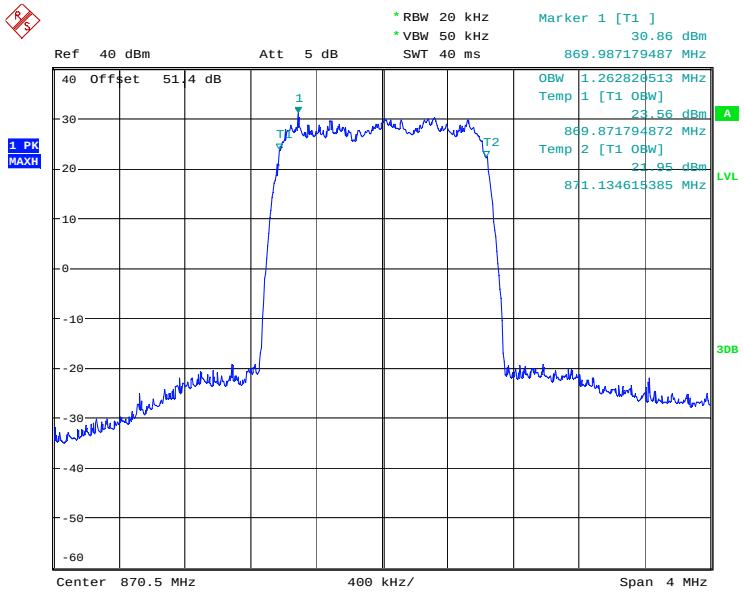


Test in Band 2:
Test for Downlink:

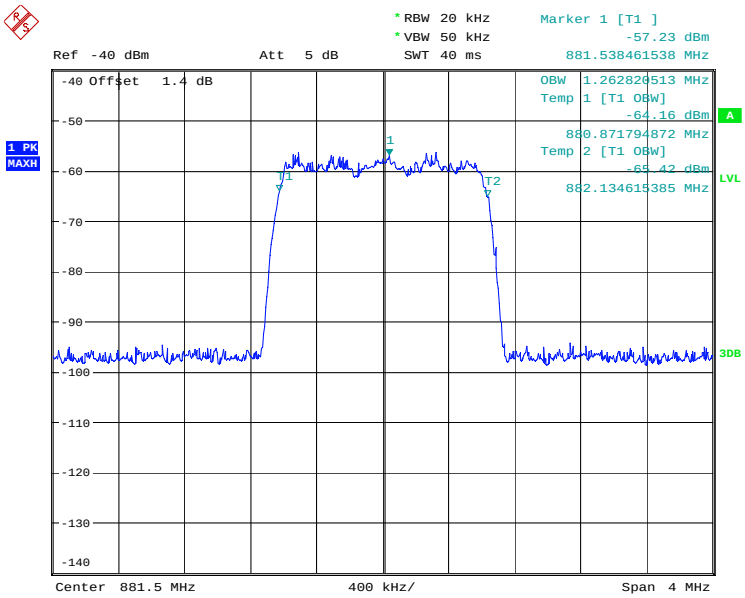
Cellular—CDMA downlink(lowest frequency) -- Input



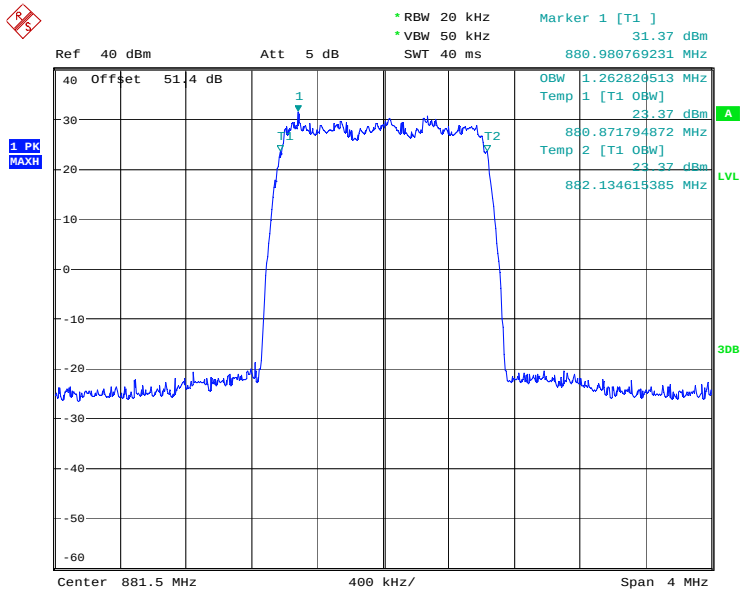
Cellular—CDMA downlink(lowest frequency)-- Output



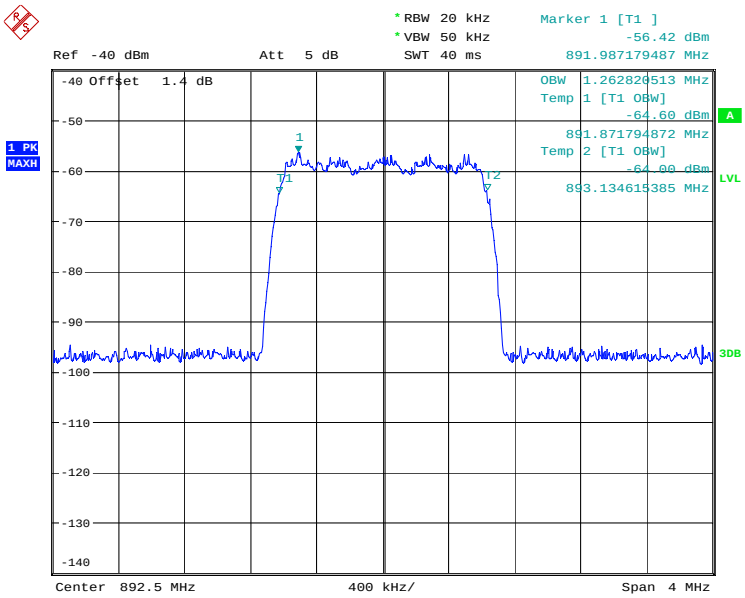
Cellular—CDMA downlink (middle frequency)-- Input



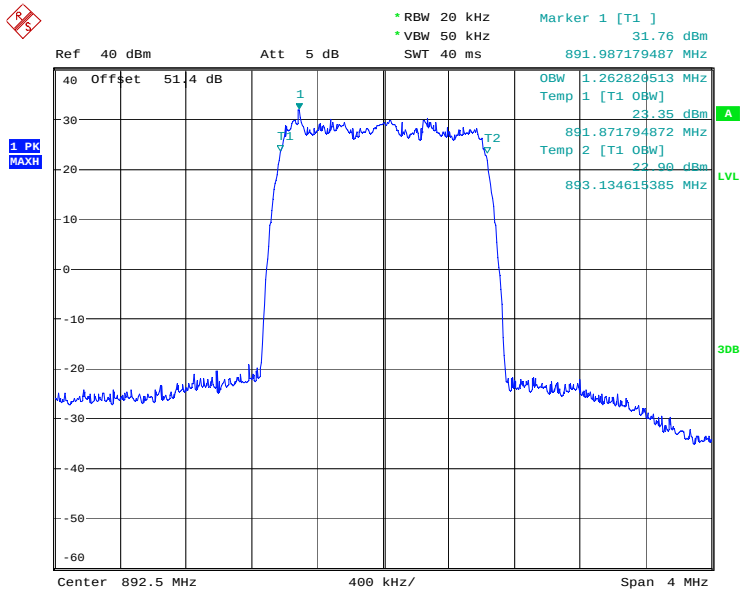
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (37) for Uplink:

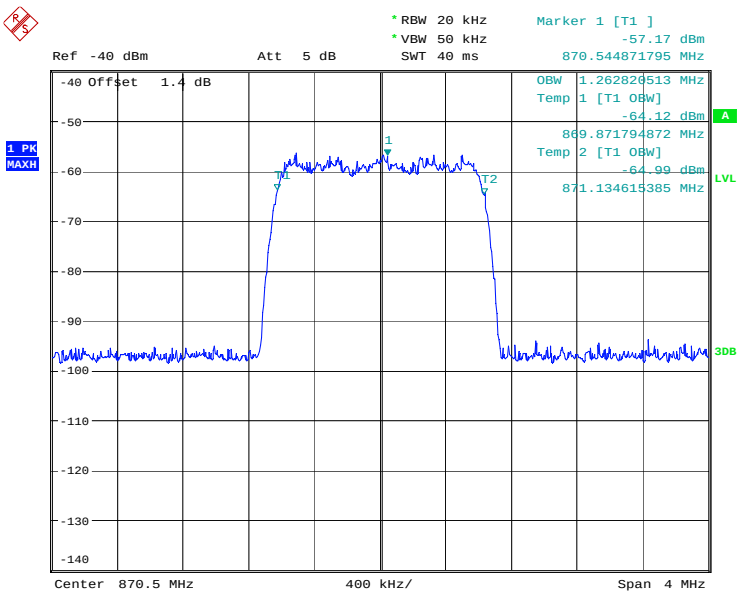
As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.5.1.4 RD-8132 (33)

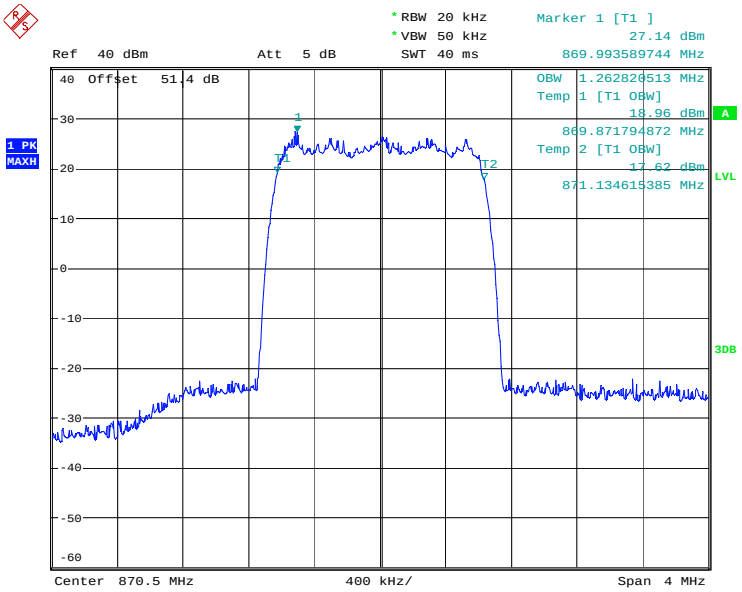
Test in Band 1:

Test for Downlink:

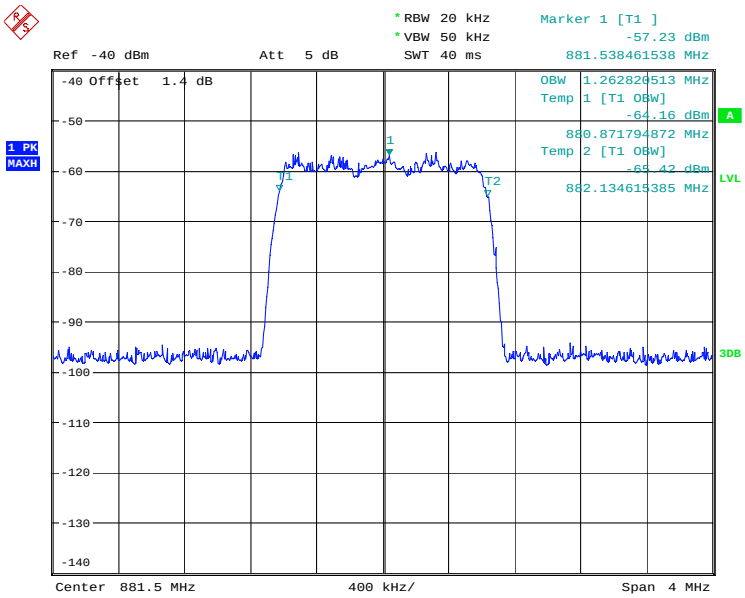
Cellular—CDMA downlink(lowest frequency) -- Input



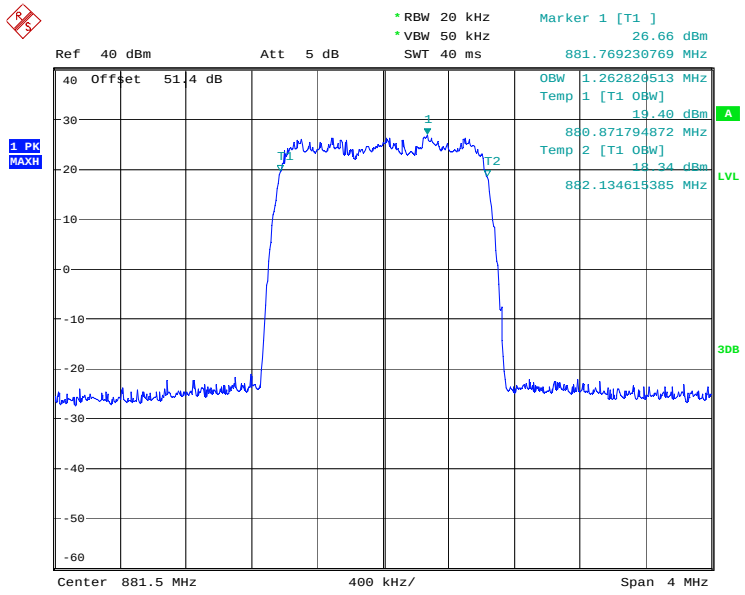
Cellular—CDMA downlink(lowest frequency)-- Output



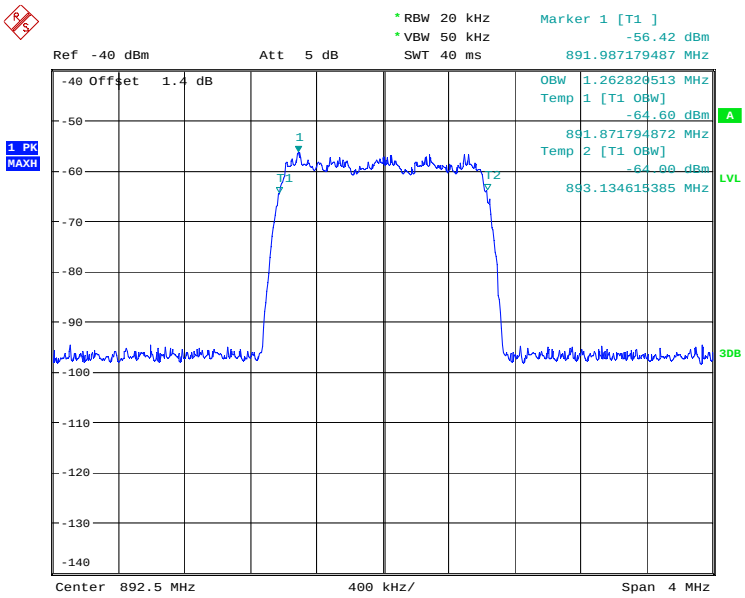
Cellular—CDMA downlink (middle frequency)-- Input



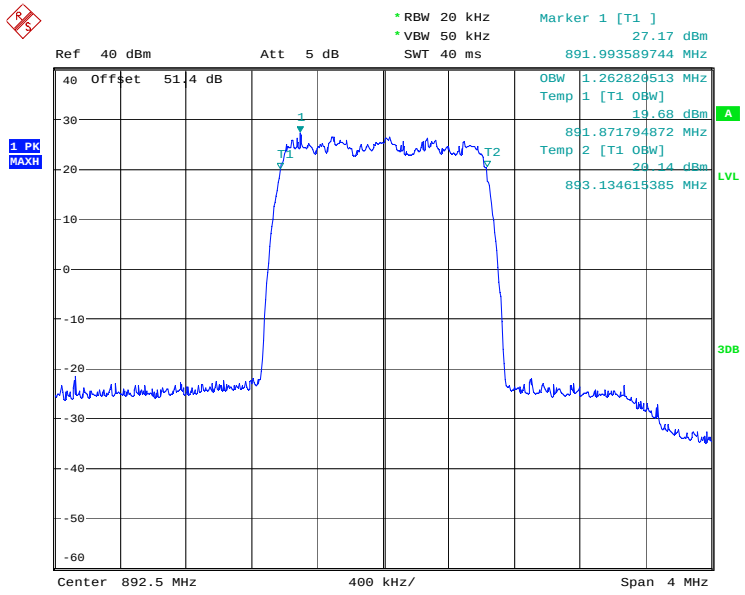
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

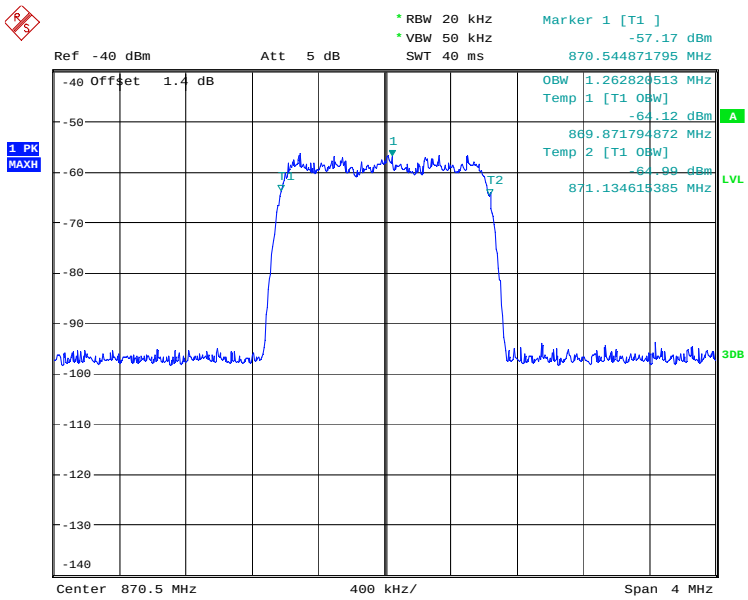


Cellular—CDMA downlink (highest frequency)--Output

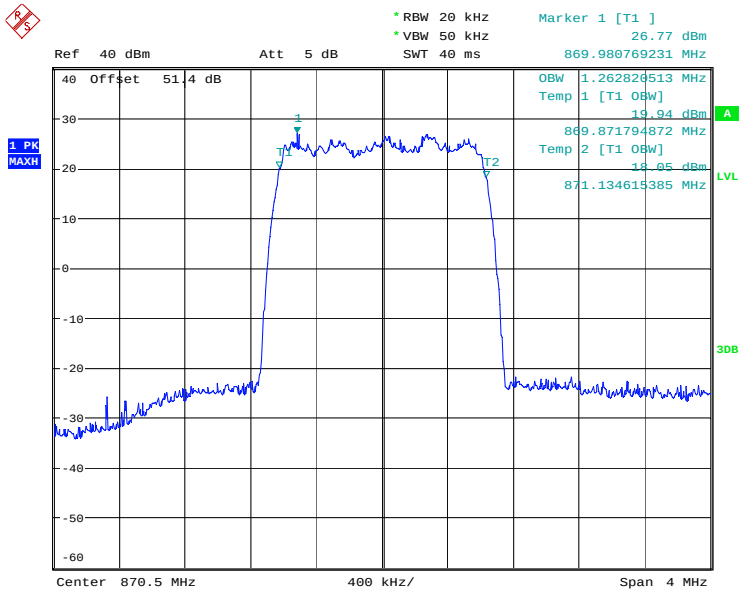


Test in Band 2:
Test for Downlink:

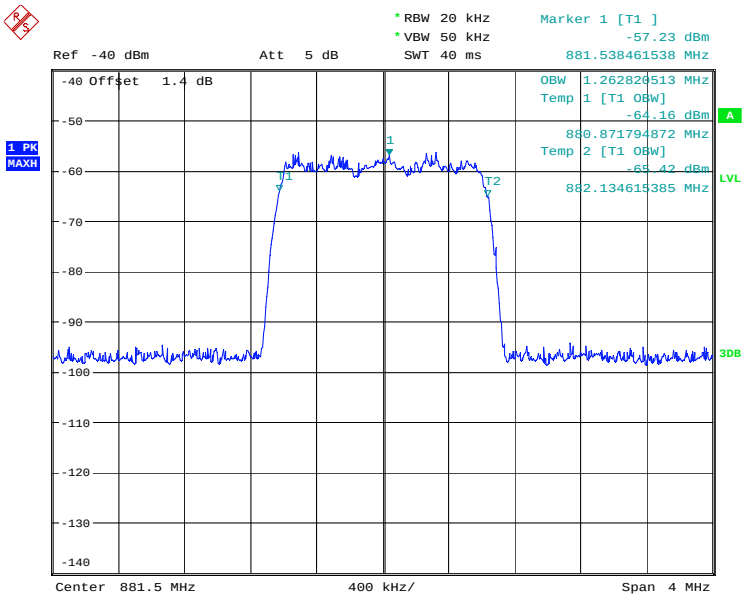
Cellular—CDMA downlink(lowest frequency) -- Input



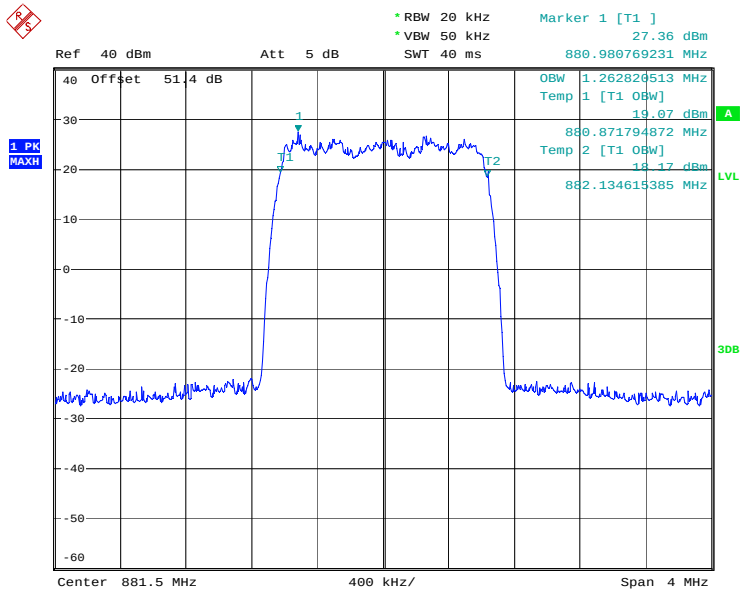
Cellular—CDMA downlink(lowest frequency)-- Output



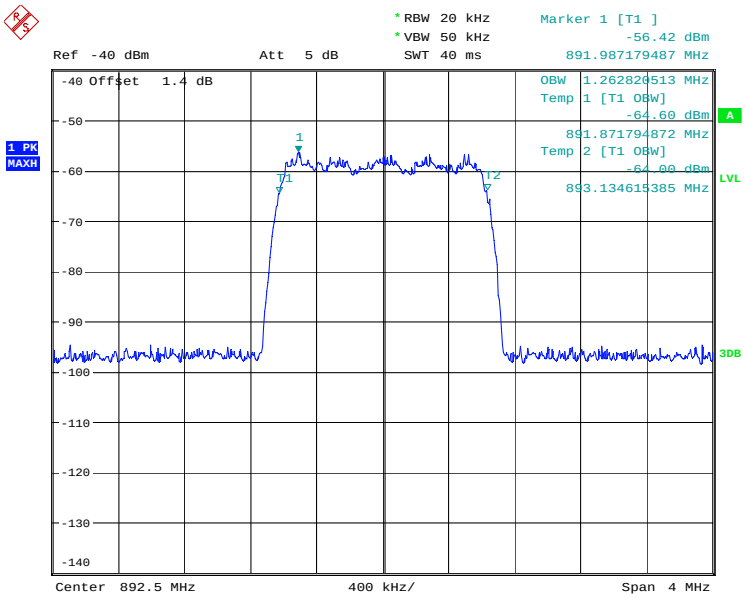
Cellular—CDMA downlink (middle frequency)-- Input



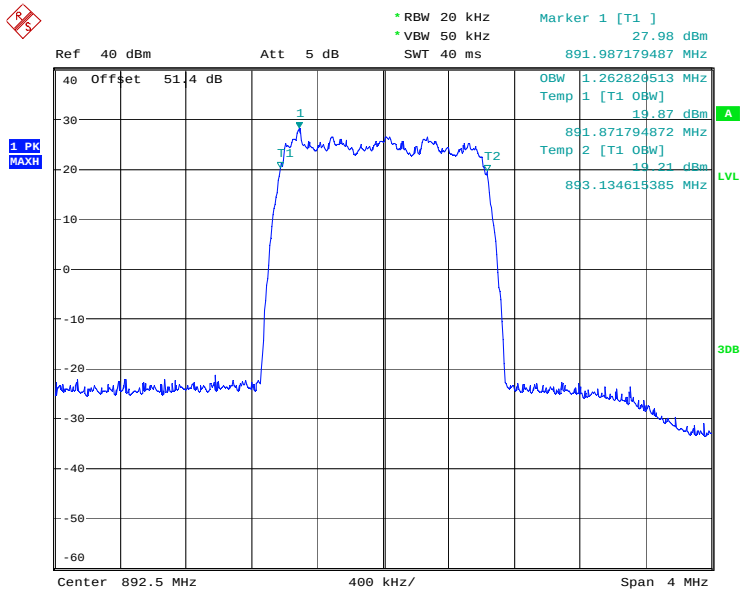
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (33) for Uplink:

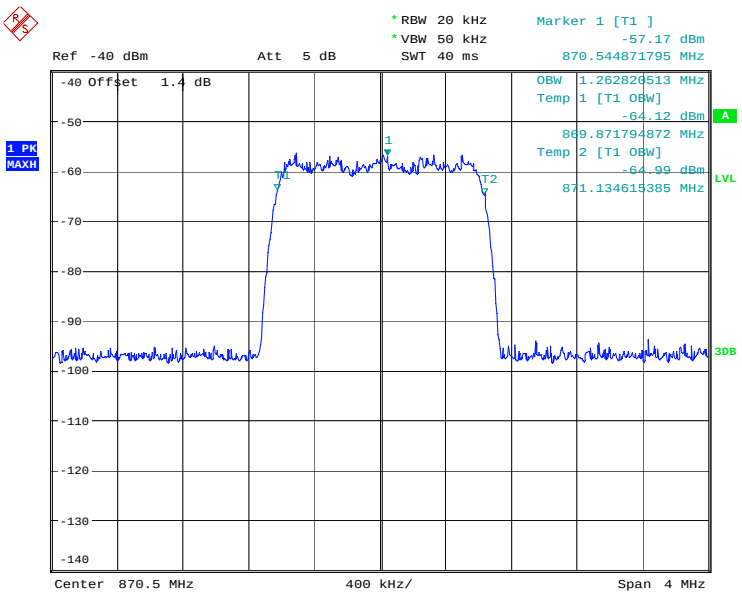
As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.5.1.5 RD-8132 (30)

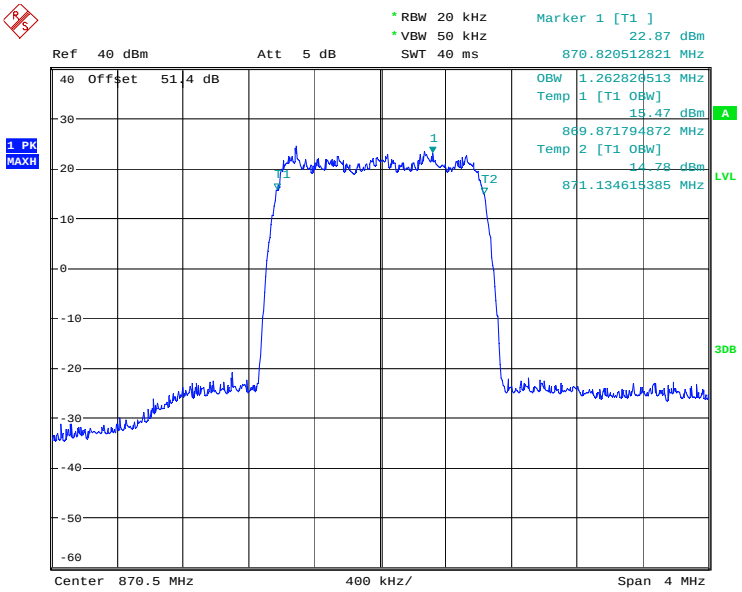
Test in Band 1:

Test for Downlink:

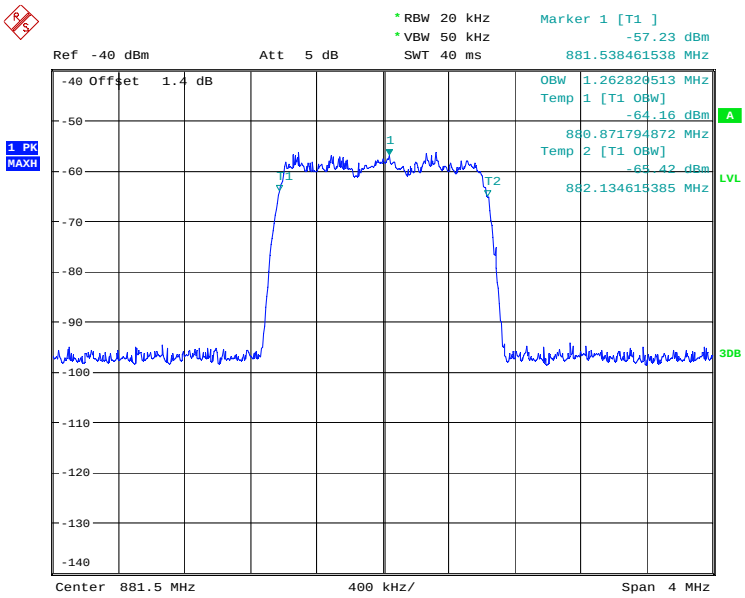
Cellular—CDMA downlink(lowest frequency) -- Input



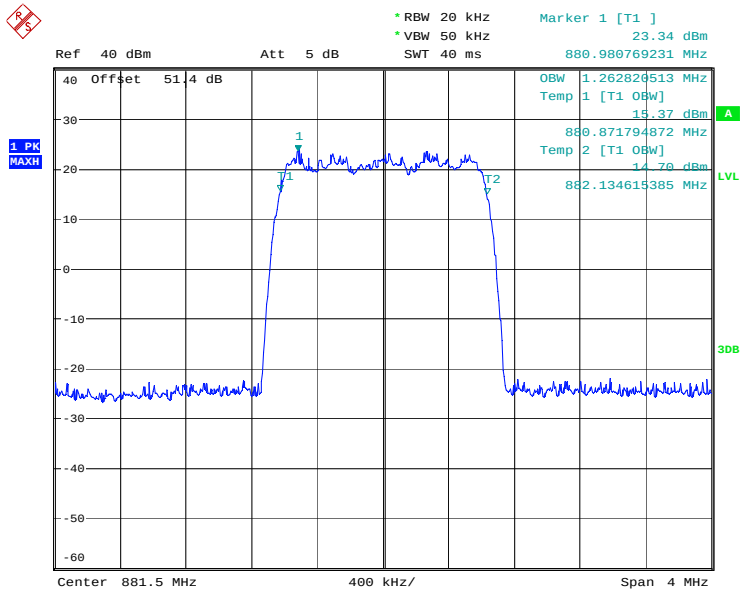
Cellular—CDMA downlink(lowest frequency)-- Output



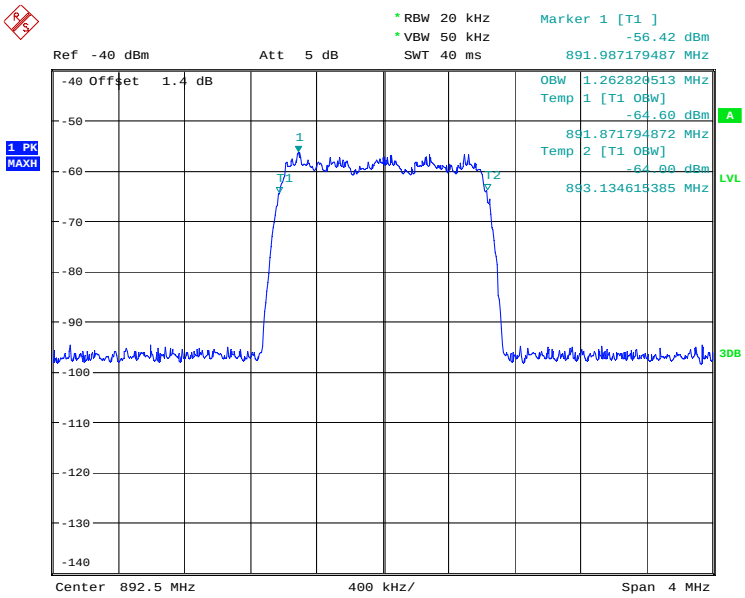
Cellular—CDMA downlink (middle frequency)-- Input



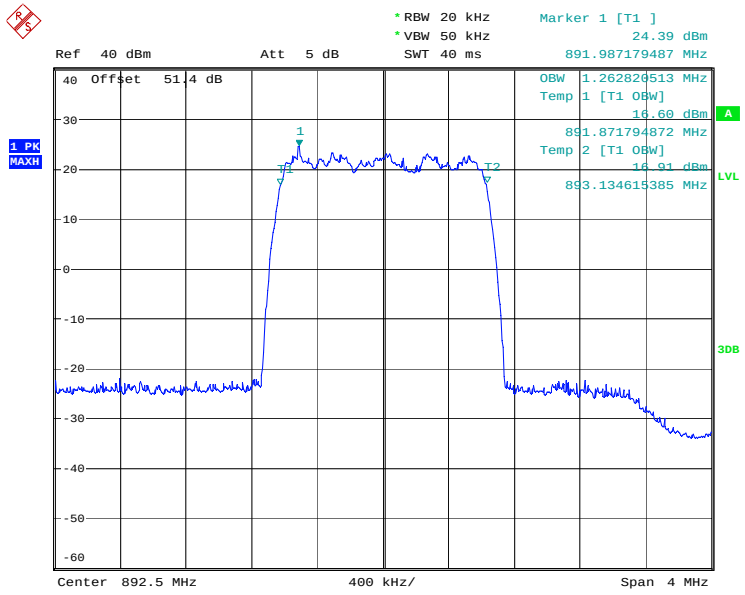
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

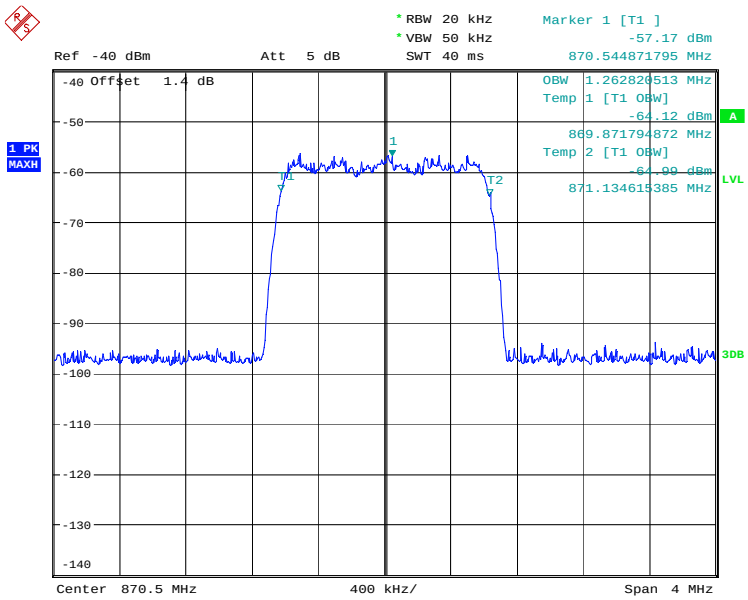


Cellular—CDMA downlink (highest frequency)--Output

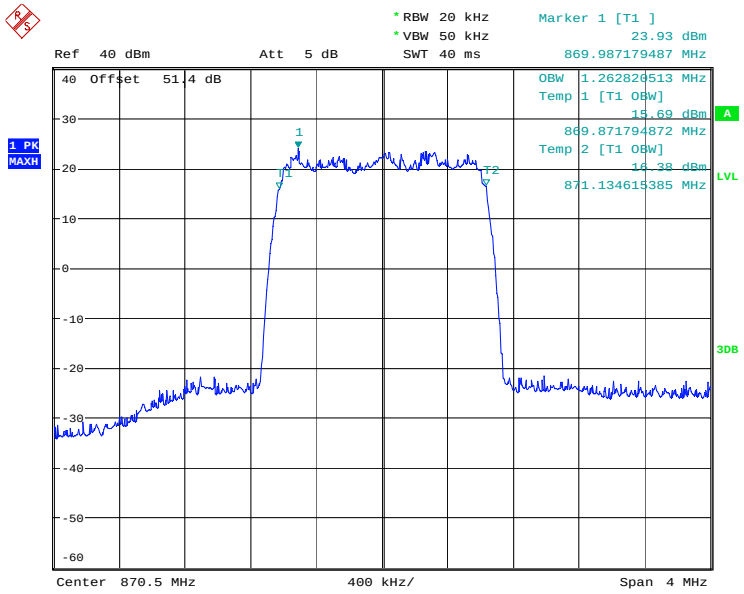


Test in Band 2:
Test for Downlink:

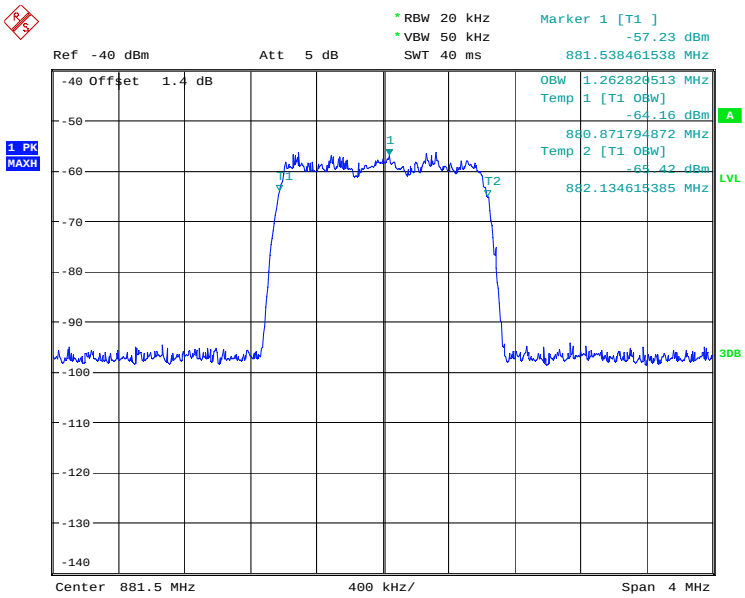
Cellular—CDMA downlink(lowest frequency) -- Input



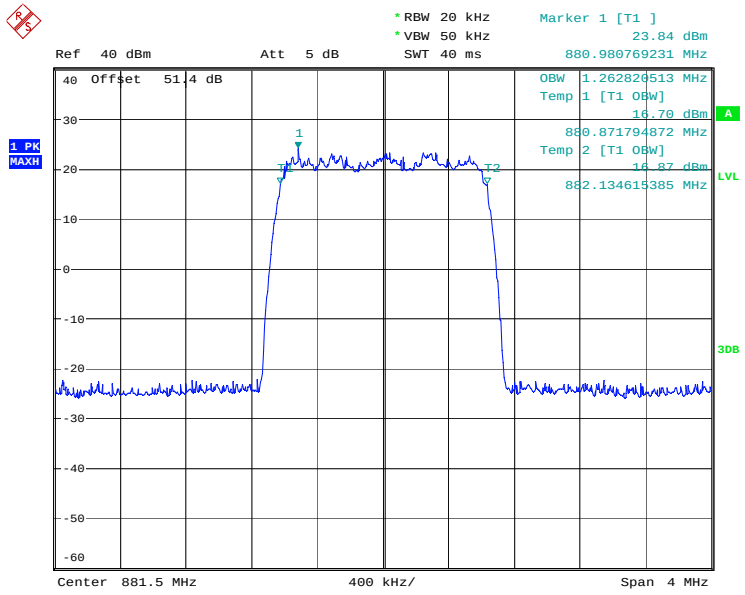
Cellular—CDMA downlink(lowest frequency)-- Output



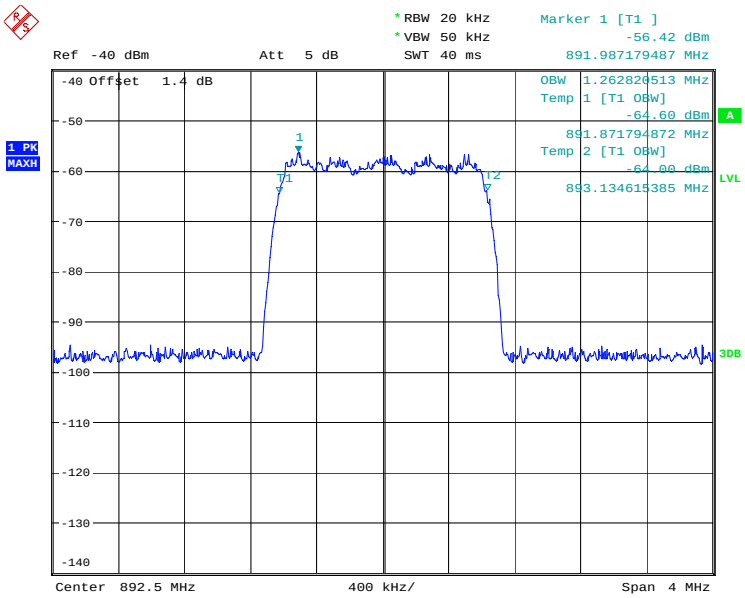
Cellular—CDMA downlink (middle frequency)-- Input



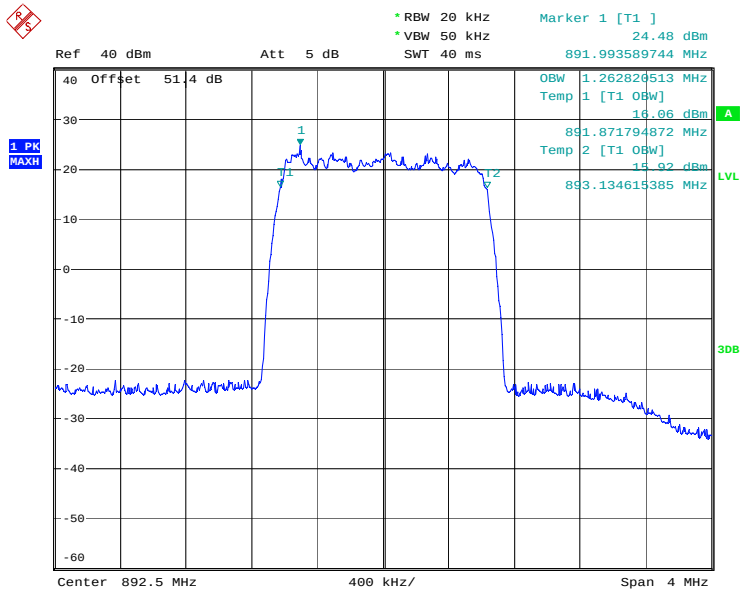
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (30) for Uplink:

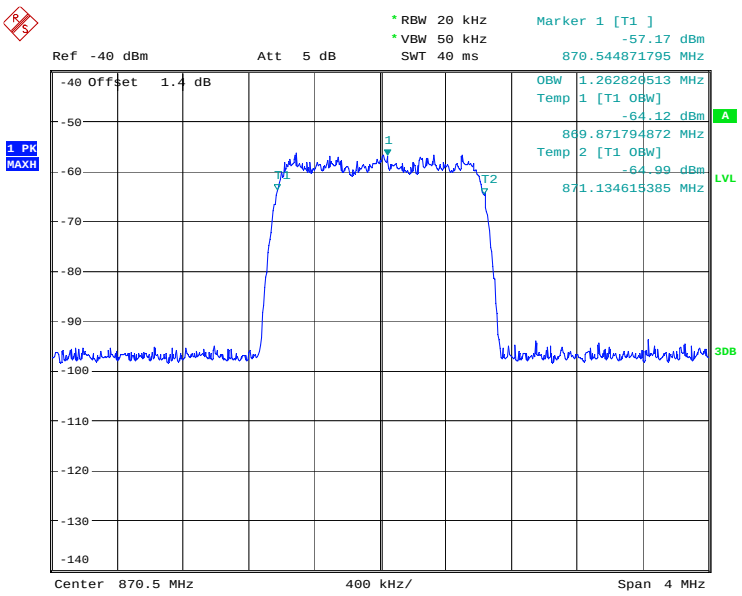
As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.5.1.6 RD-8132 (27)

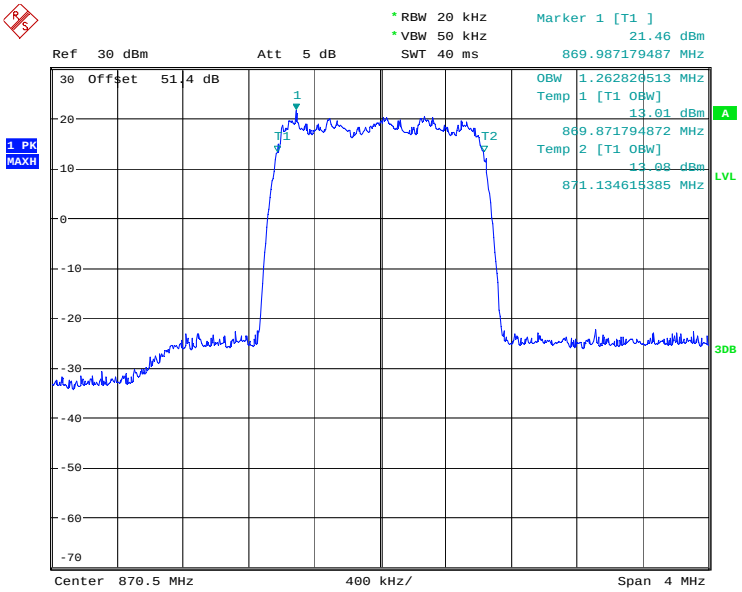
Test in Band 1:

Test for Downlink:

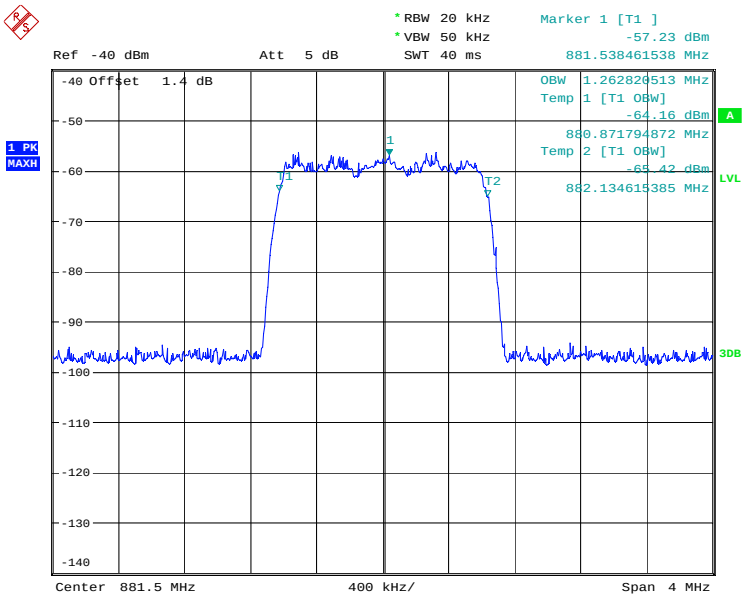
Cellular—CDMA downlink(lowest frequency) -- Input



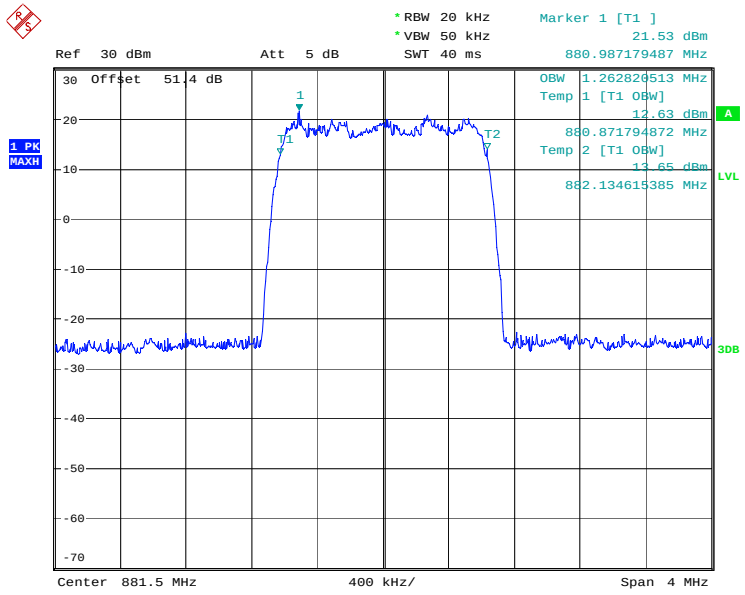
Cellular—CDMA downlink(lowest frequency)-- Output



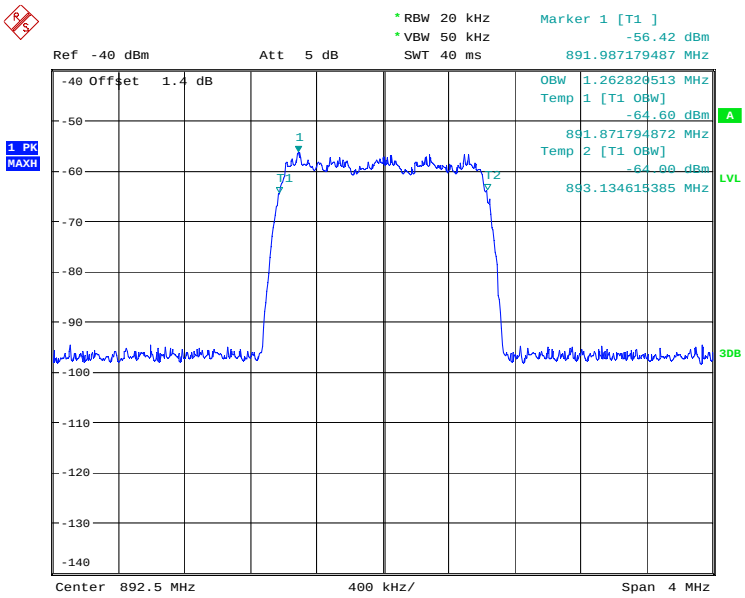
Cellular—CDMA downlink (middle frequency)-- Input



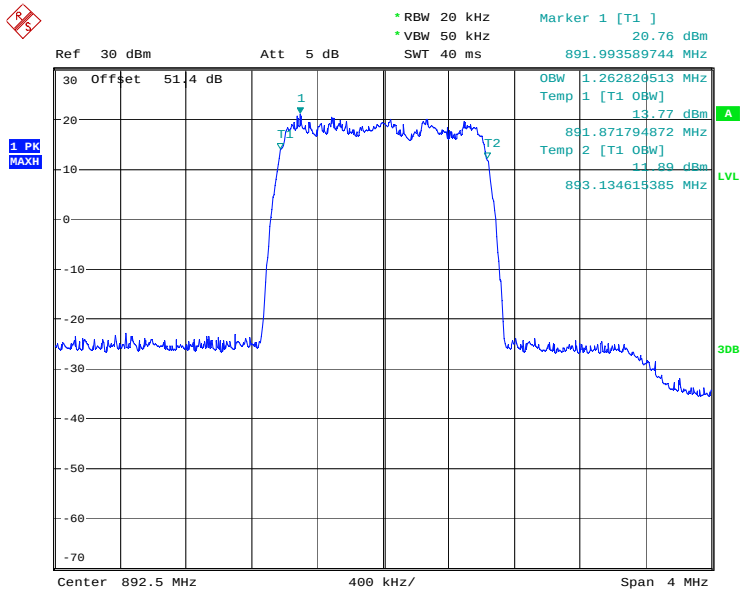
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

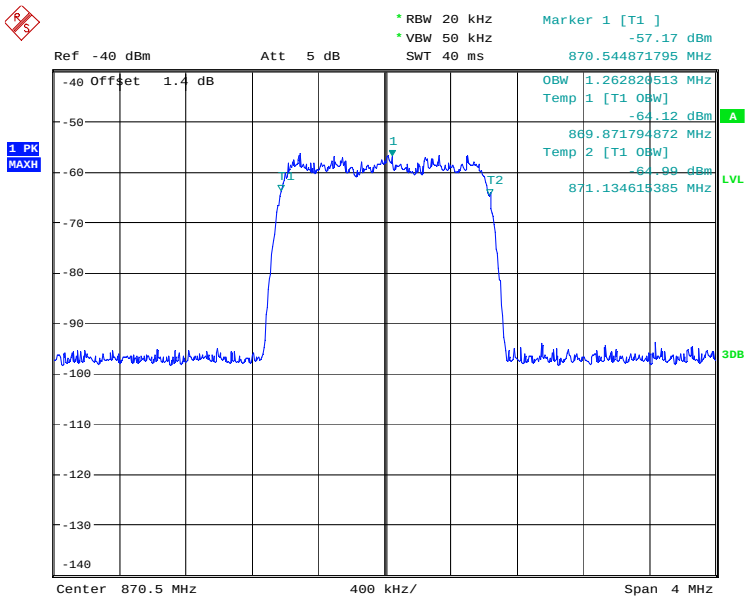


Cellular—CDMA downlink (highest frequency)--Output

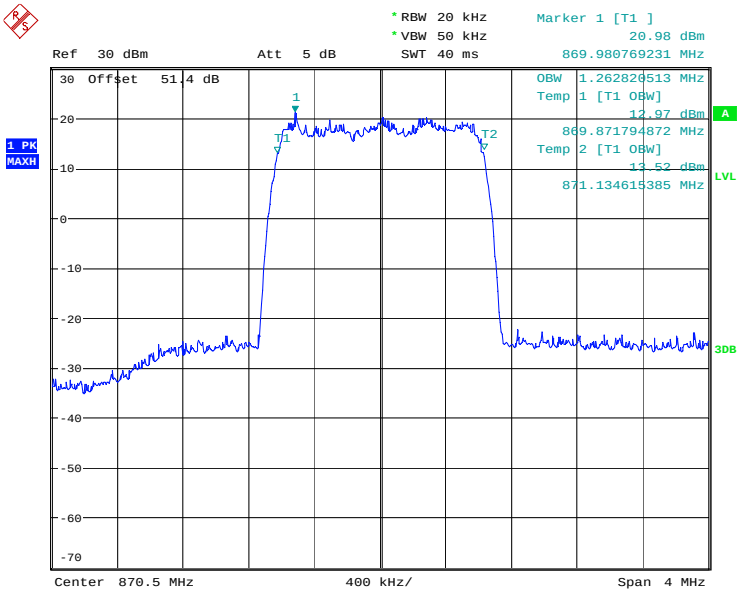


Test in Band 2:
Test for Downlink:

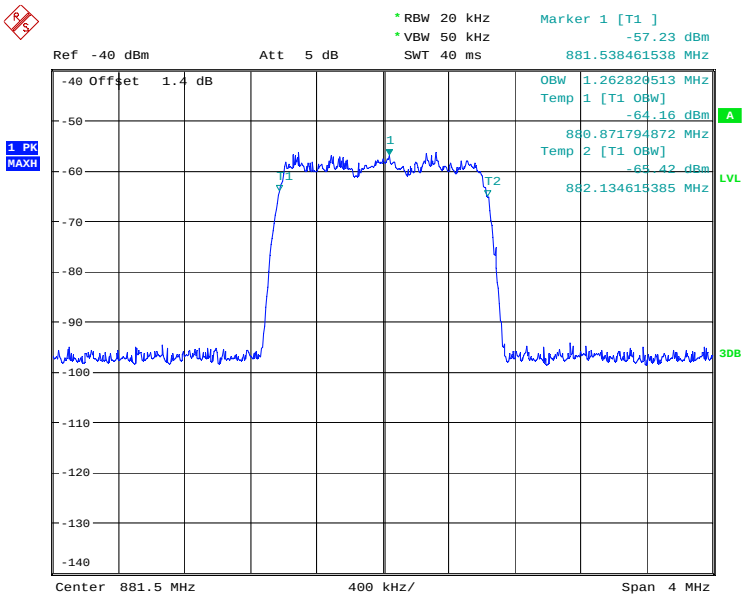
Cellular—CDMA downlink(lowest frequency) -- Input



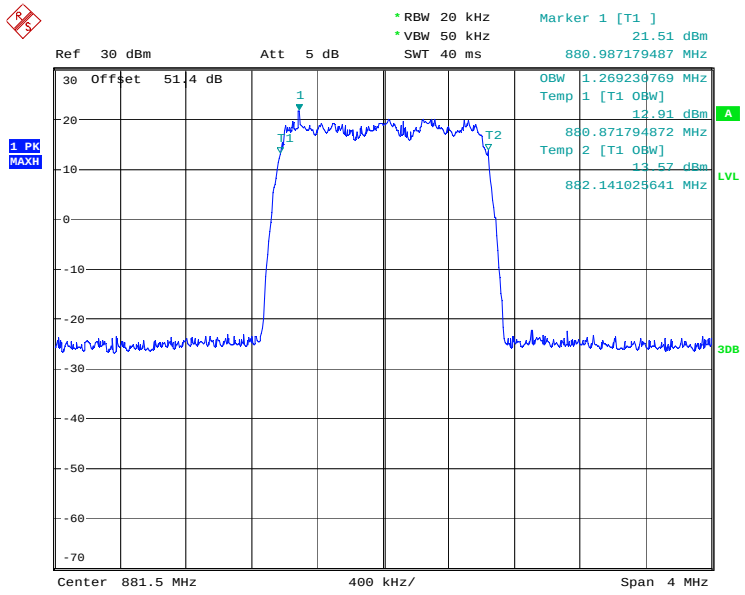
Cellular—CDMA downlink(lowest frequency)-- Output



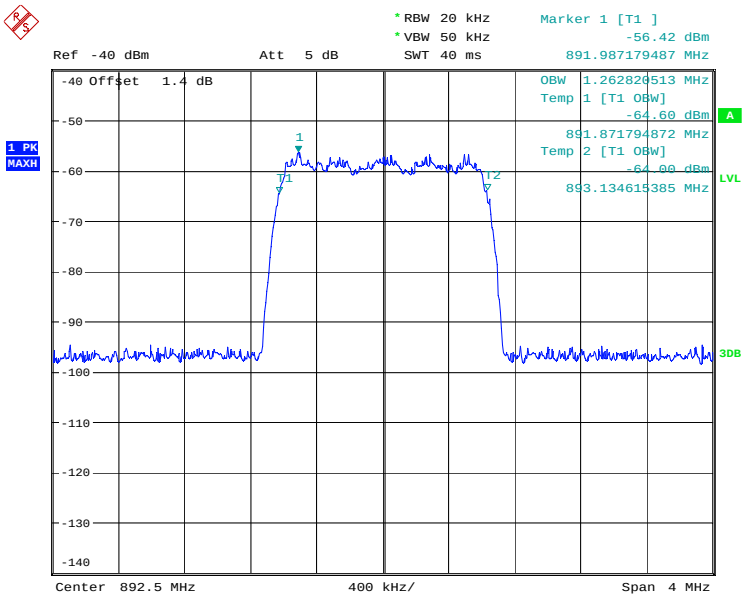
Cellular—CDMA downlink (middle frequency)-- Input



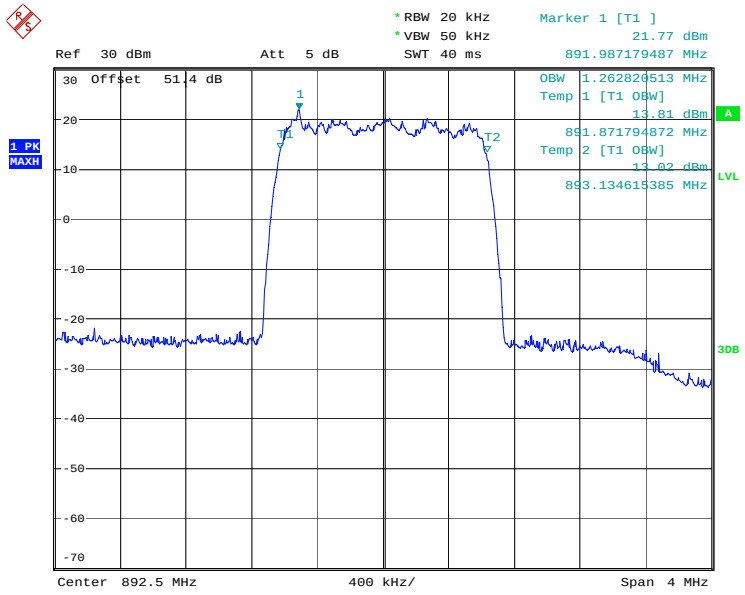
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (27) for Uplink:

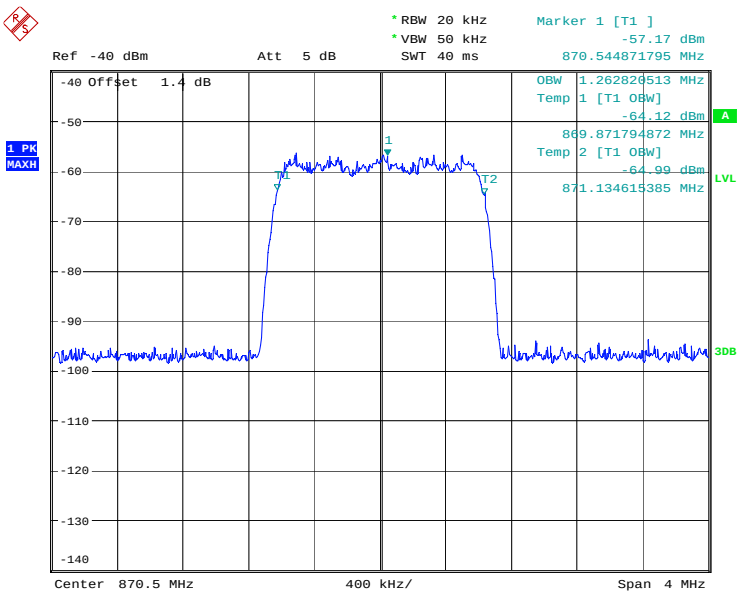
As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.5.1.7 RD-8132 (23)

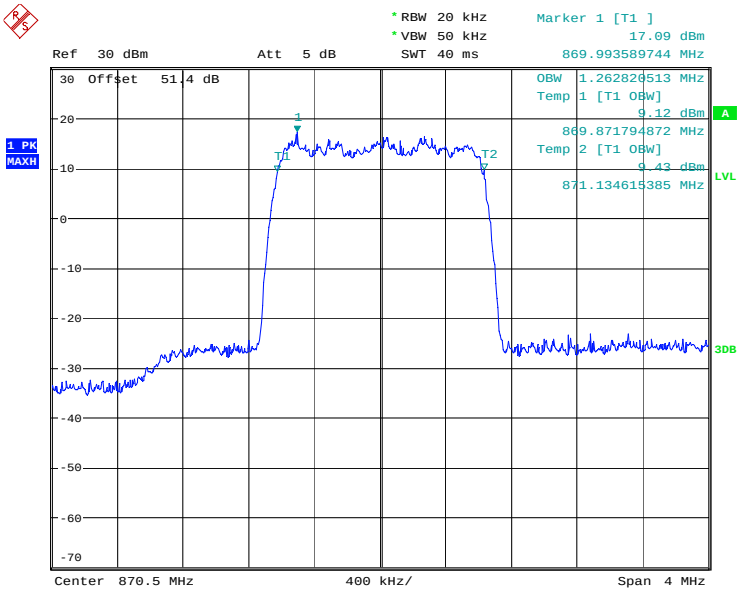
Test in Band 1:

Test for Downlink:

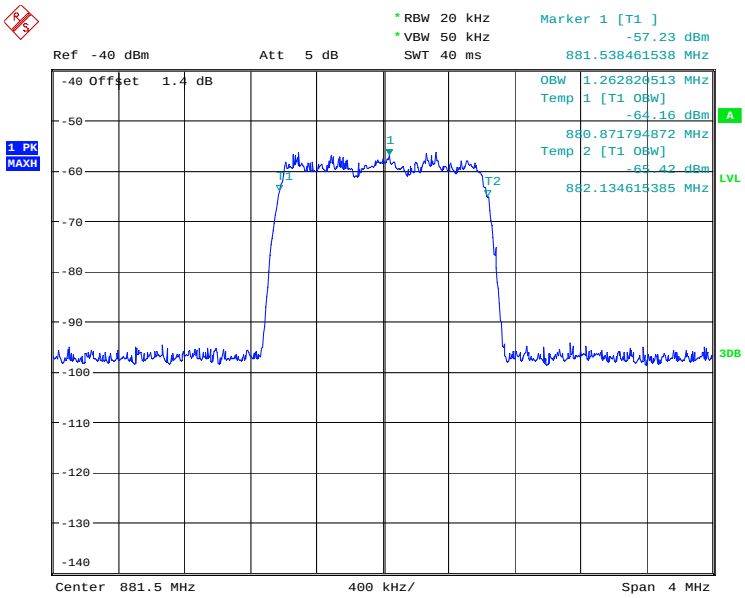
Cellular—CDMA downlink(lowest frequency) -- Input



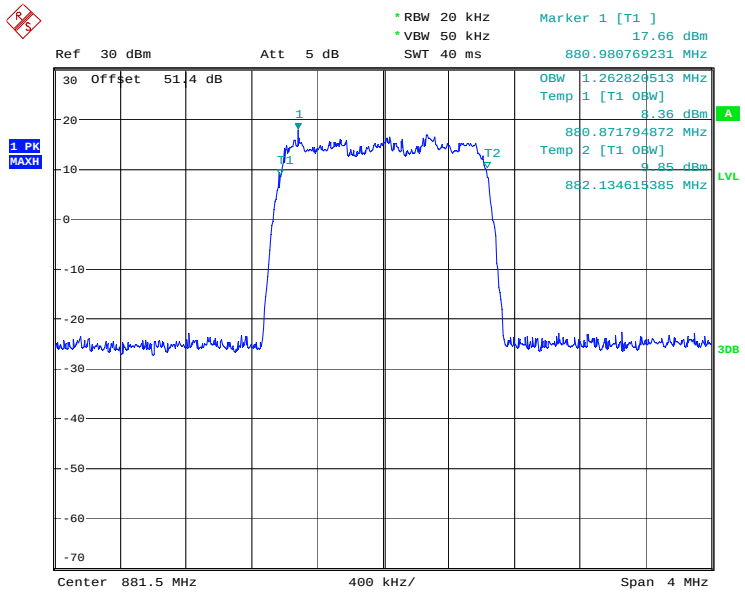
Cellular—CDMA downlink(lowest frequency)-- Output



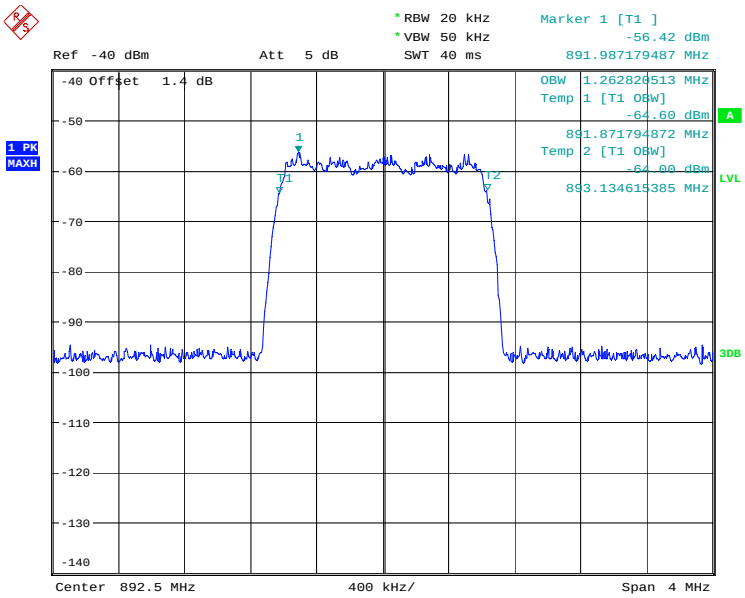
Cellular—CDMA downlink (middle frequency)-- Input



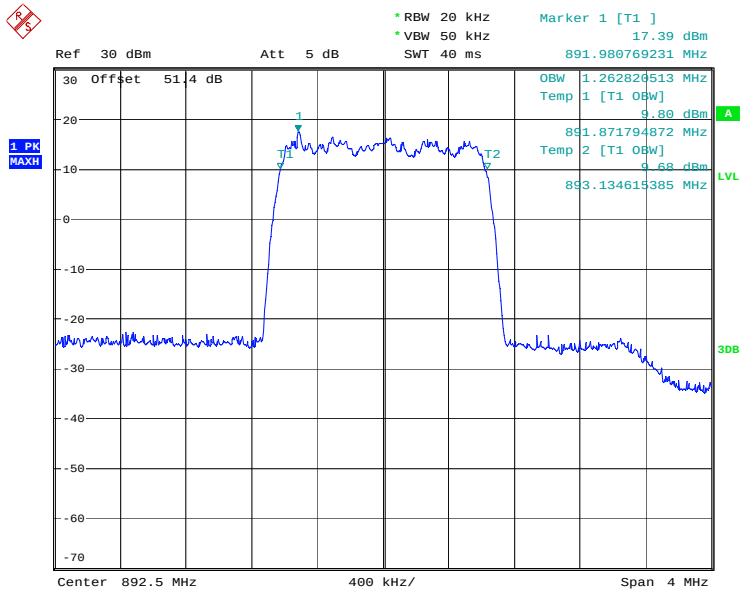
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

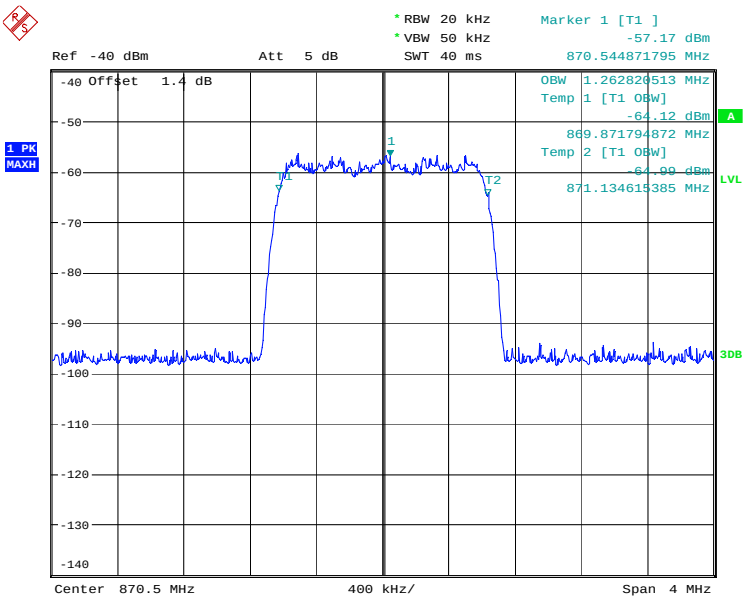


Cellular—CDMA downlink (highest frequency)--Output

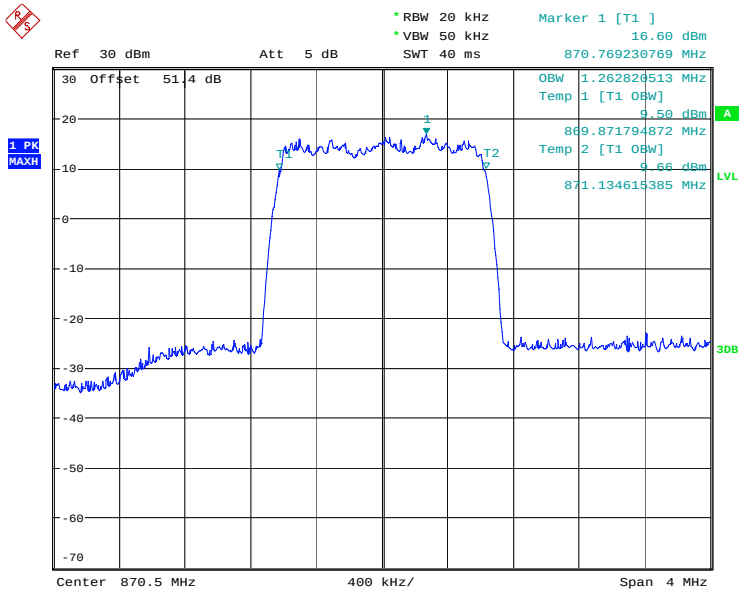


Test in Band 2:
Test for Downlink:

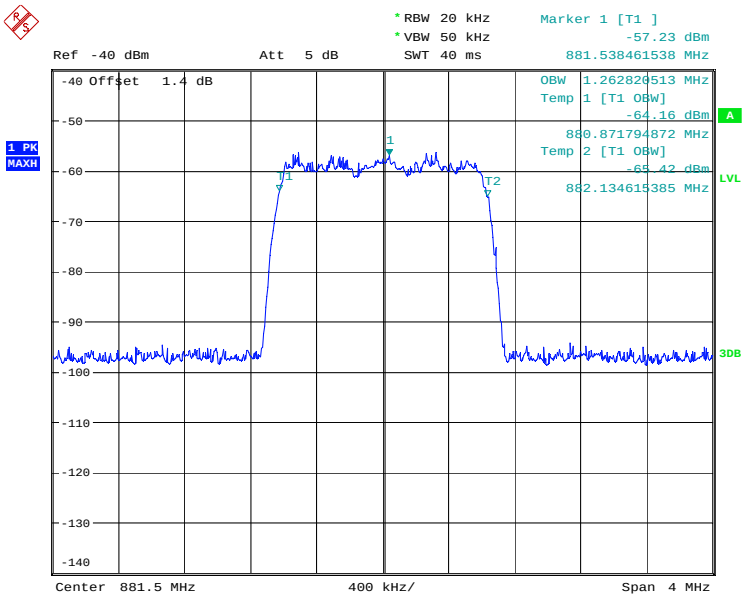
Cellular—CDMA downlink(lowest frequency) -- Input



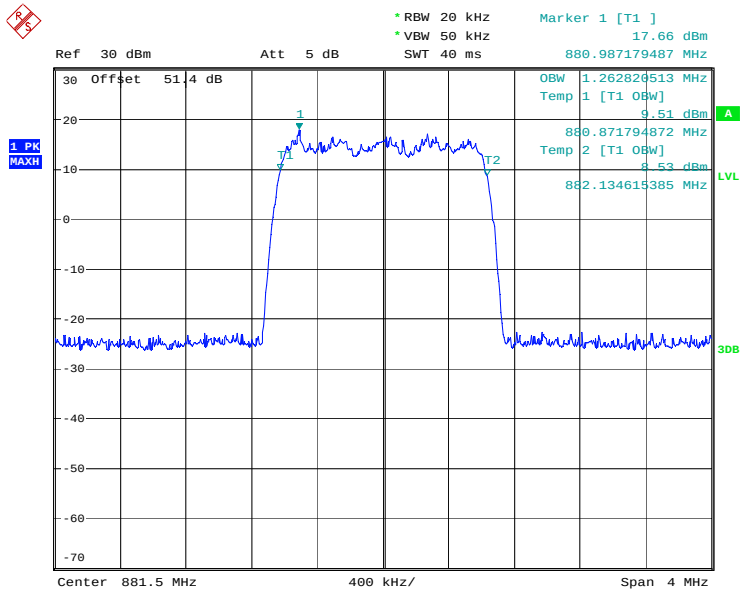
Cellular—CDMA downlink(lowest frequency)-- Output



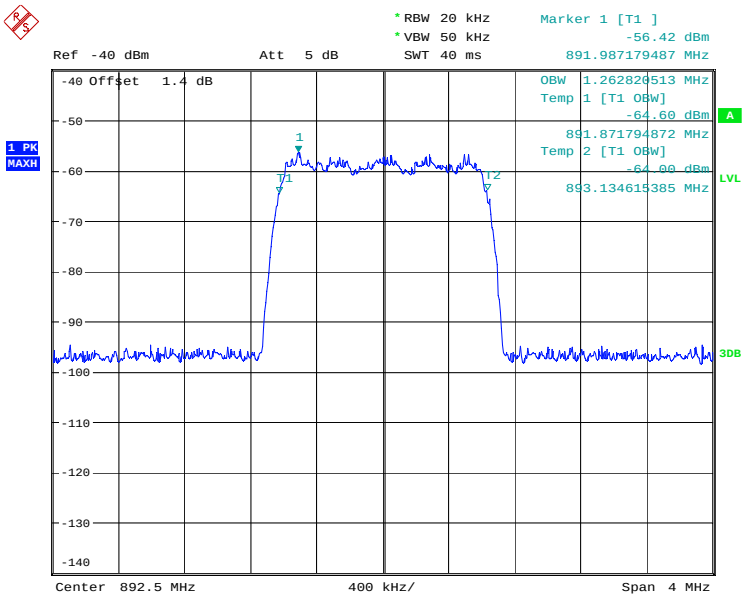
Cellular—CDMA downlink (middle frequency)-- Input



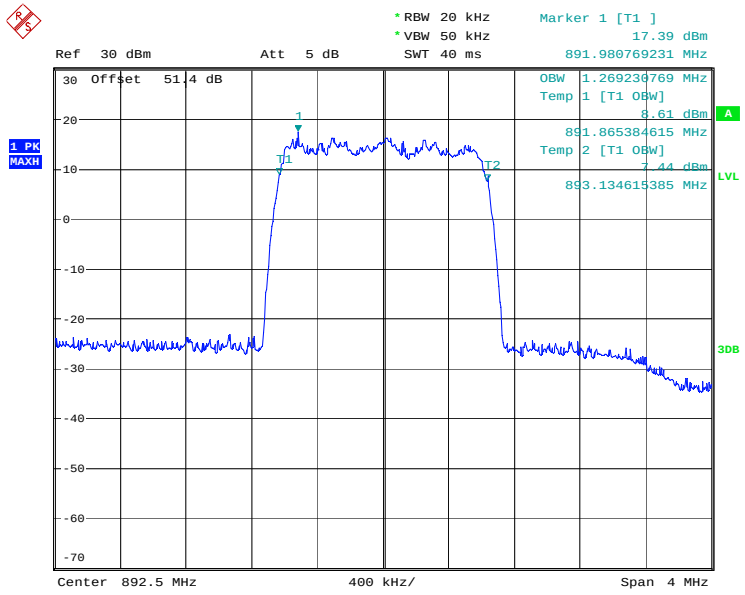
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (23) for Uplink:

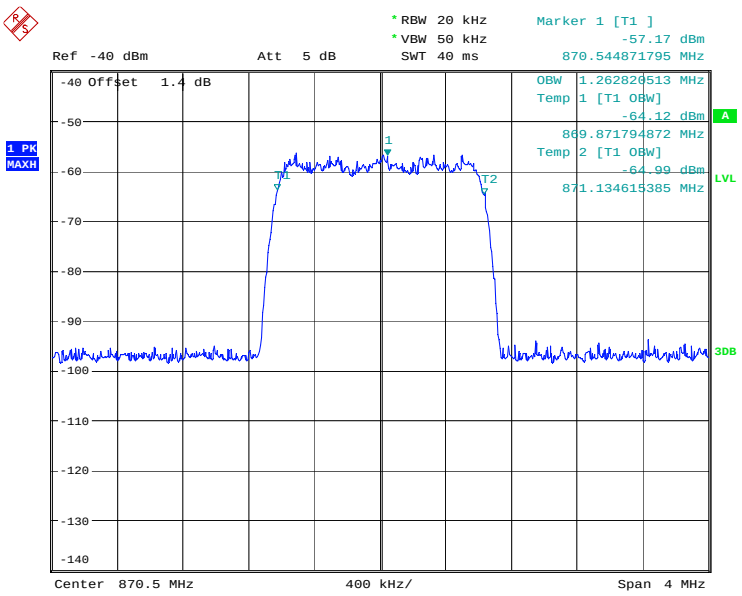
As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.5.1.8 RD-8132 (19)

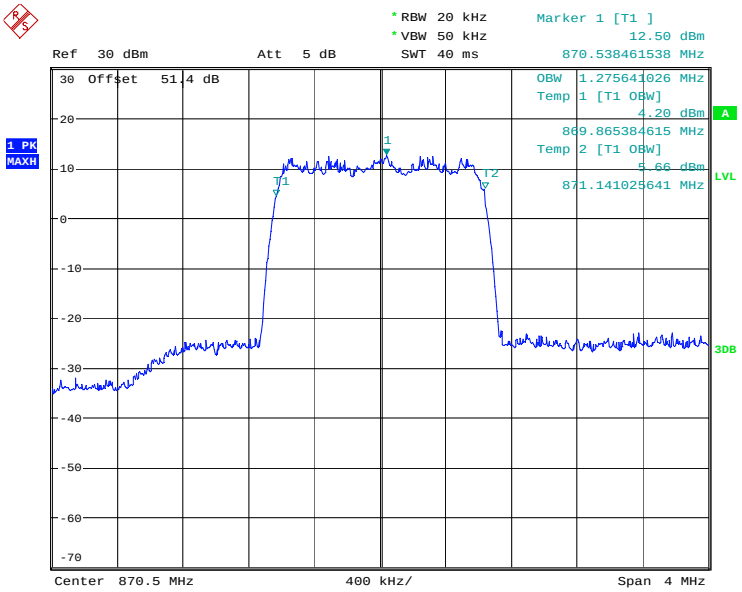
Test in Band 1:

Test for Downlink:

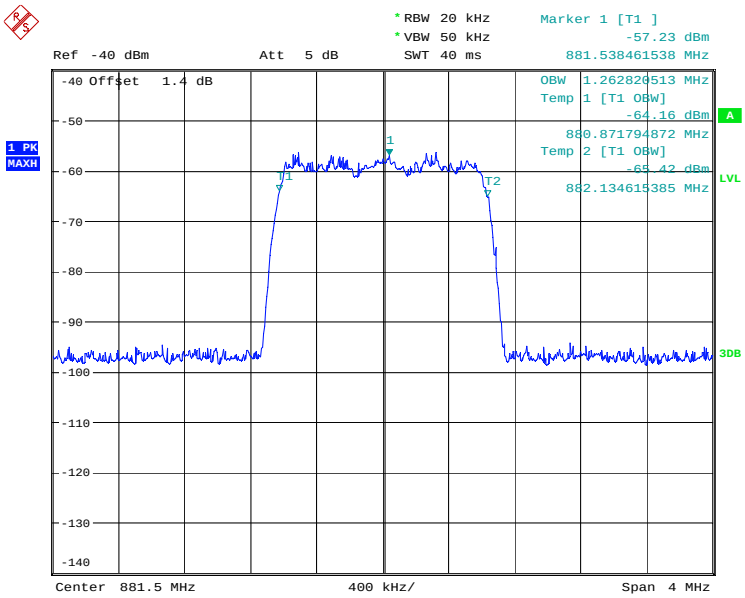
Cellular—CDMA downlink(lowest frequency) -- Input



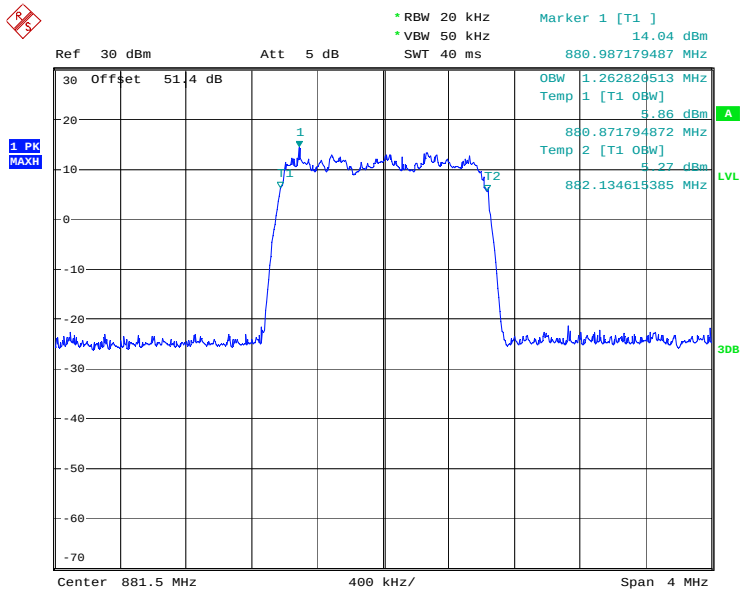
Cellular—CDMA downlink(lowest frequency)-- Output



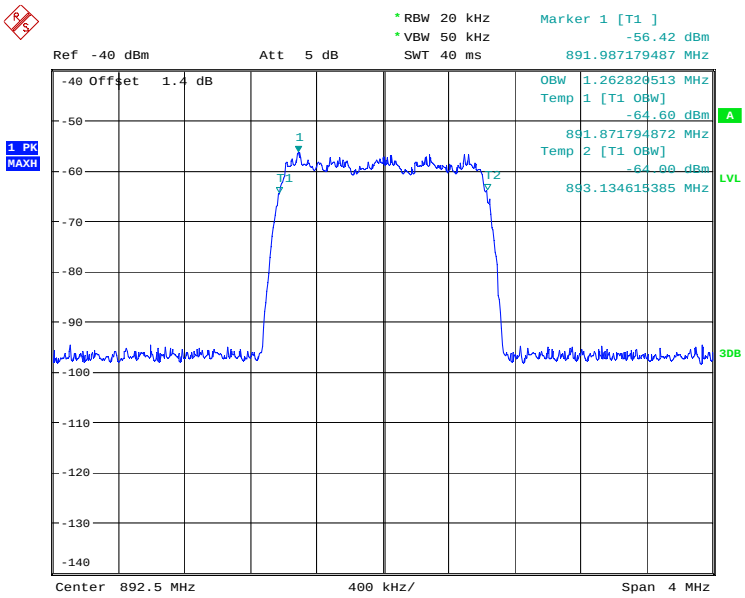
Cellular—CDMA downlink (middle frequency)-- Input



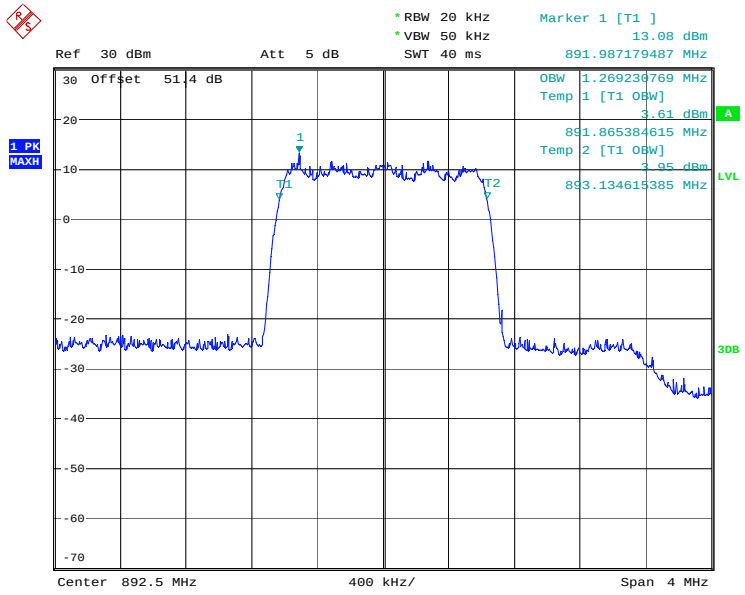
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input

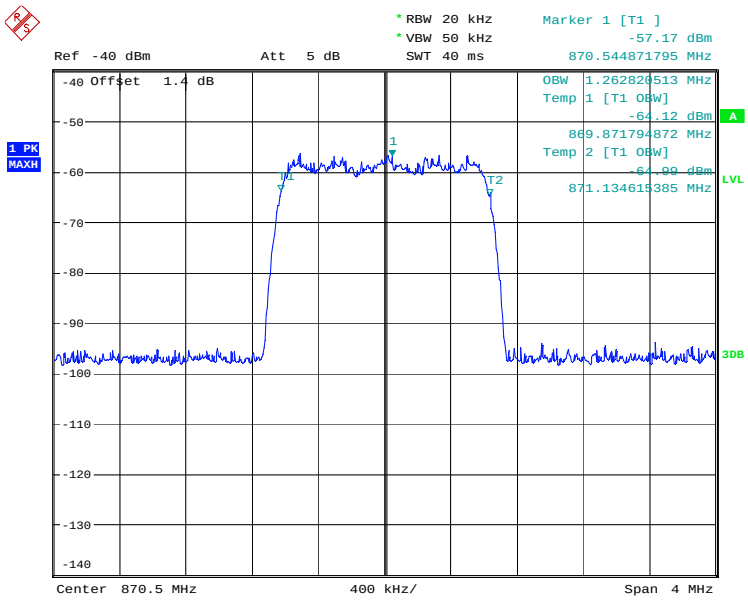


Cellular—CDMA downlink (highest frequency)--Output

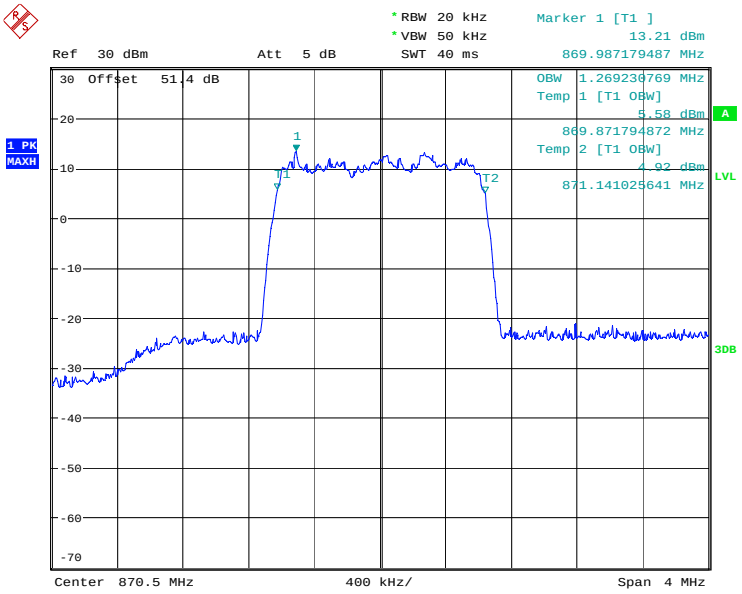


Test in Band 2:
Test for Downlink:

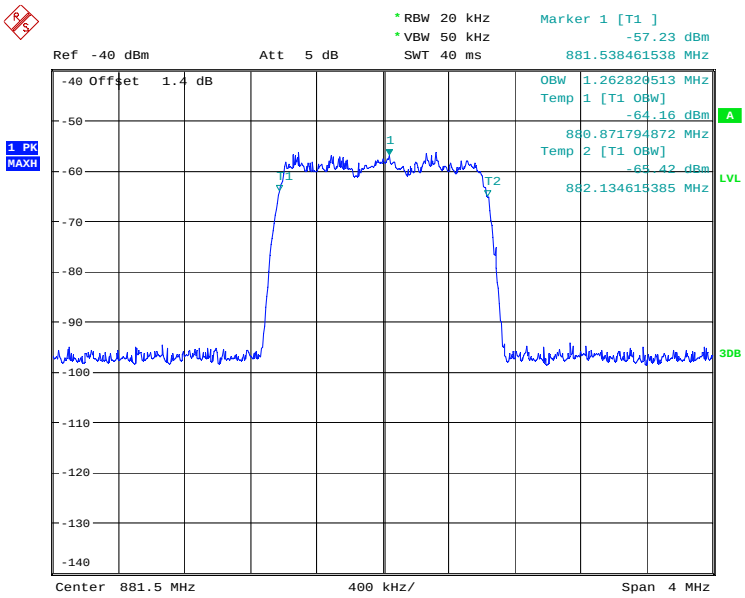
Cellular—CDMA downlink(lowest frequency) -- Input



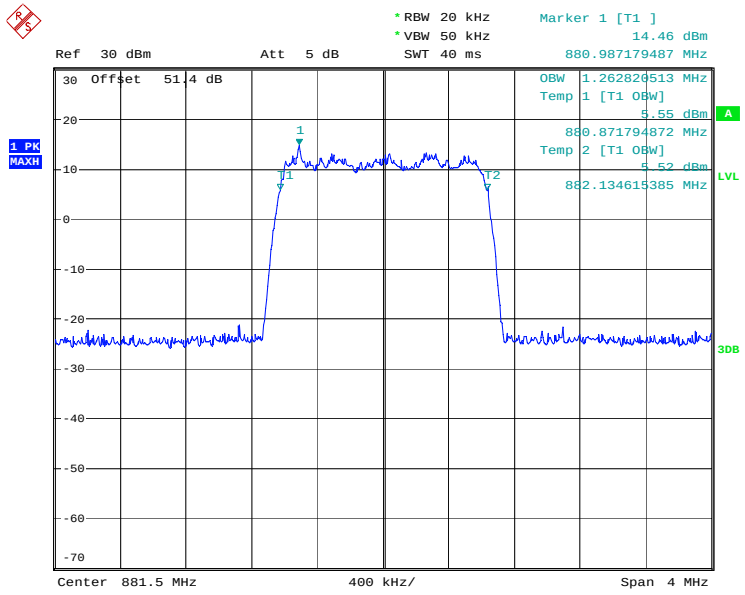
Cellular—CDMA downlink(lowest frequency)-- Output



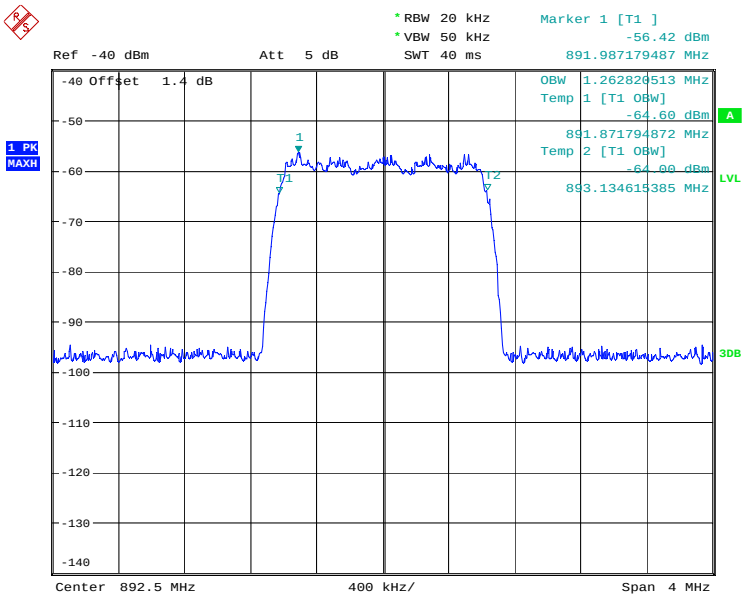
Cellular—CDMA downlink (middle frequency)-- Input



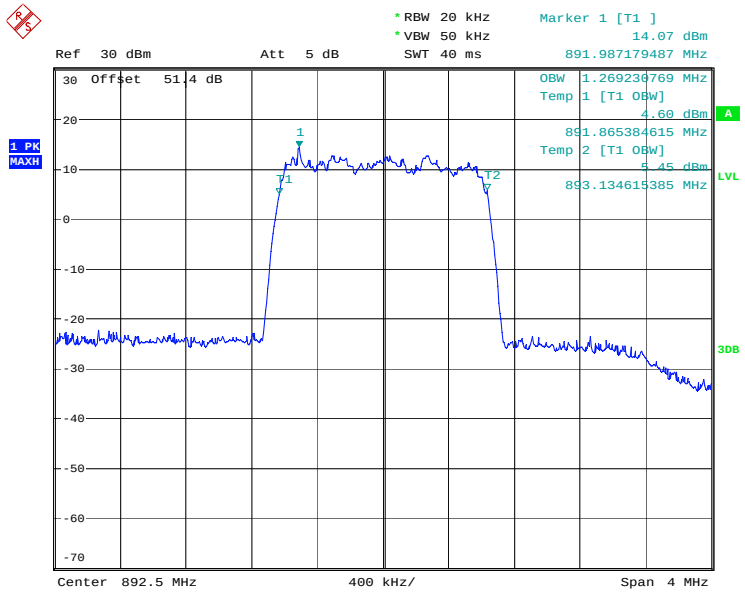
Cellular—CDMA downlink (middle frequency)-- Output



Cellular— CDMA downlink (highest frequency)—Input



Cellular—CDMA downlink (highest frequency)--Output



RD-8132 (19) for Uplink:

As the uplink output power is the same as RD-8132 (43)'s, so here is ignored.

7.2.6 Out of Band Rejection

Test Date:	05 January to 21 January 2010
Test Requirement:	2-11-04/EAB/RF
	Test for rejection of out of band signals. Filter freq. response plots are acceptable.
Test Method:	2-11-04/EAB/RF
EUT Operation:	
Status:	Drive the EUT to maximum output power. .
Conditions:	Normal conditions
Application:	Cellular Band RF output ports

Test Configuration:

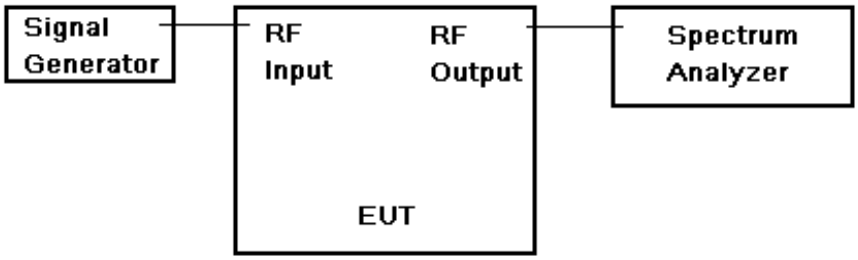


Fig.4. Out of Band rejection test configuration

Test Procedure:

1. Connect the equipment as illustrated;
2. Test the background noise level with all the test facilities;
3. Keep one transmitting path, all other connectors shall be connected by normal power or RF leads;
4. Select the attenuator to avoid the test receiver or spectrum analyzer being destroied;
5. Keep the EUT continuously transmitting in max power;
6. Signal generator sweep from the frequency more lower than the product frequency to the frequency more higher than it, find the product band filter characteristic;

· CW signal rather than typical signal is acceptable (for FM).

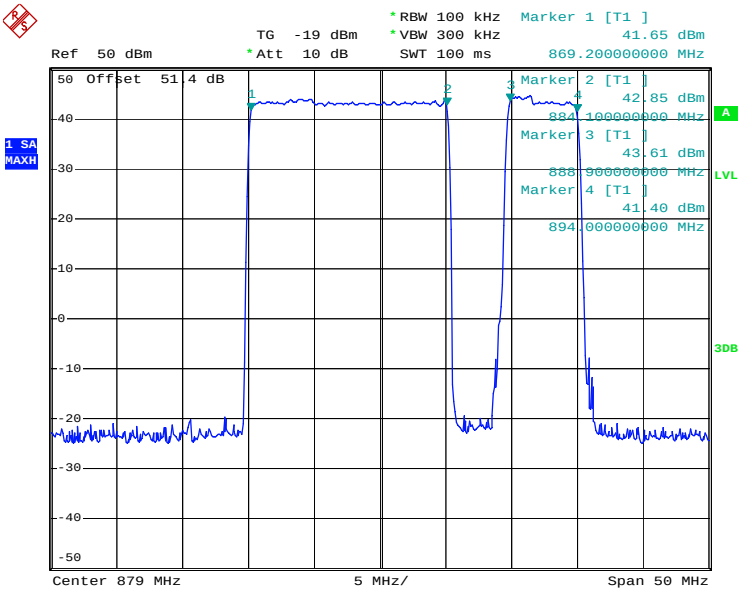
· Multiple band filter will need test each other.

7.2.6.1 Measurement Record:

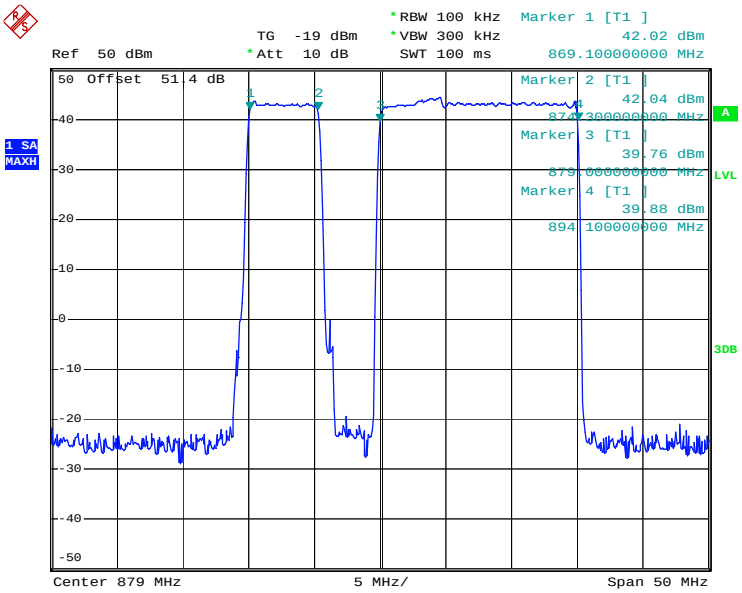
Pretest 43dBm\ 40dBm\ 37dBm\ 33dBm\ 30dBm\ 27dBm\ 23dBm and 19dBm output system and found the output waveform is very similar, so we only report 43dBm system.

Test for Downlink:

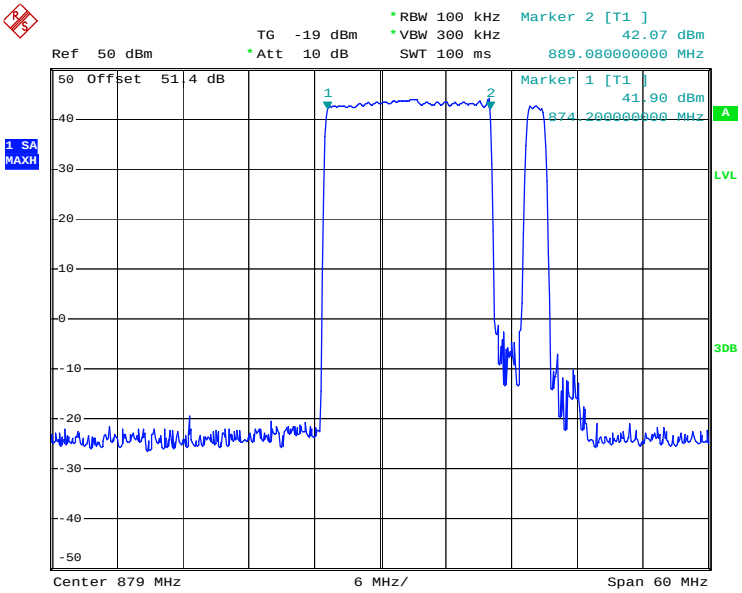
Cellular—downlink(setting the band 1 in lowest and the band 2 in highest)



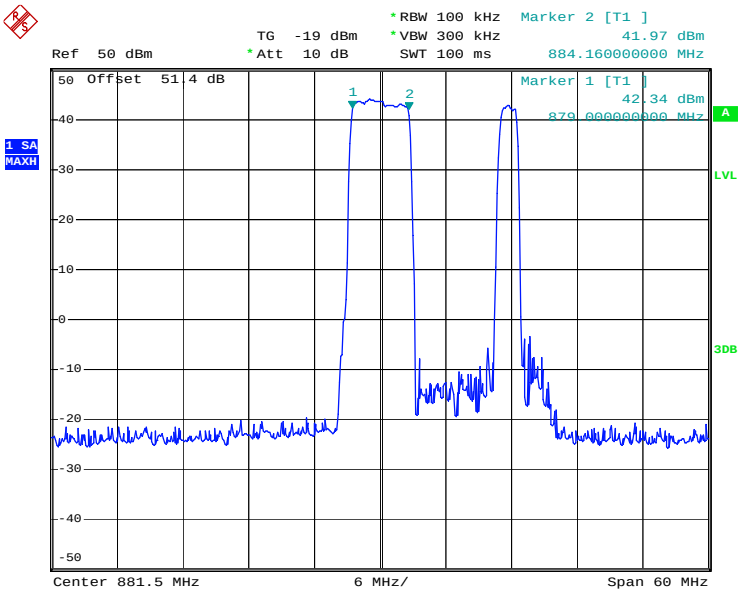
Cellular—downlink(setting the band 1 in highest and the band 2 in lowest)



Cellular—downlink(setting the band 1 in middle and adjusted the band 2 for 1.5MHz in highest)

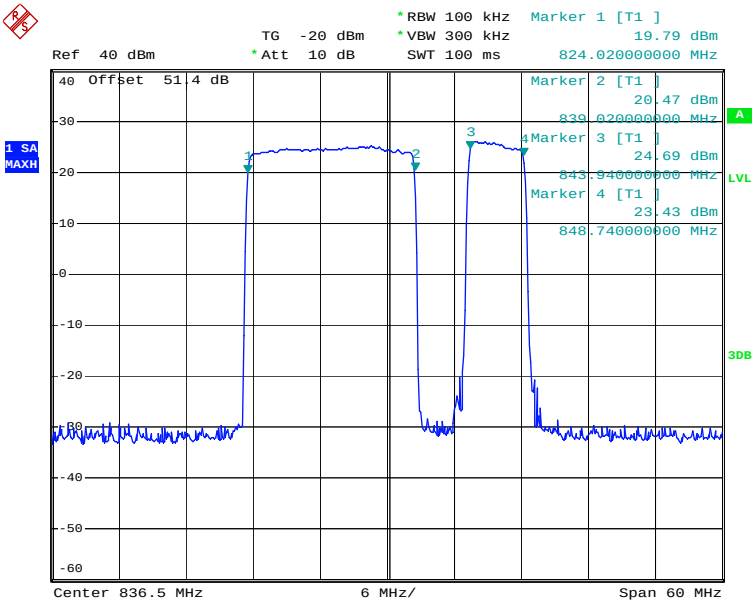


Cellular—downlink(setting the band 2 in middle and adjusted the band 1 for 1.5MHz in highest)

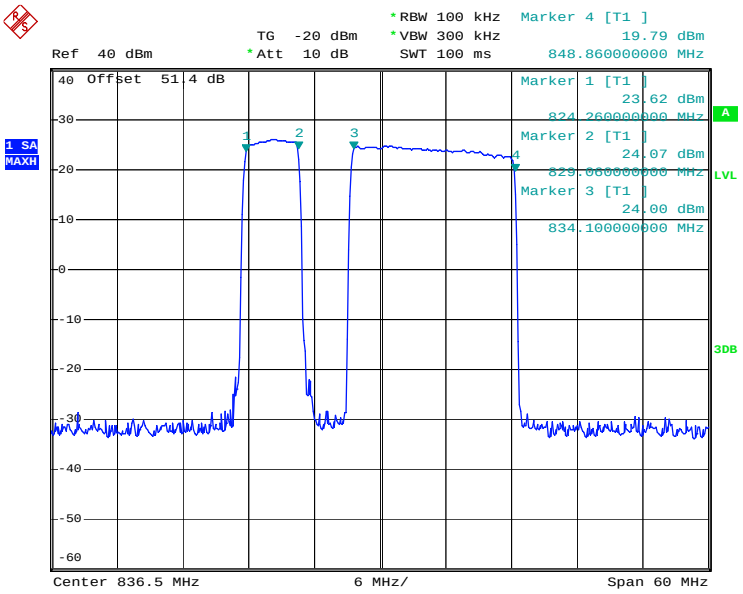


Test for uplink:

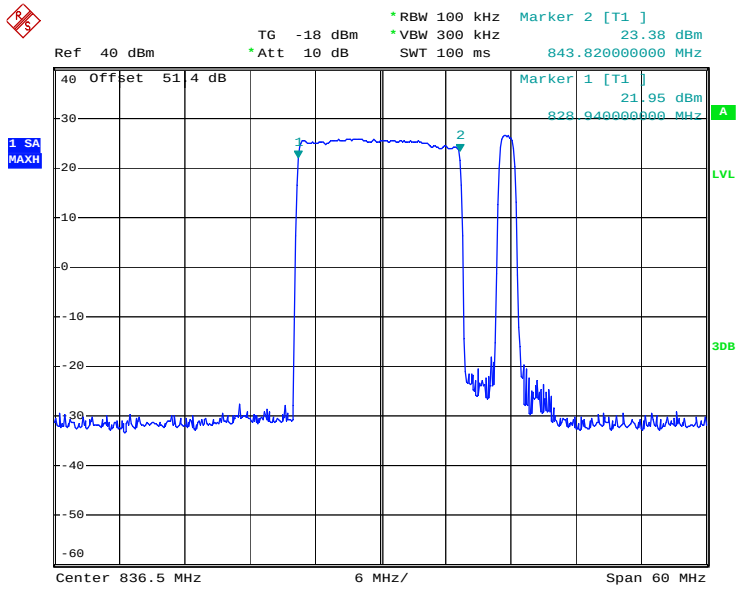
Cellular—uplink(setting the band 1 in lowest and the band 2 in highest)



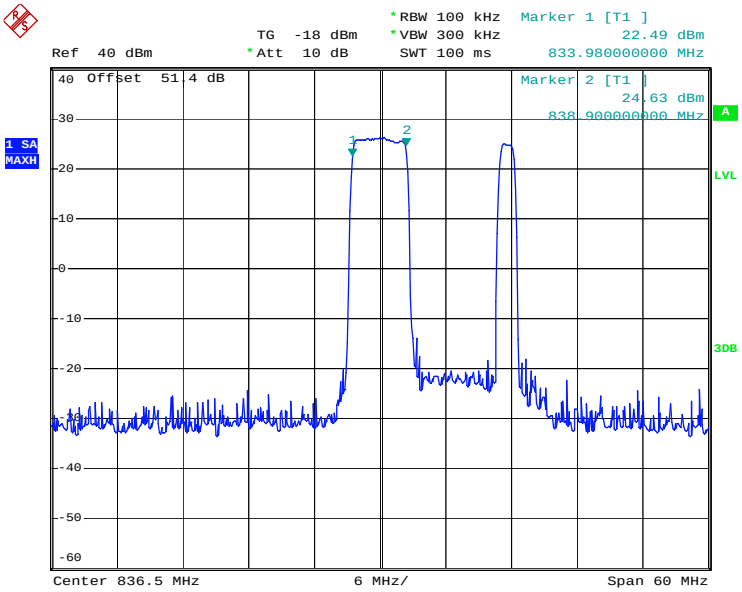
Cellular—uplink (setting the band 1 in highest and the band 2 in lowest)



Cellular—uplink (setting the band 1 in middle and adjusted the band 2 for 1.5MHz in highest)



Cellular—uplink (setting the band 2 in middle and adjusted the band 1 for 1.5MHz in highest)



7.2.7 Frequency Stability

Test Date:	05 January to 21 January 2010
Test Requirement:	FCC part 22.355
Test Method:	FCC part 2.1055
EUT Operation:	
Status:	Drive the EUT to maximum output power.
Conditions:	Temperature conditions, voltage conditions
Application:	Cellular Band RF output ports

Test Procedure:

1. Temperature conditions:
   a) The RF output port of the EUT was connected to Frequency Meter;
   b) Set the working Frequency in the middle channel;
   c) record the 20°C and norminal voltage frequency value as reference point;
   d) vary the temperature from -30°C to 50°C with step 10°C
   e) when reach a temperature point, keep the temperature banlance at least 1 hour to make the product working in this status;
   f) read the frequency at the relative temperature.

2. Voltage conditions:
   a) record the 20°C and norminal voltage frequency value as reference point;
   b) vary the voltage from -15% norminal voltage to +15% voltage;
   c) read the frequency at the relative voltage.

7.2.7.1 Measurement Record:

Pretest 43dBm\ 40dBm\ 37dBm\ 33dBm\ 30dBm\ 27dBm\ 23dBm and 19dBm output system and found the worse case in 43dBm system and report it.

7.2.7.1.1 RD-8132 (43)

Frequency Stability vs temperature:

Test in Band 1:

Test for Downlink: (middle channel 881.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	881.500036	0.017
40	881.500033	0.013
30	881.500022	0.012
20	881.500021	Reference
10	881.500018	-0.003
0	881.500029	0.009
-10	881.500014	-0.008
-20	881.500011	-0.011
-30	881.500033	-0.013

Test for Uplink: (middle channel 836.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	836.500009	-0.007
40	836.500011	-0.005
30	836.500031	0.019
20	836.500015	Reference
10	836.500010	-0.006
0	836.500019	0.005
-10	836.500022	0.008
-20	836.500028	0.015
-30	836.500030	0.018

Frequency Stability vs temperature:

Test in Band 2:

Test for Downlink: (middle channel 881.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	881.500030	-0.010
40	881.500033	-0.006
30	881.500023	-0.018
20	881.500039	Reference
10	881.500044	0.006
0	881.500021	-0.020
-10	881.500015	-0.027
-20	881.500023	-0.018
-30	881.500019	-0.022

Test for Uplink: (middle channel 836.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	836.499987	0.014
40	836.500020	0.053
30	836.500069	-0.007
20	836.499975	Reference
10	836.500010	0.041
0	836.500017	0.046
-10	836.500015	0.048
-20	836.500018	0.051
-30	836.500019	0.052

Frequency Stability vs voltage:

Test in Band 1:

Test for Downlink: (middle channel 881.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
187 (220*0.85)	881.500030	0.010
220	881.500021	Reference
253 (220*1.15)	881.500016	-0.006

Test for Uplink: (middle channel 836.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
187 (220*0.85)	836.500022	0.008
220	836.500015	Reference
253 (220*1.15)	836.500019	0.005

Frequency Stability vs voltage:

Test in Band 2:

Test for Downlink: (middle channel 881.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
187 (220*0.85)	881.500033	-0.007
220	881.500039	Reference
253 (220*1.15)	881.500044	0.006

Test for Uplink: (middle channel 836.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
187 (220*0.85)	836.500079	0.005
220	836.499975	Reference
253 (220*1.15)	836.500003	0.033

--End of the Report--