

# TEST REPORT

Report No.: BCTC2504944206-9E

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Applicant: Shenzhen Huafurui Technology Co., Ltd.

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Product Name: Smartphone

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Test Model: KINGKONG ES 3

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Tested Date: 2025-04-09 to 2025-05-26

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Issued Date: 2025-05-30

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**Shenzhen BCTC Testing Co., Ltd.**



Product Name: Smartphone

Trademark: CUBOT

Model/Type reference: KINGKONG ES 3

Prepared For: Shenzhen Huafurui Technology Co., Ltd.

Address: Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China

Manufacturer: Shenzhen Huafurui Technology Co., Ltd.

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Prepared By: Shenzhen BCTC Testing Co., Ltd.

Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Sample Received Date: 2025-04-09

Sample tested Date: 2025-04-07 to 2025-05-21

Issue Date: 2025-05-30

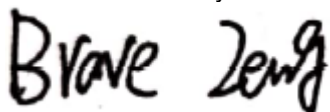
Report No.: BCTC2504944206-9E

Test Standards: ETSI EN 301 908-1 V15.2.1 (2023-01)  
ETSI EN 301 908-2 V13.1.1 (2020-06)

Test Results: PASS

Remark: This is WCDMA radio test report.

Tested by:



Brave Zeng/ Project Handler

Approved by:



Zero Zhou/Reviewer

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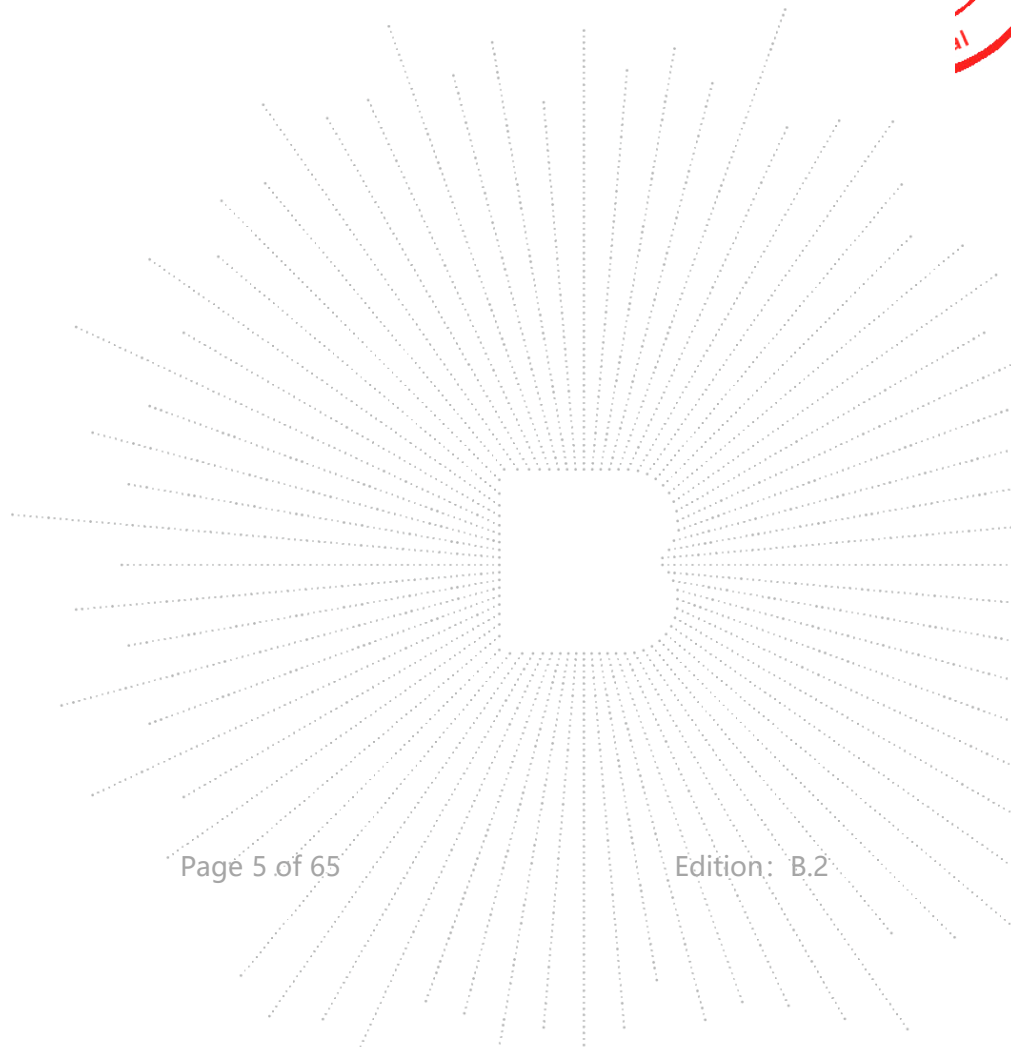
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(Note: N/A Means Not Applicable)



**1. Version**

Report No.	Issue Date	Description	Approved
BCTC2504944206-9E	2025-05-30	Original	Valid

CO., LTD.

## 2. Test Summary

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No.	Results
<b>ETSI EN 301 908-1</b>			
1	Radiated emissions (UE)	4.2.2	PASS
2	Control and monitoring functions (UE)	4.2.4	PASS
<b>ETSI EN 301 908-2</b>			
3	Transmitter maximum output power	4.2.2	PASS
4	Transmitter spectrum emission mask	4.2.3	PASS
5	Transmitter spurious emissions	4.2.4	PASS
6	Transmitter minimum output power	4.2.5	PASS
7	Receiver Adjacent Channel Selectivity (ACS)	4.2.6	PASS
8	Receiver blocking characteristics	4.2.7	PASS
9	Receiver spurious response	4.2.8	PASS
10	Receiver intermodulation characteristics	4.2.9	PASS
11	Receiver spurious emissions	4.2.10	PASS
12	Out-of-synchronization handling of output power	4.2.11	PASS
13	Transmitter adjacent channel leakage power ratio	4.2.12	PASS
14	Receiver Reference Sensitivity level	4.2.13	PASS

Remark:

N/A is an abbreviation for Not Applicable and means this test item is not applicable for this device according to the technology characteristic of device.

### 3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.0dB
6	Conducted output power uncertainty below 1G	U=0.9dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59°C
9	Radiated disturbance(30MHz-1000MHz)	U=4.8dB
10	Radiated disturbance(1GHz- 6GHz)	U=4.9dB
11	Radiated disturbance(1GHz- 18GHz)	U=5.0dB



## 4. Product Information And Test Setup

### 4.1 Product Information

Model/Type reference:	KINGKONG ES 3
Model differences:	N/A
WCDMA Band(s):	FDD Band I/VIII
Hardware Version:	S17F-MB-V2.0
Software Version:	CUBOT_KINGKONG_ES_3_F071C_V01
Operation Frequency:	WCDMA Band I: Tx: 1920-1980MHz, Rx: 2110-2170MHz WCDMA Band VIII: Tx: 880-915MHz, Rx: 925-960MHz
Max. RF output power:	WCDMA Band I: 22.22 dBm WCDMA Band VIII: 22.81 dBm
Type of Modulation:	WCDMA: QPSK, 16QAM, 64QAM, BPSK
Antenna Type:	Internal antenna WCDMA Band I: 0.23 dBi WCDMA Band VIII: -0.68 dBi
Antenna Gain:	Remark: <input checked="" type="checkbox"/> The antenna gain of the product comes from the antenna report provided by the customer, and the test data is affected by the customer information. <input type="checkbox"/> The antenna gain of the product is provided by the customer, and the test data is affected by the customer information.
Ratings:	DC 9V from adapter/DC 3.87V from battery
Adapter 1 Information:	Model: TD-203G200170VF01 Input: 100-240V~50/60Hz 0.6A Output: DC 5V 3A DC 9V 3A DC 12V 2.5A DC 15V 2A DC 20V 1.5A PPS: 3.3V-16V/2A 3.3V-11V/3A Total output power: 33W Max Model: HJ-PD33W-EU
Adapter 2 Information:	Input: 100-240V~50/60Hz 0.8A Output: DC 5.0V 3.0A 15.0W OR DC 9.0V 3.0A 27.0W OR DC 12.0V 2.75A 33.0W MAX.

#### Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Shielded	Note
1	--	--	Applicant	---	Yes/No	---
2	--	--	BCTC	--	Yes/No	--

### 4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP Photographs for the actual connections between Product and support equipment.



### 4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1.	Adapter	/	TD-203G200170VF01	---	---
2.	Adapter	/	HJ-PD33W-EU	---	---
3.	TF card	SanDisk	32G		

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 4.4 Channel List

N/A

### 4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test Mode		Channel Frequency	Channel Number
Tx	WCDMA Band I	1922.4 MHz	9612
		1950.0 MHz	9750
		1977.6 MHz	9888
	WCDMA Band VIII	882.4 MHz	2712
		897.4MHz	2787
		912.6 MHz	2863
Rx	WCDMA Band I	2112.4 MHz	10562
		2140.0 MHz	10700
		2167.6 MHz	10838
	WCDMA Band VIII	927.4 MHz	2937
		924.6 MHz	3013
		957.6 MHz	3088

### 4.6 Test Environment

#### 1. Normal Test Conditions:

Humidity (%):	55
Atmospheric Pressure(kPa):	101.1
Temperature(°C):	25
Test Voltage(DC):	3.87V

#### 2. Extreme Test Conditions:

For tests at extreme temperatures, measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer.

For tests at extreme voltages, measurements shall be made over the extremes of the power source voltage range as declared by the manufacturer.

Test Conditions	LTLV	LTHV	HTLV	HTHV
Temperature (°C)	-10	-10	45	45
Test Voltage (DC)	3.48	4.26	3.48	4.26

## 5. Test Facility And Test Instrument Used

### 5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address:1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

### 5.2 Test Instrument Used

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	966 chamber	ChengYu	966 Room	966	May 15, 2023	May 14, 2026
2	Receiver	R&S	ESR	102075	May 16, 2024	May 15, 2025
3	Receiver	R&S	ESRP	101154	May 16, 2024	May 15, 2025
4	Amplifier	Schwarzbeck	BBV9744	9744-0037	May 16, 2024	May 15, 2025
5	TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	942	May 21, 2024	May 20, 2025
6	Loop Antenna	Schwarzbeck	FMZB1519B	00014	May 21, 2024	May 20, 2025
7	Amplifier	SKET	LAPA_01G18 G-45dB	SK2021040901	May 16, 2024	May 15, 2025
8	Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 21, 2024	May 20, 2025
9	Preamplifier	MITEQ	TTA1840-35- HG	2034381	May 16, 2024	May 15, 2025
10	Horn antenna	Schwarzbeck	BBHA9170	00822	May 21, 2024	May 20, 2025
11	Spectrum Analyzer 9kHz-40GHz	R&S	FSP 40	100363	May 16, 2024	May 15, 2025
12	Software	Frad	EZ-EMC	FA-03A2 RE	\	\
13	Spectrum Analyzer	Keysight	N9020A	MY49100060	May 16, 2024	May 15, 2025
14	Signal Generator	Keysight	N5182B	MY56200519	May 16, 2024	May 15, 2025
15	Signal Generator	Keysight	83711B	US37100131	May 16, 2024	May 15, 2025
16	Communication test set	R&S	CMW500	126173	Nov. 11. 2024	Nov. 10, 2025
17	band rejection filter	ZBSF	ZBSF-C2441. 5	1706003606	May 16, 2024	May 15, 2025
18	Programmable constant temperature and humidity test chamber	DGBELL	BTKS5-150C	\	Jul. 01, 2024	Jun. 30, 2025
19	Radio frequency control box	MAIWEI	MW200-RFC B	\	\	\
20	Software	MAIWEI	MTS 8200	\	\	\

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	966 chamber	ChengYu	966 Room	966	May 14, 2025	May 13, 2026
2	Receiver	R&S	ESR	102075	May 14, 2025	May 13, 2026
3	Receiver	R&S	ESRP	101154	May 14, 2025	May 13, 2026
4	Amplifier	Schwarzbeck	BBV9744	9744-0037	May 14, 2025	May 13, 2026
5	TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	942	May 21, 2024	May 20, 2026
6	Loop Antenna	Schwarzbeck	FMZB1519B	00014	May 21, 2024	May 20, 2026
7	Amplifier	SKET	LAPA_01G18 G-45dB	SK2021040901	May 14, 2025	May 13, 2026
8	Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 21, 2024	May 20, 2026
9	Preamplifier	MITEQ	TTA1840-35-HG	2034381	May 14, 2025	May 13, 2026
10	Horn antenna	Schwarzbeck	BBHA9170	00822	May 21, 2024	May 20, 2026
11	Spectrum Analyzer 9kHz-40GHz	R&S	FSP 40	100363	May 14, 2025	May 13, 2026
12	Software	Frad	EZ-EMC	FA-03A2 RE	\	\
13	Spectrum Analyzer	Keysight	N9020A	MY49100060	May 14, 2025	May 13, 2026
14	Signal Generator	Keysight	N5182B	MY56200519	May 14, 2025	May 13, 2026
15	Signal Generator	Keysight	83711B	US37100131	May 14, 2025	May 13, 2026
16	Communication test set	R&S	CMW500	126173	Nov. 11. 2024	Nov. 10, 2025
17	band rejection filter	ZBSF	ZBSF-C2441.5	1706003606	May 16, 2024	May 15, 2026
18	Programmable constant temperature and humidity test chamber	DGBELL	BTKS5-150C	\	May 14, 2025	May 13, 2026
19	Radio frequency control box	MAIWEI	MW200-RFC B	\	\	\
20	Software	MAIWEI	MTS 8200	\	\	\

## 6. Radiated emissions (UE)

### 6.1 Definition

This test assesses the ability of radio communications equipment and ancillary equipment to limit unwanted emissions from the enclosure port.

This test is applicable to radio communications equipment and ancillary equipment.

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

### 6.2 Limit

Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	-57 dBm/100 kHz	-36 dBm/100 kHz	All
$1 \text{ GHz} \leq f < 12,75 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All
$f_c - 2,5 \times 5 \text{ MHz} < f < f_c + 2,5 \times 5 \text{ MHz}$		Not defined	UTRA FDD, UTRA TDD, 3,84 Mcps option, cdma2000, spreading rate 3
$f_c - 2,5 \times BW_{\text{Channel}} \text{ MHz} < f < f_c + 2,5 \times BW_{\text{Channel}} \text{ MHz}$		Not defined	E-UTRA FDD, E-UTRA TDD, Mobile WiMAX, UMB
$f_c - 2,5 \times 10 \text{ MHz} < f < f_c + 2,5 \times 10 \text{ MHz}$		Not defined	UTRA TDD, 7,68 Mcps option
$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$		Not defined	UTRA TDD, 1,28 Mcps option cdma2000, spreading rate 1
$f_c - 500 \text{ kHz} < f < f_c + 500 \text{ kHz}$		Not defined	UWC 136, 200 kHz option
$f_c - 250 \text{ kHz} < f < f_c + 250 \text{ kHz}$		Not defined	UWC 136, 30 kHz option

NOTE:  $f_c$  is the UE transmit centre frequency.

### 6.3 EUT Operation Condition

The EUT was programmed to be in continuously transmitting mode.

## 6.4 Test Method

Whenever possible the test site should be a fully anechoic chamber simulating the free-space conditions. EUT shall be placed on a non-conducting support. Mean power of any spurious components shall be detected by the test antenna and measuring receiver (e.g. a spectrum analyzer).

At each frequency at which a component is detected, the EUT shall be rotated to obtain maximum response, and the effective radiated power (e.r.p.) of that component determined by a substitution measurement, which shall be the reference method. The measurement shall be repeated with the test antenna in the orthogonal polarization plane. Test systems are allowed to be pre-substituted by carrying out the substitution measurement for each frequency and by recording the obtained value into test system software as a correction factor.

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 (ITU-R Recommendation SM.329-12 [3], annex 1).

Measurements are made with a tuned dipole antenna or a reference antenna with a known gain referenced to an isotropic antenna. Unless otherwise stated, all measurements are done as mean power (RMS).

If a different test site or method is used, this shall be stated in the test report. The results shall be converted to the reference method values and the validity of the conversion shall be demonstrated.

## 6.5 Measurement Record

WCDMA Band I  
Idle Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Correct Factor	Absolute Level	Result	
			Height	Polar			Limit	Margin
(MHz)	(dBm)	Degree	(m)	(H/V)	(dB)	(dBm)	(dBm)	(dB)
Low Channel(1922.4MHz)								
322.40	-34.34	337	1.1	H	-28.86	-63.20	-57.00	-6.20
322.40	-36.99	319	1.5	V	-28.86	-65.86	-57.00	-8.86
2966.21	-38.68	199	1.6	H	-23.70	-62.38	-47.00	-15.38
2966.21	-38.60	87	1.0	V	-23.70	-62.30	-47.00	-15.30
Middle Channel(1950.0MHz)								
322.40	-38.23	222	1.5	H	-28.86	-67.10	-57.00	-10.10
322.40	-40.30	173	1.7	V	-28.86	-69.16	-57.00	-12.16
2966.21	-41.32	157	1.3	H	-23.70	-65.02	-47.00	-18.02
2966.21	-38.41	178	1.0	V	-23.70	-62.11	-47.00	-15.11
High Channel(1977.6MHz)								
322.40	-37.60	290	1.7	H	-28.86	-66.47	-57.00	-9.47
322.40	-38.46	157	1.4	V	-28.86	-67.33	-57.00	-10.33
2966.21	-38.03	137	1.4	H	-23.70	-61.73	-47.00	-14.73
2966.21	-38.19	212	1.0	V	-23.70	-61.89	-47.00	-14.89

## Traffic Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Correct Factor	Absolute Level	Result	
			Height	Polar			Limit	Margin
(MHz)	(dBm)	Degree	(m)	(H/V)	(dB)	(dBm)	(dBm)	(dB)
Low Channel(1922.4MHz)								
590.53	-33.18	204	1.2	H	-27.81	-60.99	-36.00	-24.99
590.53	-34.44	159	1.6	V	-27.81	-62.26	-36.00	-26.26
3844.80	-24.44	125	1.3	H	-21.91	-46.35	-30.00	-16.35
3844.80	-23.45	168	1.1	V	-21.91	-45.36	-30.00	-15.36
5767.20	-37.30	102	1.7	H	-19.22	-56.52	-30.00	-26.52
5767.20	-39.85	230	1.5	V	-19.22	-59.07	-30.00	-29.07
Middle Channel(1950.0MHz)								
590.53	-34.99	326	1.4	H	-27.81	-62.80	-36.00	-26.80
590.53	-34.96	217	1.5	V	-27.81	-62.77	-36.00	-26.77
3900.00	-23.65	186	1.8	H	-21.80	-45.45	-30.00	-15.45
3900.00	-22.39	9	1.8	V	-21.80	-44.19	-30.00	-14.19
5850.00	-37.32	356	1.7	H	-19.18	-56.50	-30.00	-26.50
5850.00	-37.84	219	1.1	V	-19.18	-57.02	-30.00	-27.02
High Channel(1977.6MHz)								
590.53	-34.89	68	1.3	H	-27.81	-62.71	-36.00	-26.71
590.53	-35.31	9	1.6	V	-27.81	-63.12	-36.00	-27.12
3955.20	-25.19	97	1.9	H	-21.69	-46.88	-30.00	-16.88
3955.20	-22.27	353	1.3	V	-21.69	-43.96	-30.00	-13.96
5932.80	-38.20	267	1.2	H	-19.13	-57.33	-30.00	-27.33
5932.80	-42.68	3	1.2	V	-19.13	-61.81	-30.00	-31.81

TC  
3C  
PPR  
Report

WCDMA Band VIII  
Idle Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Correct Factor	Absolute Level	Result	
			Height	Polar			Limit	Margin
(MHz)	(dBm)	Degree	(m)	(H/V)	(dBm)	(dBm)	(dBm)	(dB)
Low Channel(882.4MHz)								
303.77	-37.73	325	1.2	H	-28.93	-66.66	-57.00	-9.66
303.77	-36.30	241	1.5	V	-28.93	-65.23	-57.00	-8.23
2967.52	-37.93	316	1.2	H	-23.70	-61.63	-47.00	-14.63
2967.52	-40.58	292	1.6	V	-23.70	-64.27	-47.00	-17.27
Middle Channel(897.4MHz)								
303.77	-37.34	231	1.2	H	-28.93	-66.26	-57.00	-9.26
303.77	-36.18	114	1.9	V	-28.93	-65.11	-57.00	-8.11
2967.52	-39.88	203	1.8	H	-23.70	-63.58	-47.00	-16.58
2967.52	-37.79	31	1.5	V	-23.70	-61.49	-47.00	-14.49
High Channel(912.6MHz)								
303.77	-34.11	331	1.2	H	-28.93	-63.04	-57.00	-6.04
303.77	-35.77	251	1.1	V	-28.93	-64.70	-57.00	-7.70
2967.52	-42.47	289	1.8	H	-23.70	-66.17	-47.00	-19.17
2967.52	-37.96	337	1.5	V	-23.70	-61.66	-47.00	-14.66

## Traffic Mode

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Correct Factor	Absolute Level	Result	
			Height	Polar			Limit	Margin
(MHz)	(dBm)	Degree	(m)	(H/V)	(dB)	(dBm)	(dBm)	(dB)
Low Channel(882.4MHz)								
580.71	-34.22	169	1.5	H	-27.85	-62.07	-36.00	-26.07
580.71	-33.64	91	1.1	V	-27.85	-61.48	-36.00	-25.48
1764.80	-23.92	281	1.7	H	-27.12	-51.04	-30.00	-21.04
1764.80	-21.11	167	1.8	V	-27.12	-48.23	-30.00	-18.23
2647.20	-25.88	202	1.2	H	-24.66	-50.54	-30.00	-20.54
2647.20	-27.78	83	1.8	V	-24.66	-52.44	-30.00	-22.44
Middle Channel(897.4MHz)								
580.71	-31.02	141	1.6	H	-27.85	-58.87	-36.00	-22.87
580.71	-33.67	333	1.5	V	-27.85	-61.52	-36.00	-25.52
1794.80	-23.54	228	2.0	H	-27.05	-50.59	-30.00	-20.59
1794.80	-19.61	7	1.5	V	-27.05	-46.66	-30.00	-16.66
2692.20	-26.13	122	1.4	H	-24.52	-50.65	-30.00	-20.65
2692.20	-27.63	167	1.2	V	-24.52	-52.15	-30.00	-22.15
High Channel(912.6MHz)								
580.71	-35.54	180	1.2	H	-27.85	-63.39	-36.00	-27.39
580.71	-38.17	24	1.3	V	-27.85	-66.02	-36.00	-30.02
1825.20	-22.12	308	1.2	H	-26.98	-49.10	-30.00	-19.10
1825.20	-22.87	219	1.4	V	-26.98	-49.85	-30.00	-19.85
2737.80	-30.55	174	1.8	H	-24.39	-54.94	-30.00	-24.94
2737.80	-33.35	284	1.4	V	-24.39	-57.74	-30.00	-27.74

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## 7. Control And Monitoring Functions (UE)

### 7.1 Definition

This requirement, together with other control and monitoring technical requirements identified in the table of cross references in the applicable part, verifies that the control and monitoring functions of the UE prevent it from transmitting in the absence of a valid network.

This test is applicable to radio communications equipment and ancillary equipment in the operating band defined in the applicable part of this multipart harmonized standard.

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

### 7.2 Limit

The maximum measured power during the duration of the test shall not exceed -30 dBm.

### 7.3 EUT Operation Condition

Refer to section 6.2.4.

### 7.4 Test Method

a) At the start of the test, the UE shall be switched off. The UE antenna connector shall be connected to a power measuring equipment, with the following characteristics:

- the RF bandwidth shall exceed the total operating transmit frequency range of the UE for operation with an applicable part;
- the response time of the power measuring equipment shall be such that the measured power has reached within 1 dB of its steady state value within 100  $\mu$ s of a CW signal being applied;
- it shall record the maximum power measured.

NOTE: The equipment may include a video low pass filter to minimize its response to transients or Gaussian noise peaks.

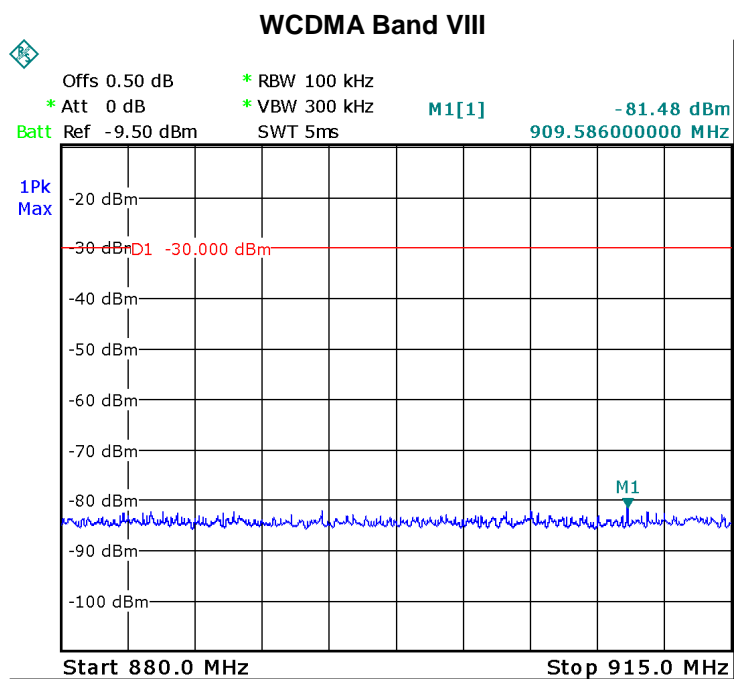
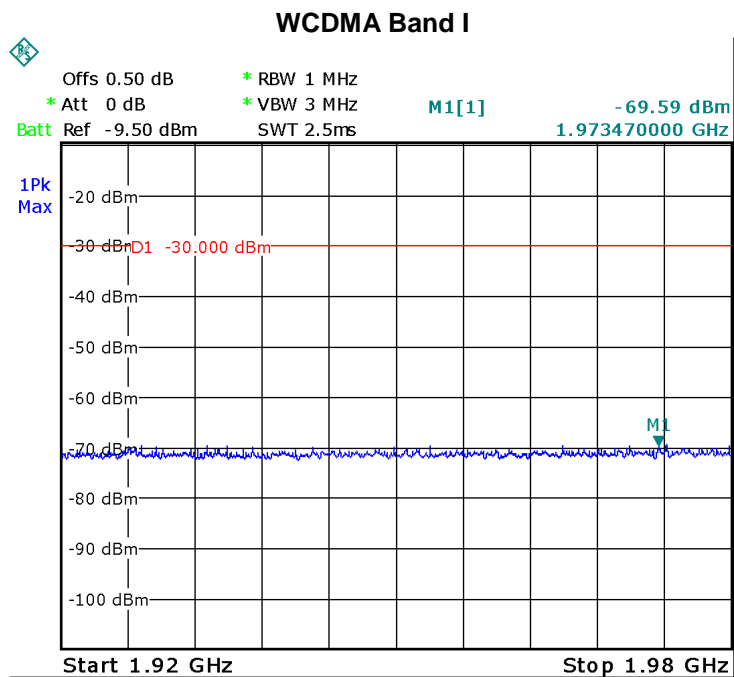
b) The UE shall be switched on for a period of approximately fifteen minutes, and then switched off.

c) The EUT shall remain switched off for a period of at least thirty seconds, and shall then be switched on for a period of approximately one minute.

d) The maximum power emitted from the UE throughout the duration of the test shall be recorded.

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## 7.5 Measurement Record



## 8. Transmitter Maximum Output Power

### 8.1 Definition

The nominal maximum output power and its tolerance are defined according to the power class of the UE. The nominal power defined is the broadband transmit power of the UE, i.e. the power in a bandwidth of at least  $(1 + \alpha)$  times the chip rate of the radio access mode. The period of measurement shall be at least one timeslot.

### 8.2 Limit

Operating Band	Power Class 3		Power Class 3bis		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
Band I	+24	+1,7/-3,7			+21	+2,7/-2,7
Band III	+24	+1,7/-3,7			+21	+2,7/-2,7
Band VII	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band VIII	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XV	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-1,7
Band XVI	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-1,7
Band XX	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XXII	+24	+1,7/-5.2	+23	+2,7/-4.2	+21	+2,7/-4.2

### 8.3 EUT Operation Condition

The EUT was programmed to be in continuously transmitting mode.

### 8.4 Test Procedure

- 1) Set and send continuously Up power control commands to the UE.
- 2) Measure the mean power of the UE in a bandwidth of at least  $(1 + \alpha)$  times the chip rate of the radio access mode. The mean power shall be averaged over at least one timeslot.

### 8.5 Measurement Record

Band	WCDMA Band I			WCDMA Band VIII		
Channel	9612	9750	9888	2712	2788	2863
Frequency	1922.4	1950	1977.6	882.4	897.6	912.6
RMC 12.2Kbps	22.22	22.22	22.11	22.55	22.81	22.74
HSDPA Subtest-1	22.00	21.85	22.03	22.38	22.20	21.87
HSDPA Subtest-2	21.67	21.55	21.52	22.06	22.03	21.66
HSDPA Subtest-3	21.47	21.21	21.43	21.64	21.77	21.20
HSDPA Subtest-4	21.26	21.11	21.35	21.58	21.43	21.12
HSUPA Subtest-1	21.97	21.80	21.74	22.14	22.14	21.72
HSUPA Subtest-2	21.97	21.79	21.84	22.26	22.26	21.91
HSUPA Subtest-3	21.60	21.65	21.46	21.78	21.90	21.49
HSUPA Subtest-4	21.86	21.77	21.87	22.26	22.24	21.87
HSUPA Subtest-5	21.71	21.57	21.56	21.96	22.09	21.65

## 9. Transmitter Spectrum Emission Mask

### 9.1 Definition

The spectrum emission mask of the UE applies to frequencies, which are between 2,5 MHz and 12,5 MHz away from the UE centre carrier frequency. The out of channel emission is specified relative to the RRC filtered mean power of the UE carrier.

### 9.2 Limit

$\Delta f$ in MHz (note 1)	Minimum requirement (note 2)		Measurement bandwidth (note 5)
	Relative requirement	Absolute requirement(in measurement bandwidth)	
2,5 MHz to 3,5 MHz	$\left\{ -33,5 - 15 * \left( \frac{\Delta f}{\text{MHz}} - 2,5 \right) \right\} \text{dBc}$	-69,6 dBm	30 kHz (see note 3)
3,5 MHz to 7,5 MHz	$\left\{ -33,5 - 1 * \left( \frac{\Delta f}{\text{MHz}} - 3,5 \right) \right\} \text{dBc}$	-54,3 dBm	1 MHz (see note 4)
7,5 MHz to 8,5 MHz	$\left\{ -37,5 - 10 * \left( \frac{\Delta f}{\text{MHz}} - 7,5 \right) \right\} \text{dBc}$	-54,3 dBm	1 MHz (see note 4)
8,5 MHz to 12,5 MHz	-47,5 dBc	-54,3 dBm	1 MHz (see note 4)

NOTE 1:  $\Delta f$  is the separation between the carrier frequency and the centre of the measurement bandwidth.

NOTE 2: The minimum requirement is calculated from the relative requirement or the absolute requirement, whichever is the higher power.

NOTE 3: The first and last measurement position with a 30 kHz filter is at  $\Delta f$  equals to 2,515 MHz and 3,485 MHz.

NOTE 4: The first and last measurement position with a 1 MHz filter is at  $\Delta f$  equals to 4 MHz and 12 MHz.

NOTE 5: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

### 9.3 EUT Operation Condition

The EUT was programmed to be in continuously transmitting mode.

### 9.4 Test Procedure

- 1) Set and send continuously Up power control commands to the UE until the UE output power shall be at the maximum level.
- 2) Measure the power of the transmitted signal with a measurement filter of bandwidths according to table 4.2.3.2-1. Measurements with an offset from the carrier centre frequency between 2,515 MHz and 3,485MHz shall use a 30 kHz measurement filter. Measurements with an offset from the carrier centre frequency between 4 MHz and 12 MHz shall use 1 MHz measurement bandwidth and the result may be calculated by integrating multiple 50 kHz or narrower filter measurements. The characteristic of the filter shall be approximately Gaussian (typical spectrum analyzer filter). The centre frequency of the filter shall be stepped in contiguous steps according to table 4.2.3.2-1. The measured power shall be recorded for each step.
- 3) Measure the RRC filtered mean power centred on the assigned channel frequency.
- 4) Calculate the ratio of the power 2) with respect to 3) in dBc.

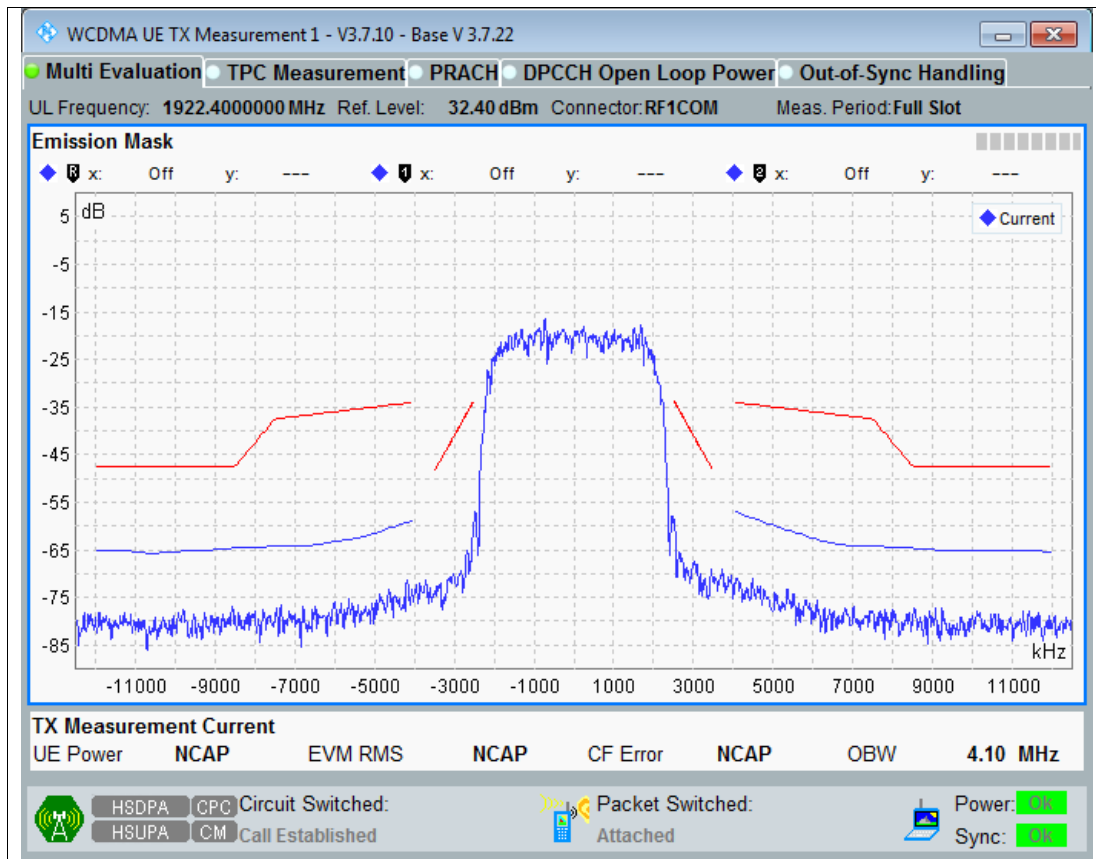
## 9.5 Measurement Record

The report only shows the worst mode, which is RMC.

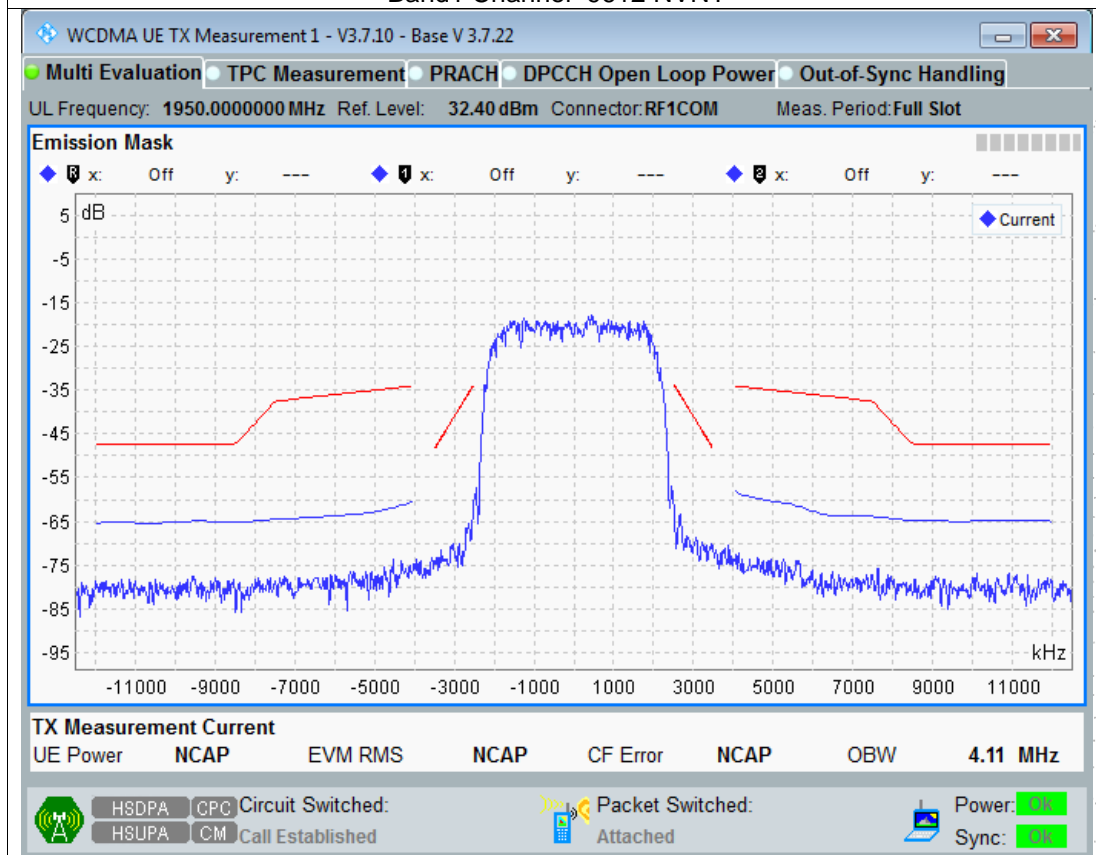
Condition	Band	UL Channel	UL Frequency (MHz)	Range	SEM Margin (dBc)	Verdict
NVNT	Band1	9612	1922.4	AB	-17.45	PASS
NVNT	Band1	9612	1922.4	BC	-17.79	PASS
NVNT	Band1	9612	1922.4	CD	-24.56	PASS
NVNT	Band1	9612	1922.4	EF	-24.18	PASS
NVNT	Band1	9612	1922.4	FE	-22.43	PASS
NVNT	Band1	9612	1922.4	DC	-23.00	PASS
NVNT	Band1	9612	1922.4	CB	-17.72	PASS
NVNT	Band1	9612	1922.4	BA	-17.36	PASS
NVNT	Band1	9750	1950	AB	-17.29	PASS
NVNT	Band1	9750	1950	BC	-17.74	PASS
NVNT	Band1	9750	1950	CD	-26.15	PASS
NVNT	Band1	9750	1950	EF	-25.92	PASS
NVNT	Band1	9750	1950	FE	-23.83	PASS
NVNT	Band1	9750	1950	DC	-23.91	PASS
NVNT	Band1	9750	1950	CB	-17.51	PASS
NVNT	Band1	9750	1950	BA	-17.14	PASS
NVNT	Band1	9888	1977.6	AB	-16.78	PASS
NVNT	Band1	9888	1977.6	BC	-17.13	PASS
NVNT	Band1	9888	1977.6	CD	-24.31	PASS
NVNT	Band1	9888	1977.6	EF	-23.82	PASS
NVNT	Band1	9888	1977.6	FE	-23.27	PASS
NVNT	Band1	9888	1977.6	DC	-22.87	PASS
NVNT	Band1	9888	1977.6	CB	-16.99	PASS
NVNT	Band1	9888	1977.6	BA	-16.65	PASS

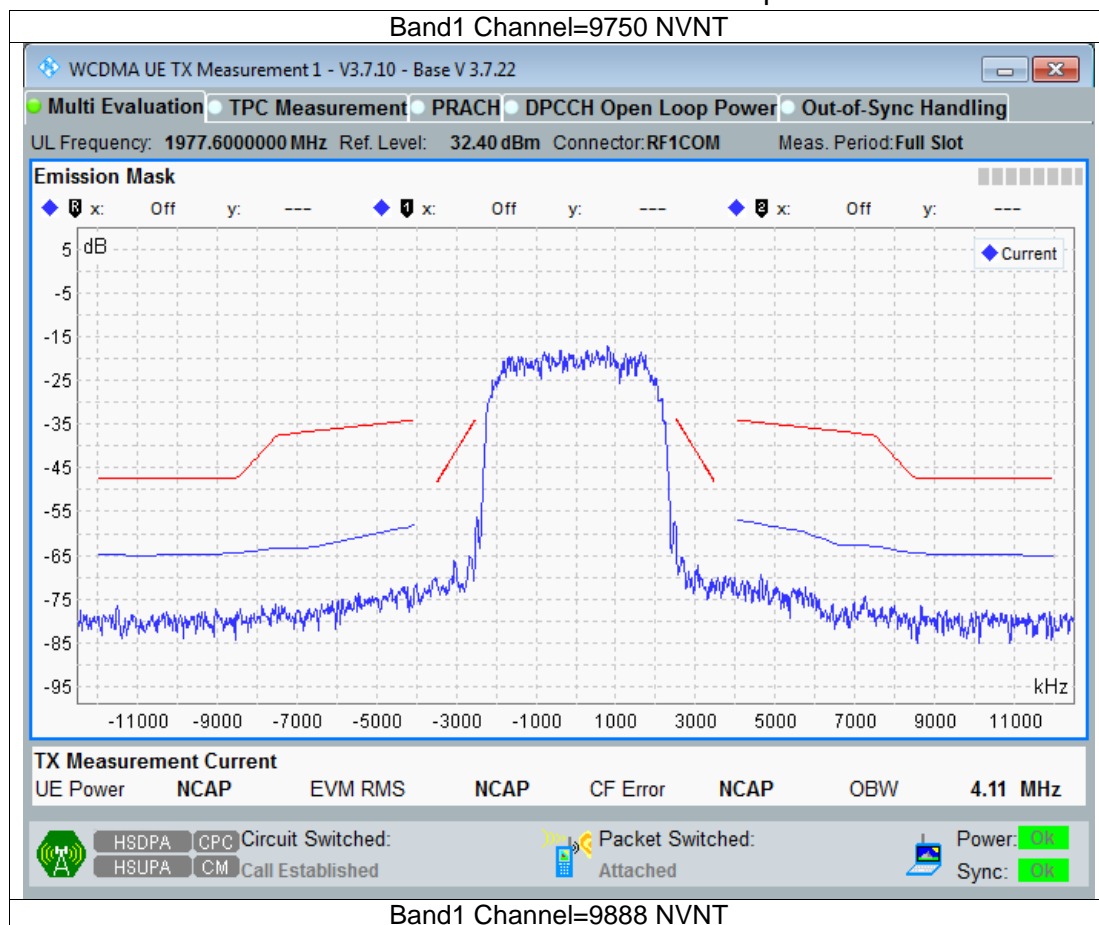
Condition	Band	UL Channel	UL Frequency (MHz)	Range	SEM Margin (dBc)	Verdict
NVNT	Band8	2712	882.4	AB	-15.39	PASS
NVNT	Band8	2712	882.4	BC	-15.70	PASS
NVNT	Band8	2712	882.4	CD	-15.80	PASS
NVNT	Band8	2712	882.4	EF	-16.01	PASS
NVNT	Band8	2712	882.4	FE	-18.21	PASS
NVNT	Band8	2712	882.4	DC	-18.28	PASS
NVNT	Band8	2712	882.4	CB	-13.63	PASS
NVNT	Band8	2712	882.4	BA	-13.40	PASS
NVNT	Band8	2787	897.4	AB	-12.78	PASS
NVNT	Band8	2787	897.4	BC	-12.96	PASS
NVNT	Band8	2787	897.4	CD	-14.48	PASS
NVNT	Band8	2787	897.4	EF	-14.20	PASS
NVNT	Band8	2787	897.4	FE	-15.77	PASS
NVNT	Band8	2787	897.4	DC	-15.38	PASS
NVNT	Band8	2787	897.4	CB	-13.34	PASS
NVNT	Band8	2787	897.4	BA	-13.15	PASS
NVNT	Band8	2863	912.6	AB	-14.75	PASS
NVNT	Band8	2863	912.6	BC	-15.05	PASS
NVNT	Band8	2863	912.6	CD	-20.63	PASS
NVNT	Band8	2863	912.6	EF	-19.45	PASS
NVNT	Band8	2863	912.6	FE	-13.28	PASS
NVNT	Band8	2863	912.6	DC	-13.09	PASS
NVNT	Band8	2863	912.6	CB	-16.25	PASS
NVNT	Band8	2863	912.6	BA	-15.77	PASS

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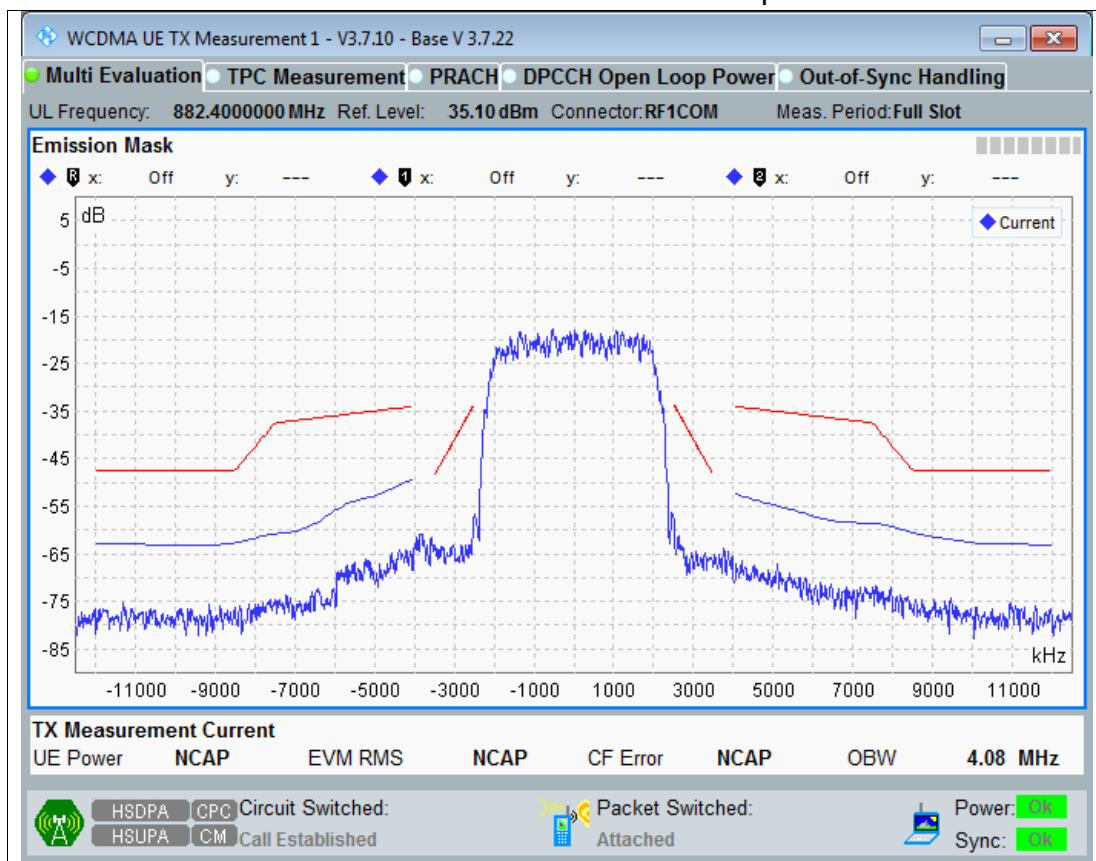


Band1 Channel=9612 NVNT

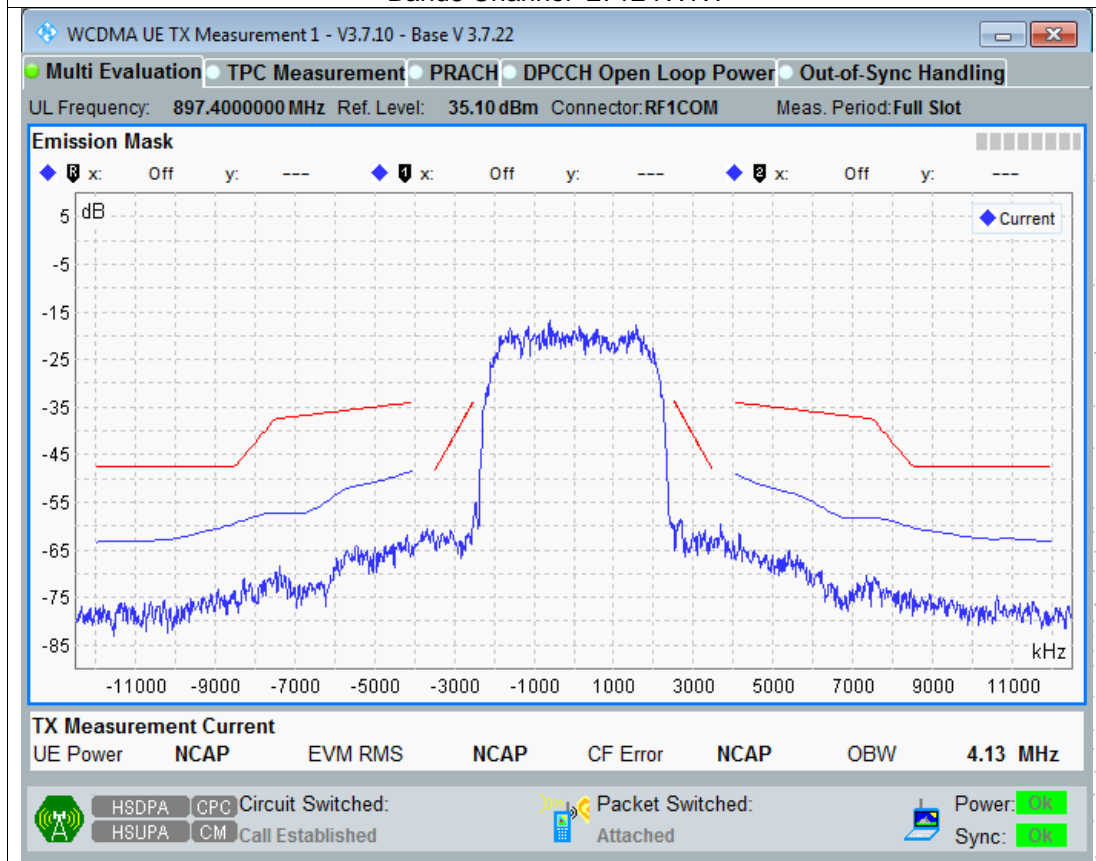




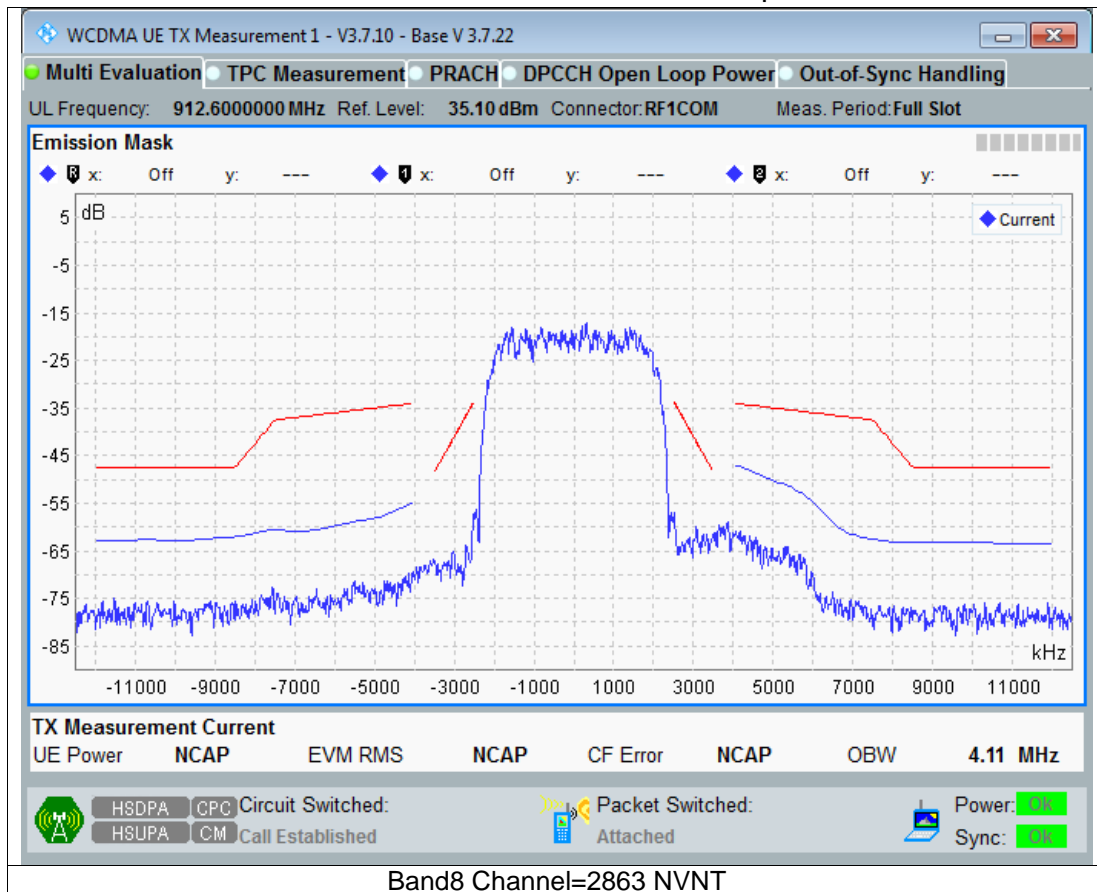
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Band8 Channel=2712 NVNT



Band8 Channel=2787 NVNT



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 BCTC  
 PPR  
 Report

## 10. Transmitter spurious emissions

### 10.1 Definition

Spurious emissions are emissions, which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

### 10.2 Limit

Table 4.2.4.1.2-1: General spurious emissions requirements

Frequency bandwidth	Measurement bandwidth	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12,75 \text{ GHz}$	1 MHz	-30 dBm
$12,75 \text{ GHz} \leq f < 5\text{th harmonic of the upper frequency edge of the UL operating band in GHz}$	1 MHz	-30 dBm (note)

NOTE: Applies only for Band XXII.

Table 4.2.4.1.2-2: Additional spurious emissions requirements

Operating band	Frequency bandwidth	Measurement bandwidth	Minimum requirement
I	$791 \text{ MHz} \leq f \leq 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$921 \text{ MHz} \leq f < 925 \text{ MHz}$	100 kHz	-60 dBm (note 1)
	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (note 1)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (note 1)
	$1\,805 \text{ MHz} \leq f \leq 1\,880 \text{ MHz}$	100 kHz	-71 dBm (note 1)
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,585 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	3,84 MHz	-60 dBm
VIII	$791 \text{ MHz} \leq f \leq 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (note 1)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	3,84 MHz	-60 dBm
	$1\,805 \text{ MHz} < f \leq 1\,830 \text{ MHz}$	100 kHz	-79 dBm (note 1)
	$1\,830 \text{ MHz} < f \leq 1\,880 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	100 kHz	-71 dBm (notes 1 and 2)
	$2\,585 \text{ MHz} \leq f \leq 2\,640 \text{ MHz}$	3,84 MHz	-60 dBm (note 2)
	$2\,640 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	100 kHz	-71 dBm (note 1)
		3,84 MHz	-60 dBm
		3,84 MHz	-60 dBm
		3,84 MHz	-60 dBm
		3,84 MHz	-60 dBm (note 2)

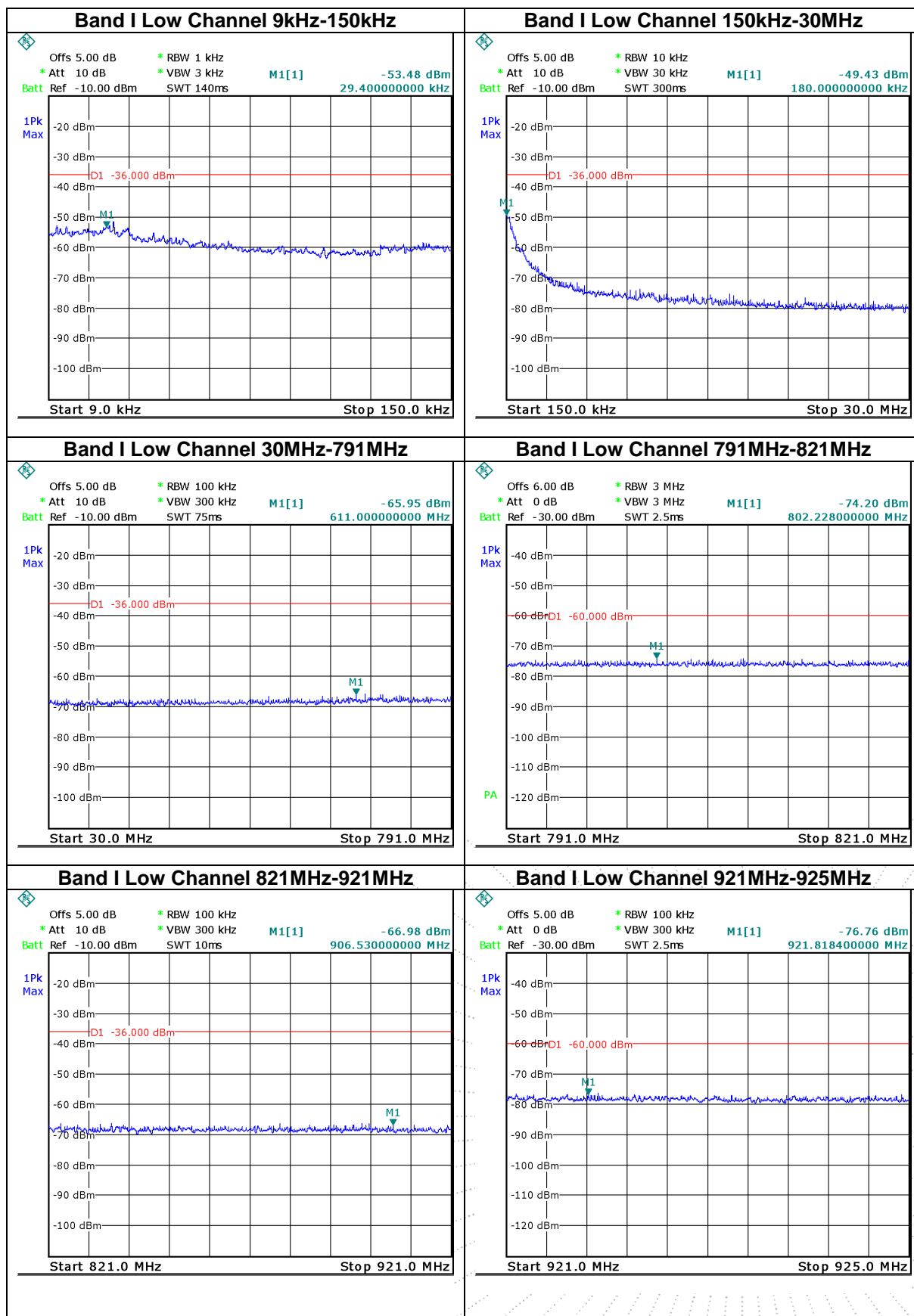
### 10.3 EUT Operation Condition

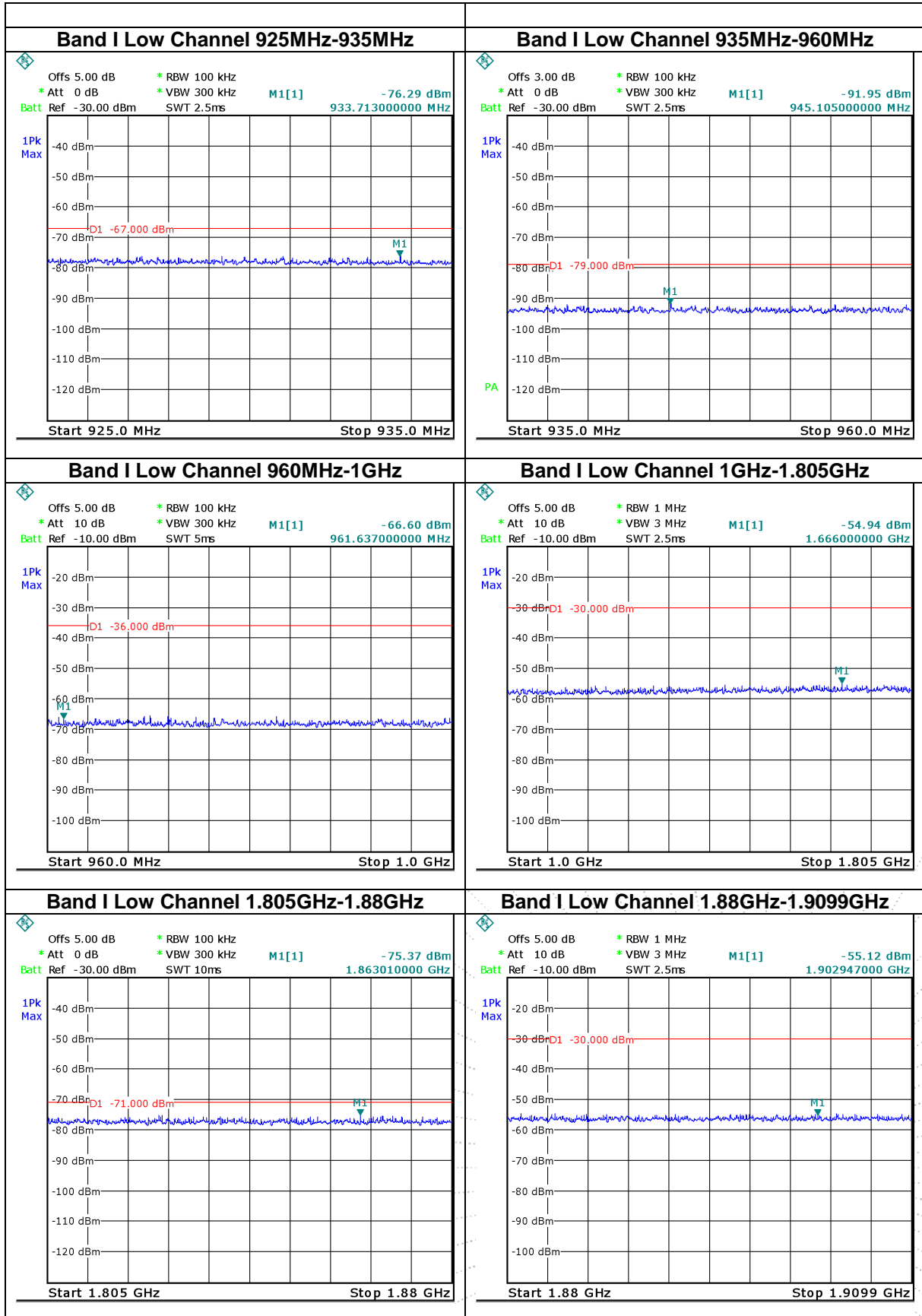
The EUT was programmed to be in continuously transmitting mode.

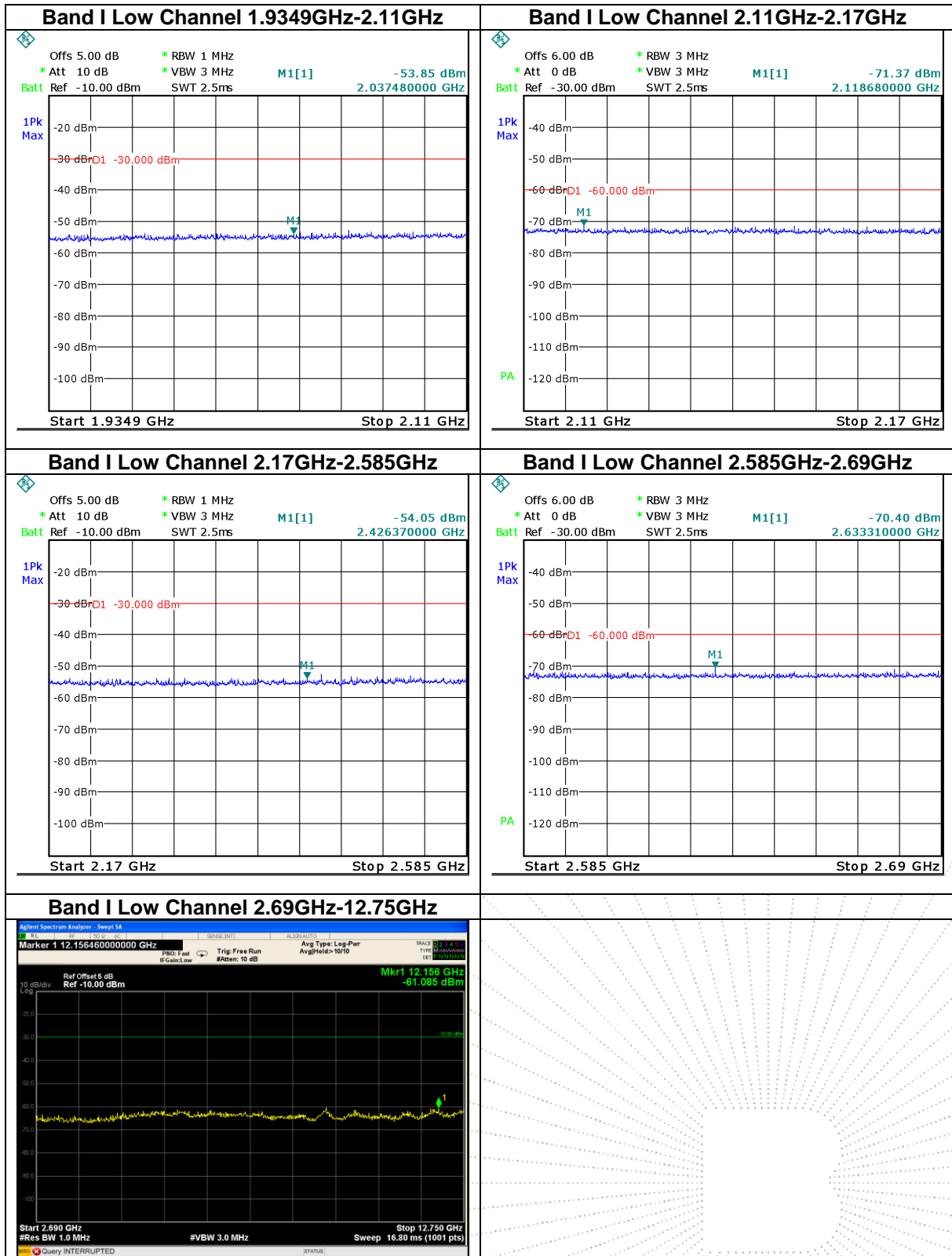
### 10.4 Test Procedure

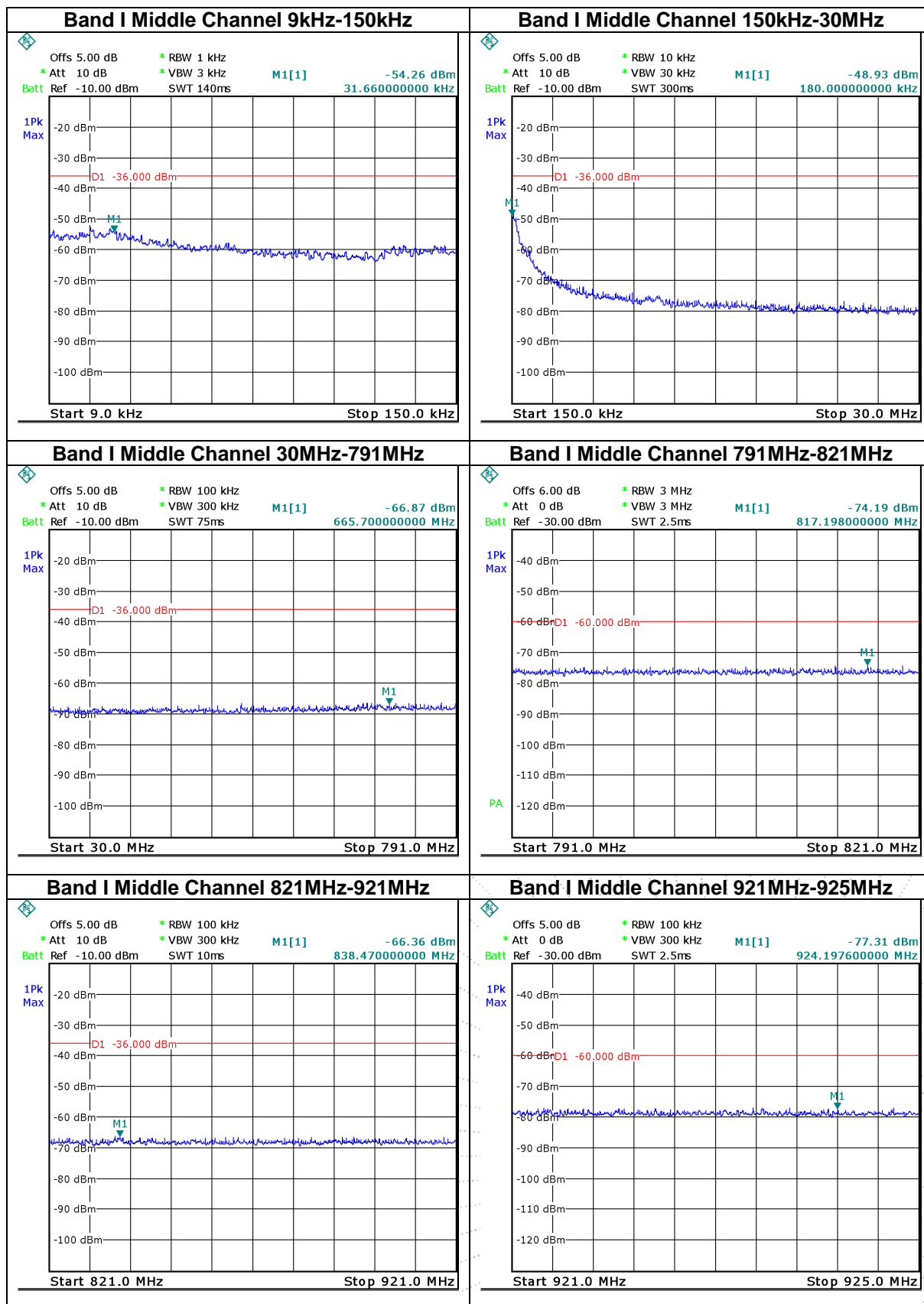
- 1) Set and send continuously up power control commands to the UE until the UE output power shall be maximum level.
- 2) Sweep the spectrum analyzer (or equivalent equipment) over a frequency range and measure the average power of spurious emission.

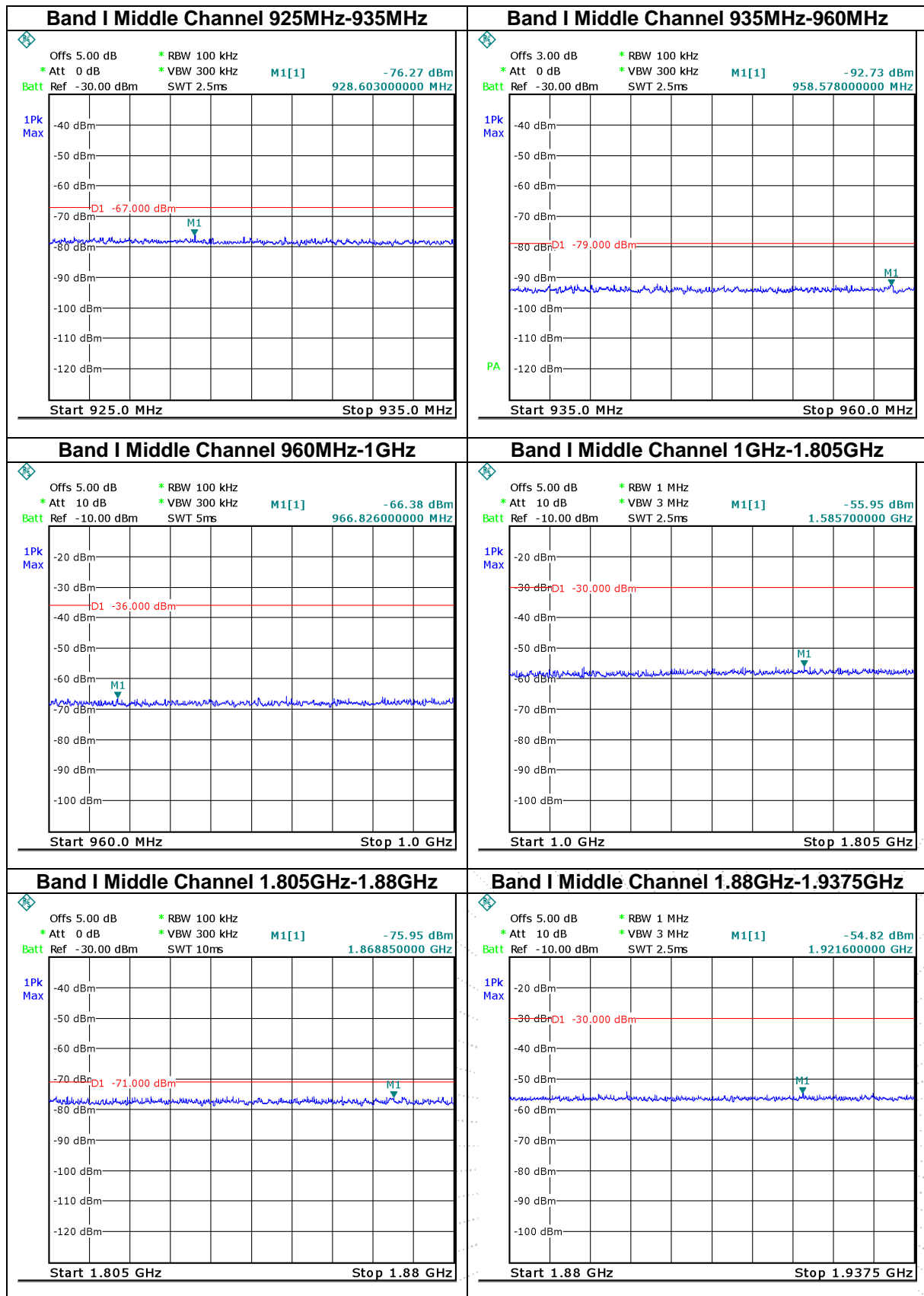
## 10.5 Measurement Record

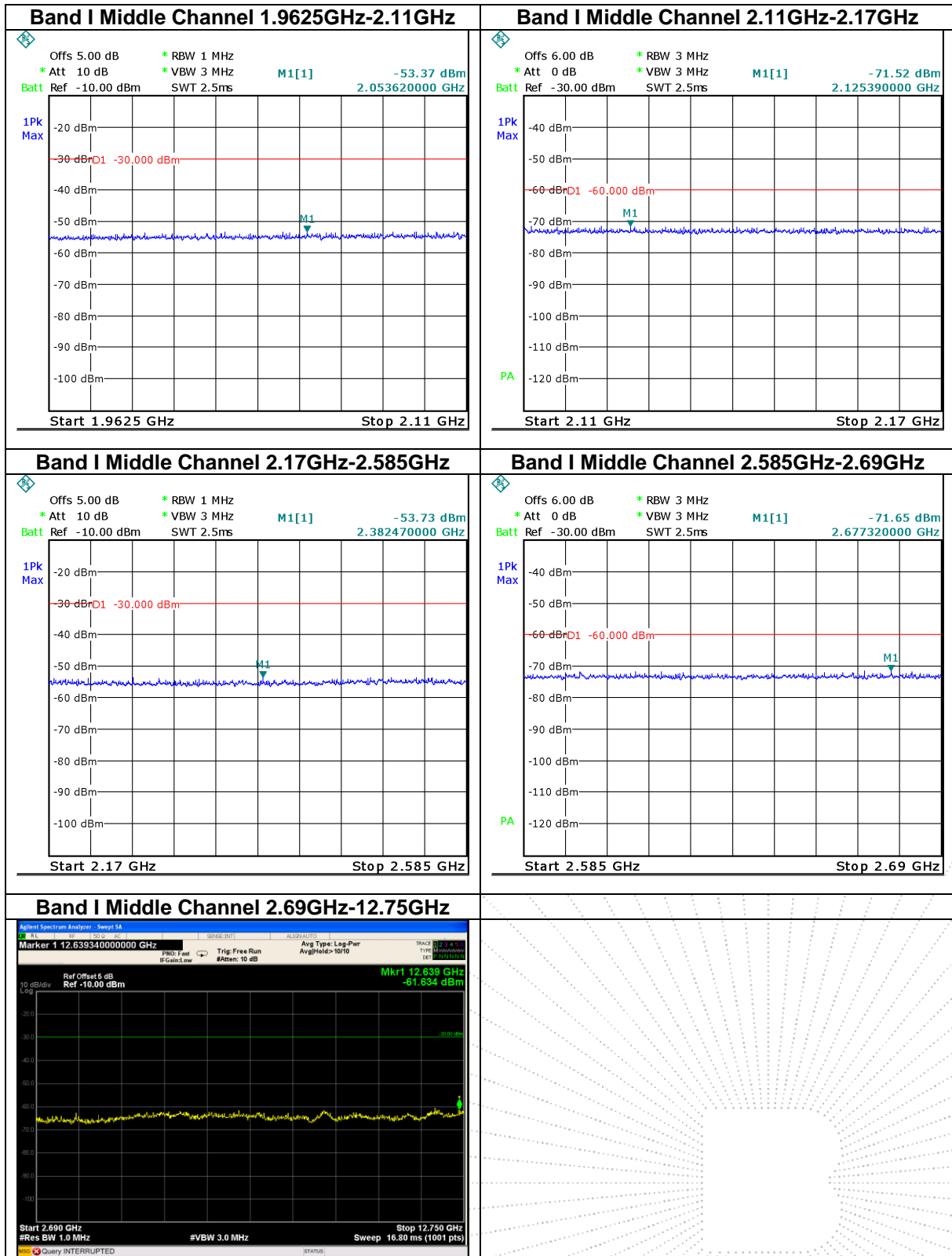


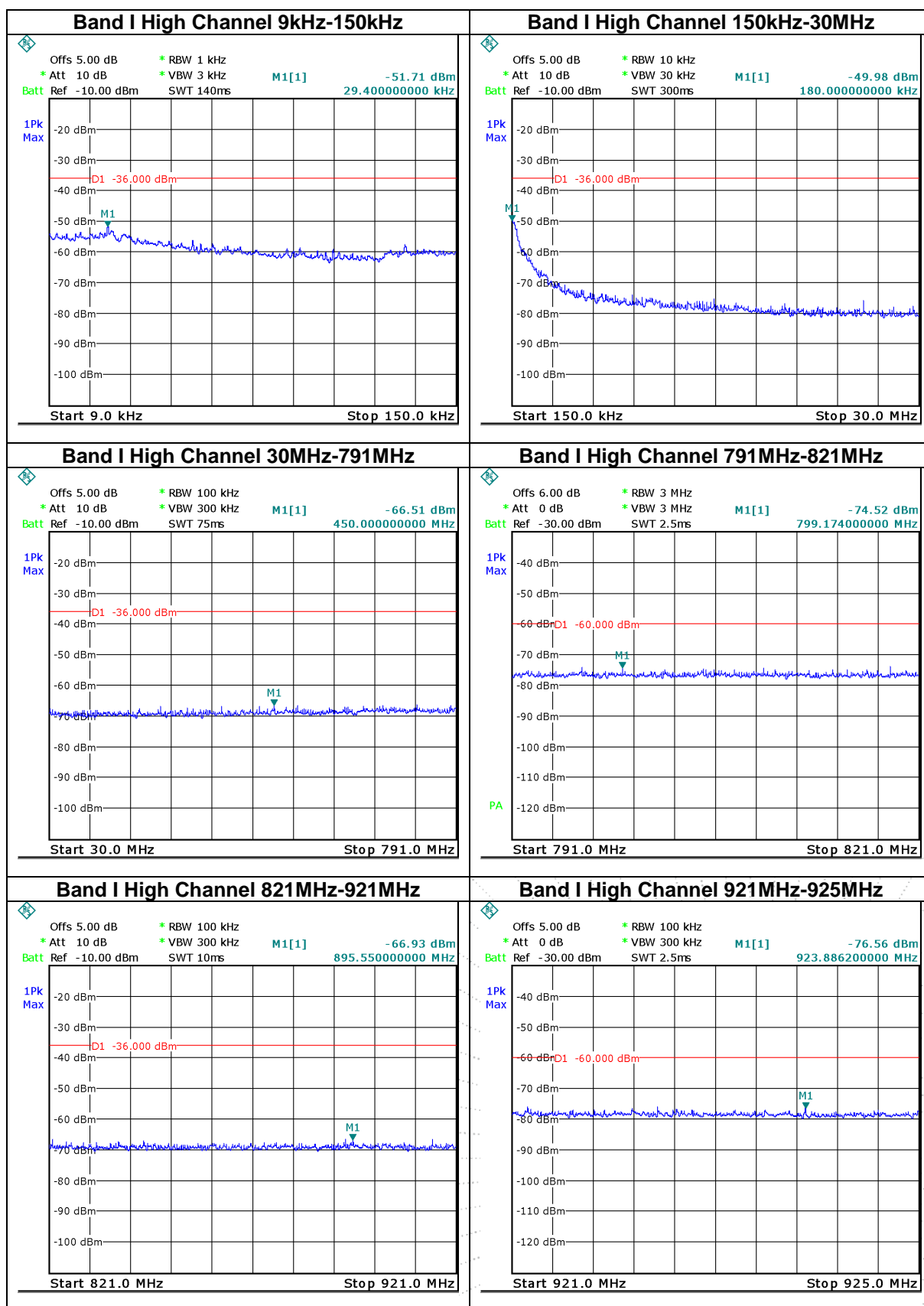




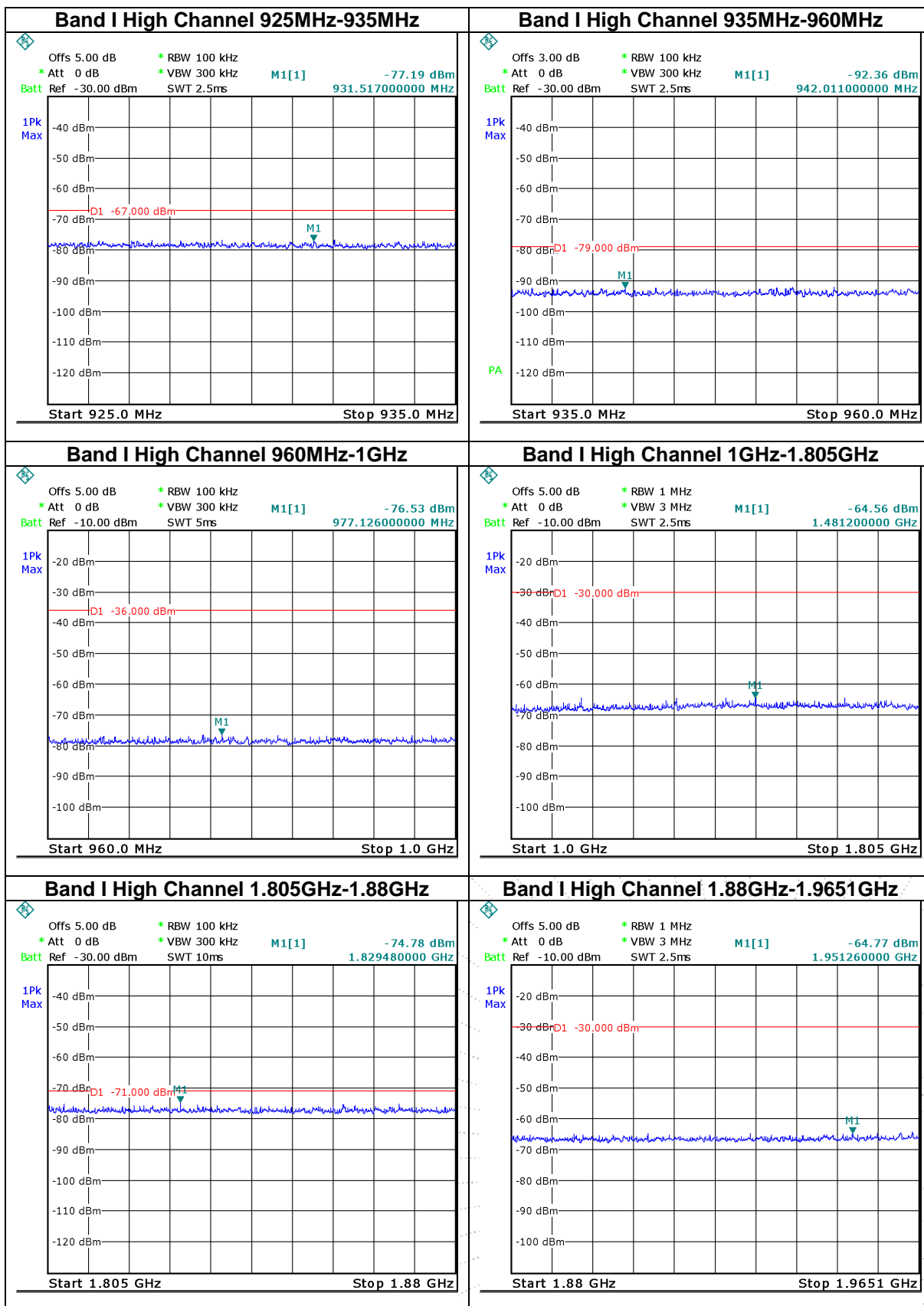


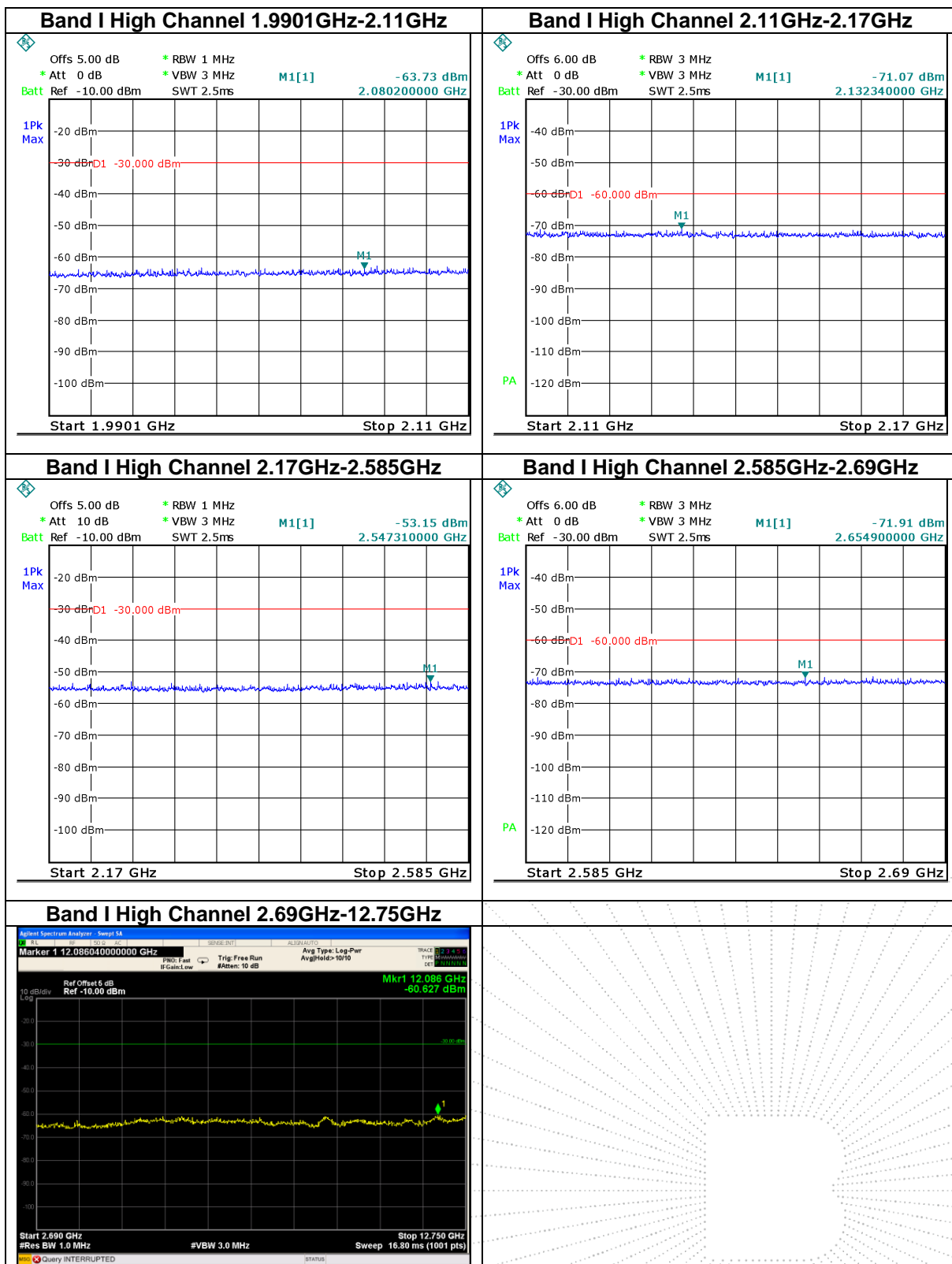






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## 11. Transmitter Minimum Output Power

### 11.1 Definition

The minimum controlled output power of the UE is when the power is set to a minimum value. This is when both the inner loop and open loop power control indicate a minimum transmit output power is required. The minimum transmit power is defined as a mean power in one time slot.

### 11.2 Limit

The minimum output power shall be less than -49 dBm.

### 11.3 EUT Operation Condition

The EUT was programmed to be in continuously transmitting mode.

### 11.4 Test Procedure

- 1) Set and send continuously down power control commands to the UE.
- 2) Measure the mean power of the UE.

### 11.5 Measurement Record

Mode	Test Condition	Test Frequency (MHz)	Transmitter Minimum output power (dBm)	Result
WCDMA Band I	Normal	1922.4	-55.26	PASS
		1950	-55.52	PASS
		1977.6	-55.34	PASS
	LTLV	1922.4	-55.34	PASS
		1950	-55.85	PASS
		1977.6	-55.58	PASS
	LTHV	1922.4	-55.63	PASS
		1950	-56.25	PASS
		1977.6	-55.77	PASS
	HTLV	1922.4	-56.13	PASS
		1950	-56.52	PASS
		1977.6	-56.24	PASS
WCDMA Band VIII	Normal	1922.4	-56.39	PASS
		1950	-56.78	PASS
		1977.6	-56.72	PASS
	LTLV	882.4	-55.91	PASS
		897.4	-56.03	PASS
		912.6	-56.22	PASS
	LTHV	882.4	-56.32	PASS
		897.4	-56.10	PASS
		912.6	-56.54	PASS
	LTHV	882.4	-56.50	PASS
		897.4	-56.47	PASS
		912.6	-56.87	PASS
	HTLV	882.4	-56.70	PASS
		897.4	-56.64	PASS
		912.6	-57.04	PASS
	HTHV	882.4	-56.96	PASS
		897.4	-56.95	PASS
		912.6	-57.33	PASS

## 12. Receiver Adjacent Channel Selectivity (ACS)

### 12.1 Definition

Adjacent Channel Selectivity (ACS) is a measure of a receiver's ability to receive a WCDMA signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

### 12.2 Limit

Parameter	Unit	Case 1	Case 2
DPCH_Ec	dBm/3,84MHz	<REFSENS> + 14dB	<REFSENS> + 41dB
$\hat{I}_{or}$	dBm/3,84MHz	<REF $\hat{I}_{or}$ > + 14dB	<REF $\hat{I}_{or}$ > + 41dB
$I_{oac}$ mean power (modulated)	dBm	-52	-25
$F_{uw}$ (offset)	MHz	+5 or -5	+5 or -5
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)	20 (for Power class 3) 18 (for Power class 4)
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in TS 134 121-1 [2].			
NOTE 2: The $I_{oac}$ (modulated) signal consists of the common channels and the 16 dedicated data channels as specified in TS 125 101 [5].			

### 12.3 EUT Operation Condition

The EUT was programmed to be in Loopback mode.

### 12.4 Test Procedure

- 1) Set the parameters of the interference signal generator as shown in table 4.2.6.2-1 case 1.
- 2) Set the power level of UE according to the table 4.2.6.2-1 case 1 with  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.
- 4) Set the parameters of the interference signal generator as shown in table 4.2.6.2-1 case 2.
- 5) Set the power level of UE according to the table 4.2.6.2-1 case 2 with  $\pm 1$  dB tolerance.
- 6) Measure the BER of DCH received from the UE at the SS.

### 12.5 Measurement Record

WCDMA Band I:

Test Case	BER	Limit	Result
Case 1	0.000%	0.01%	PASS
Case 2	0.000%	0.01%	

WCDMA Band VIII:

Test Case	BER	Limit	Result
Case 1	0.000%	0.01%	PASS
Case 2	0.000%	0.01%	

## 13. Receiver Blocking Characteristics

### 13.1 Definition

The blocking characteristic is a measure of the receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

### 13.2 Limit

Table 4.2.7.2-1: Test parameters for in-band blocking characteristics

Parameter	Unit	Level	
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 3 dB	
$\hat{I}_{or}$	dBm/3,84 MHz	<REF $\hat{I}_{or}$ > + 3 dB	
$I_{blocking}$ mean power (modulated)	dBm	-56 (for $F_{uw}$ offset $\pm 10$ MHz)	-44 (for $F_{uw}$ offset $\pm 15$ MHz)
$F_{uw}$ (Band I operation)	MHz	$2\,102,4 \leq f \leq 2\,177,6$	$2\,095 \leq f \leq 2\,185$
$F_{uw}$ (Band VIII operation)	MHz	$917,4 \leq f \leq 967,6$	$910 \leq f \leq 975$
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4) (note 3)	
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in TS 134 121-1 [2].			
NOTE 2: The $I_{blocking}$ (modulated) signal consists of the common channels and the 16 dedicated data channels as specified in TS 125 101 [5].			
NOTE 3: The UE transmitted mean power shall be reduced by 0,5 dB for a UE operating in band XXII.			

Table 4.2.7.2-2: Test parameters for out-of-band blocking characteristics

Parameter	Unit	Frequency range 1	Frequency range 2	Frequency range 3
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB
$\hat{I}_{or}$	dBm/3,84 MHz	<REF $\hat{I}_{or}$ > + 3 dB	<REF $\hat{I}_{or}$ > + 3 dB	<REF $\hat{I}_{or}$ > + 3 dB
$I_{blocking}$ (CW)	dBm	-44	-30	-15
Fuw(Band I operation)	MHz	2 050 < f < 2 095 2 185 < f < 2 230	2 025 < f ≤ 2 050 2 230 ≤ f < 2 255	1 < f ≤ 2 025 2 255 ≤ f < 12 750
Fuw (Band VIII operation)	MHz	865 < f < 910 975 < f < 1 020	840 < f < 865 1 020 ≤ f < 1 045	1 < f ≤ 840 1 045 ≤ f < 12 750
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)		
Band I operation	For 2 095 MHz ≤ f ≤ 2 185 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band VIII operation	For 910 MHz ≤ f ≤ 975 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in TS 134 121-1 [2].				
NOTE 2: The UE transmitted mean power shall be reduced by 0,5 dB for a UE operating in band XXII.				

Table 4.2.7.2-3: Test parameters for narrow band blocking

Parameter	Unit	Band III, VIII
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 10 dB
I <sub>or</sub>	dBm/3,84 MHz	<REFI <sub>or</sub> > + 10 dB
I <sub>blocking</sub> (GMSK)	dBm	-56
F <sub>uw</sub> (offset)	MHz	2,8
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)
NOTE 1: <REFSENS> and <REFI <sub>or</sub> > as specified in TS 134 121-1 [2]. NOTE 2: I <sub>blocking</sub> (GMSK) is an interfering signal as defined in TS 145 004 [9]. It is a continuous GMSK modulated carrier following the structure of the GSM signals, but with all modulating bits (including the midamble period) derived directly from a random or any pseudo random data stream.		

### 13.3 EUT Operation Condition

The EUT was programmed to be in Loopback mode.

### 13.4 Test Procedure

- 1) Set the parameters of the CW generator or the interference signal generator as shown in tables 4.2.7.2-1, 4.2.7.2-2 and 4.2.7.2-3. For table 4.2.7.2-2 the frequency step size is 1 MHz.
- 2) Set the power level of the UE according to tables 4.2.7.2-1, 4.2.7.2-2 and 4.2.7.2-3 with a  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.
- 4) For table 4.2.7.2-2, record the frequencies for which the BER exceeds the test requirements.



### 13.5 Measurement Record

WCDMA Band I

Frequency Range	Interfering Frequency (MHz)	Interfering Level (dBm)	BER
Frequency Range 1	2050	-44	0.0001
	2072	-44	0.0002
	2095	-44	0.0000
	2185	-44	0.0003
	2207	-44	0.0001
	2230	-44	0.0004
Frequency Range 2	2025	-30	0.0005
	2037	-30	0.0001
	2050	-30	0.0002
	2230	-30	0.0003
	2242	-30	0.0001
	2255	-30	0.0002
Frequency Range 3	2255	-15	0.0001
	2620	-15	0.0002
	2650	-15	0.0005
	2690	-15	0.0001
	12750	-15	0.0001

WCDMA Band VIII

Frequency Range	Interfering Frequency (MHz)	Interfering Level (dBm)	BER
Frequency Range 1	865	-44	0.0001
	890	-44	0.0002
	908	-44	0.0001
	975	-44	0.0003
	1000	-44	0.0001
	1020	-44	0.0001
Frequency Range 2	840	-30	0.0005
	855	-30	0.0003
	865	-30	0.0001
	1020	-30	0.0002
	1035	-30	0.0001
	1045	-30	0.0001
Frequency Range 3	1045	-15	0.0004
	1520	-15	0.0002
	1550	-15	0.0003
	1590	-15	0.0001
	12750	-15	0.0001

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## 14. Receiver Spurious Response

### 14.1 Definition

Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out-of-band blocking limit as specified in table 4.2.7.2-2 is not met.

### 14.2 Limit

The BER shall not exceed 0,001 for the parameters specified in table 4.2.8.2-1.

Parameter	Level	Unit
DPCH_Ec	<REFSENS> + 3 dB	dBm/3,84 MHz
$\hat{I}_{or}$	<REF $\hat{I}_{or}$ > + 3 dB	dBm/3,84 MHz
I <sub>blocking</sub> (CW)	-44	dBm
F <sub>uw</sub>	Spurious response frequencies	MHz
UE transmitted mean power	20 (for Power class 3) 18 (for Power class 4) (note 2)	dBm
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in TS 134 121-1 [2]. NOTE 2: The UE transmitted mean power shall be reduced by 0,5 dB, for a UE operating in band XXII.		

### 14.3 Test Procedure

- 1) Set the parameter of the CW generator as shown in table 4.2.8.2-1. The spurious response frequencies are determined in step 4) of clause 5.3.6.1.2.
- 2) Set the power level of the UE according to table 4.2.8.2-1 with a  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.

### 14.4 EUT Operation Condition

The EUT was programmed to be in Loopback mode.

### 14.5 Measurement Record

WCDMA Band I:

Test Case	BER	Limit	Result
Intermodulation	0.000%	0.01%	PASS

WCDMA Band VIII:

Test Case	BER	Limit	Result
Intermodulation	0.000%	0.01%	PASS

## 15. Receiver Reference Sensitivity level

### 15.1 Definition

The reference sensitivity level <REFSENS> is the minimum mean power received at the UE antenna port at which the Bit Error Ratio (BER) shall not exceed a specific value.

### 15.2 Limits

The measured BER shall not exceed 0,001 for the parameters specified in table 4.2.13.2-1:

Operating Band	Unit	DPCH_Ec <REFSENS>	<REFlor>
I	dBm/3,84 MHz	-116,3	-106
III	dBm/3,84 MHz	-113,3	-103
VII	dBm/3,84 MHz	-114,3	-104
VIII	dBm/3,84 MHz	-113,3	-103
XX	dBm/3,84 MHz	-113,3	-103
XXII	dBm/3,84 MHz	-113,3	-103

NOTE 1: For Power class 3 and 3bis this shall be at the maximum output power.  
NOTE 2: For Power class 4 this shall be at the maximum output power.

### 15.3 EUT Operation Condition

The EUT was programmed to be in Loopback mode.

### 15.4 Test Procedure

- 1) Set and send continuously Up power control commands to the UE until the UE output power shall be maximum level.
  - 2) Measure the BER of DCH received from the UE at the SS.
- Details of initial conditions for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 6.2.

### 15.5 Measurement Record

WCDMA Band I:

Test Case	BER	Limit	Result
Intermodulation	0.000%	0.01%	PASS

WCDMA Band VIII:

Test Case	BER	Limit	Result
Intermodulation	0.000%	0.01%	PASS

## 16. Receiver Intermodulation Characteristics

### 16.1 Definition

Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receive a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal.

### 16.2 Limit

Table 4.2.9.2-1: Receive intermodulation characteristics

Table 4.2.3.2-1: Receive intermodulation characteristics			
Parameter	Level		Unit
DPCH_Ec	<REFSENS> + 3 dB		dBm/3,84 MHz
$\hat{I}_{or}$	<REF $\hat{I}_{or}$ > + 3 dB		dBm/3,84 MHz
I <sub>ouw1</sub> (CW)	-46		dBm
I <sub>ouw2</sub> mean power (modulated)	-46		dBm
F <sub>uw1</sub> (offset)	10	-10	MHz
F <sub>uw2</sub> (offset)	20	-20	MHz
UE transmitted mean power	20 (for Power class 3) 18 (for Power class 4) (note 3)		dBm
NOTE 1: I <sub>ouw2</sub> (modulated) consists of the common channels and the 16 dedicated data channels as specified in TS 125 101 [5].			
NOTE 2: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in TS 134 121-1 [2].			
NOTE 3: The UE transmitted mean power shall be reduced by 0,5 dB for a UE operating in band XXII.			

Table 4.2.9.2-2: Test parameters for narrow band intermodulation characteristics

Table 4.2.3.2: Test parameters for narrow band intermodulation characteristics			
Parameter	Unit	Band III, VIII	
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 10 dB	
$\hat{I}_{or}$	dBm/3,84 MHz	<REF $\hat{I}_{or}$ > + 10 dB	
I <sub>ouw1</sub> (CW)	dBm	-43	
I <sub>ouw2</sub> (GMSK)	dBm	-43	
F <sub>uw1</sub> (offset)	MHz	3,6	- 3,6
F <sub>uw2</sub> (offset)	MHz	6,0	- 6,0
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)	
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in TS 134 121-1 [2].			
NOTE 2: I <sub>ouw2</sub> (GMSK) is an interfering signal as defined in TS 145 004 [9]. It is a continuous GMSK modulated carrier following the structure of the GSM signals, but with all modulating bits (including the midamble period) derived directly from a random or any pseudo random data stream.			

### 16.3 EUT Operation Condition

The EUT was programmed to be in Loopback mode.

## 16.4 Test Procedure

- 1) Set the parameters of the CW generator and interference generator as shown in tables 4.2.9.2-1 and 4.2.9.2-2.
- 2) Set the power level of the UE according to tables 4.2.9.2-1 and 4.2.9.2-2 with a  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.

## 16.5 Measurement Record

WCDMA Band I:

Test Case	BER	Limit	Result
Intermodulation	0.000%	0.01%	PASS

WCDMA Band VIII:

Test Case	BER	Limit	Result
Intermodulation	0.000%	0.01%	PASS

## 17. Receiver Spurious Emissions

### 17.1 Definition

The spurious emissions power is the power of emissions, generated or amplified in a receiver, which appear at the UE antenna connector. The requirements in UE transmit bands are valid in URA\_PCH, Cell\_PCH and idle state.

### 17.2 Limit

Table 4.2.10.2-1: General receiver spurious emission requirements

Frequency band	Measurement bandwidth	Maximum level
$30 \text{ MHz} \leq f < 1 \text{ GHz}$	100 kHz	-57 dBm
$1 \text{ GHz} \leq f \leq 12,75 \text{ GHz}$	1 MHz	-47 dBm

Table 4.2.10.2-2: Additional receiver spurious emission requirements

Operating band	Frequency bandwidth	Measurement bandwidth	Minimum requirement
I	$791 \text{ MHz} \leq f \leq 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$921 \text{ MHz} \leq f < 925 \text{ MHz}$	100 kHz	-60 dBm (see note )
	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$1\,805 \text{ MHz} \leq f \leq 1\,880 \text{ MHz}$	100 kHz	-71 dBm (see note)
	$1\,920 \text{ MHz} \leq f \leq 1\,980 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,585 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	3,84 MHz	-60 dBm
VIII	$791 \text{ MHz} \leq f < 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$880 \text{ MHz} \leq f \leq 915 \text{ MHz}$	3,84 MHz	-60 dBm
	$921 \text{ MHz} \leq f < 925 \text{ MHz}$	100 kHz	-60 dBm (see note)
	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
	$935 \text{ MHz} < f < 960 \text{ MHz}$	3,84 MHz	-60 dBm
	$1\,805 \text{ MHz} < f \leq 1\,880 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,585 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	3,84 MHz	-60 dBm

### 17.3 EUT Operation Condition

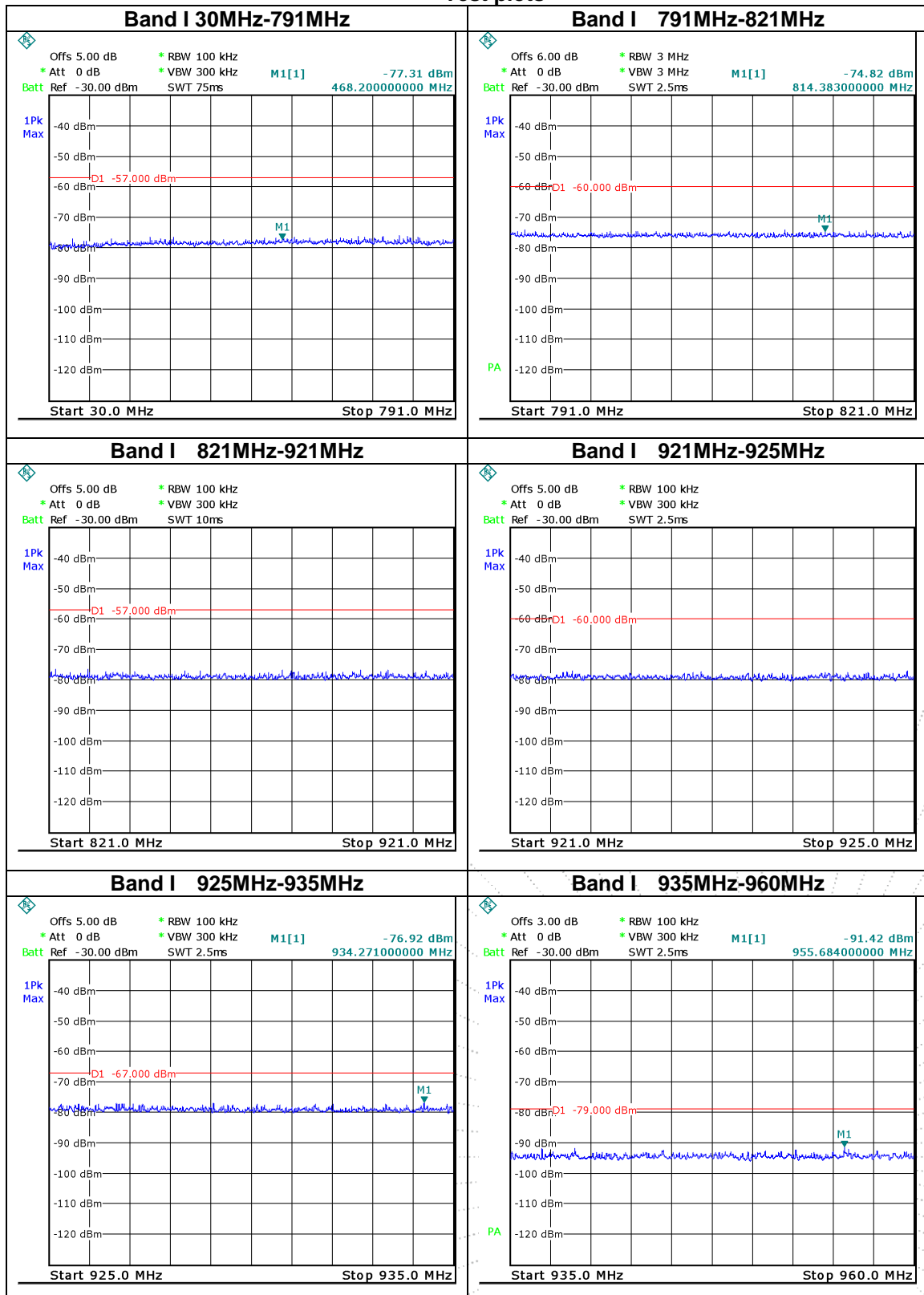
The EUT was programmed to be in receiving mode.

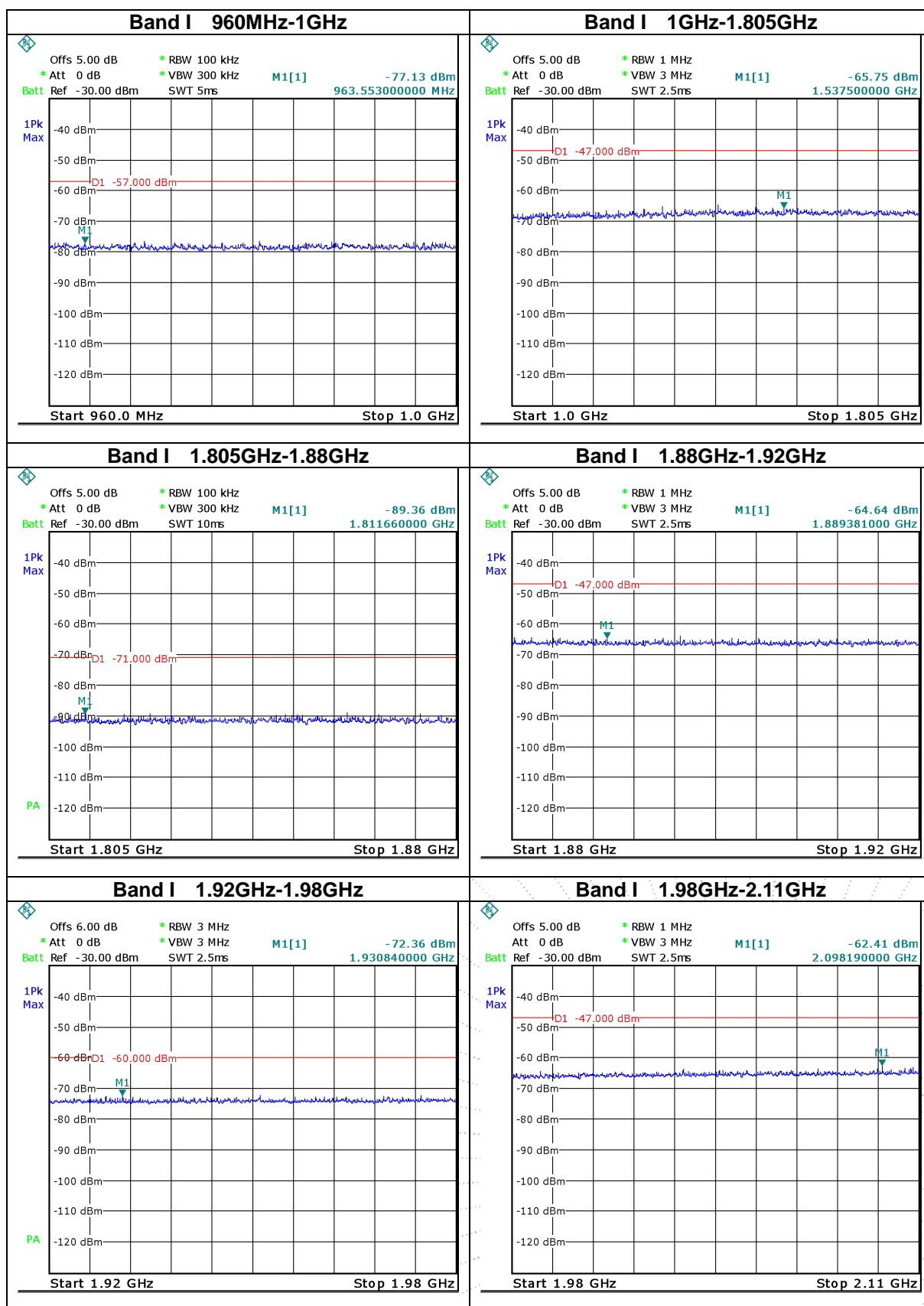
### 17.4 Test Procedure

Sweep the spectrum analyzer (or other suitable test equipment) over a frequency range from 30 MHz to 12.75 GHz and measure the average power of the spurious emissions.

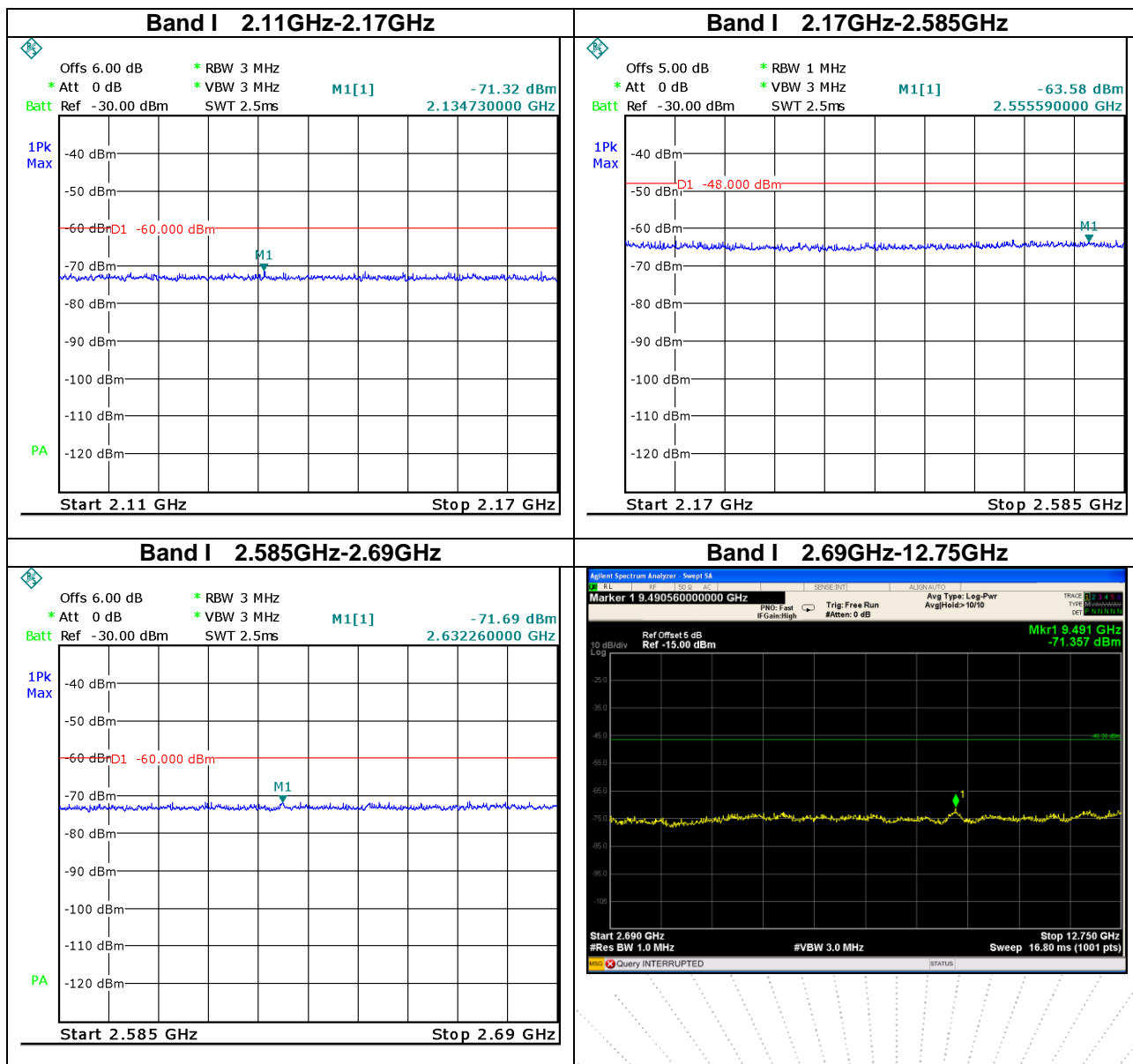
## 17.5 Measurement Record

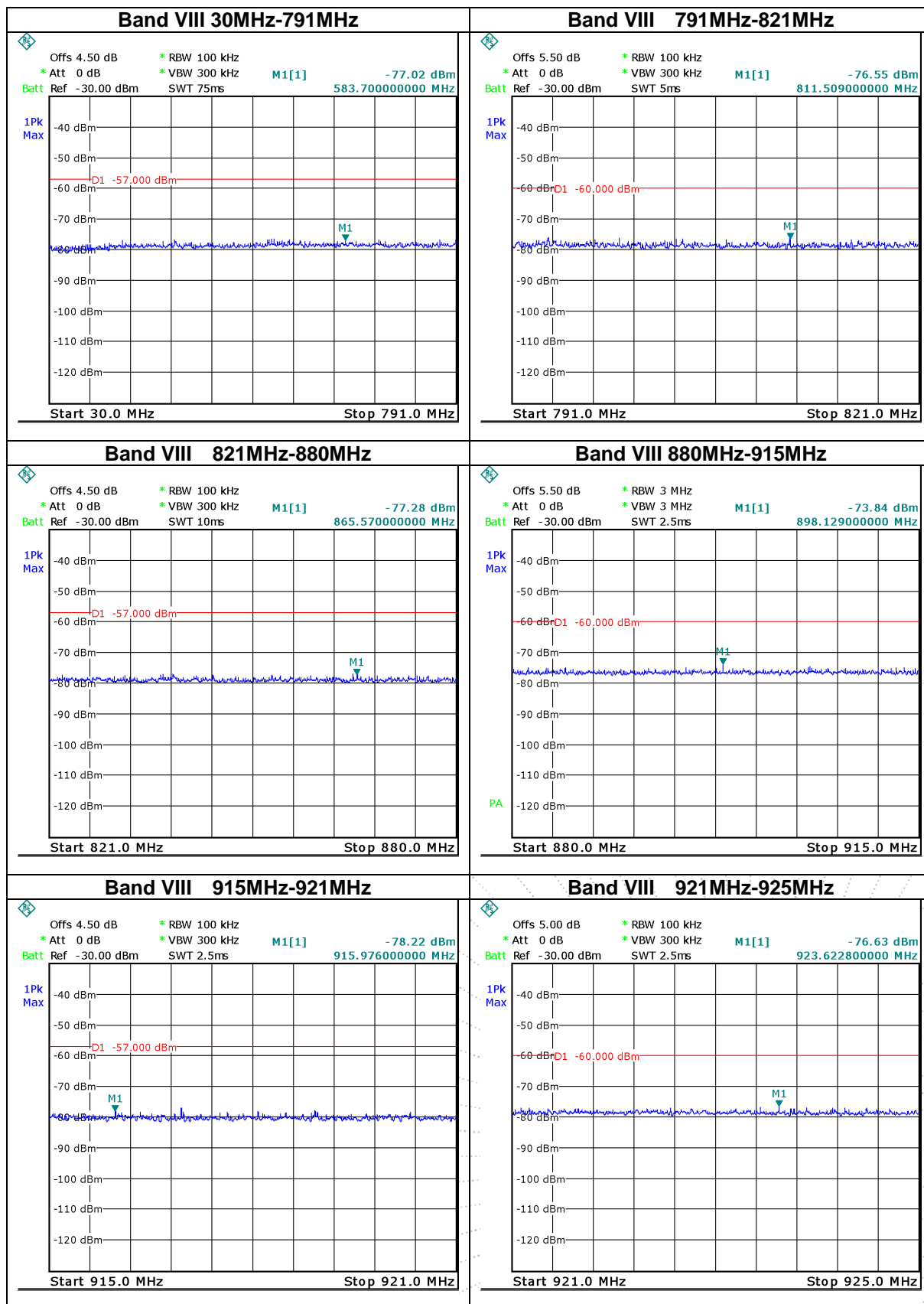
### Test plots

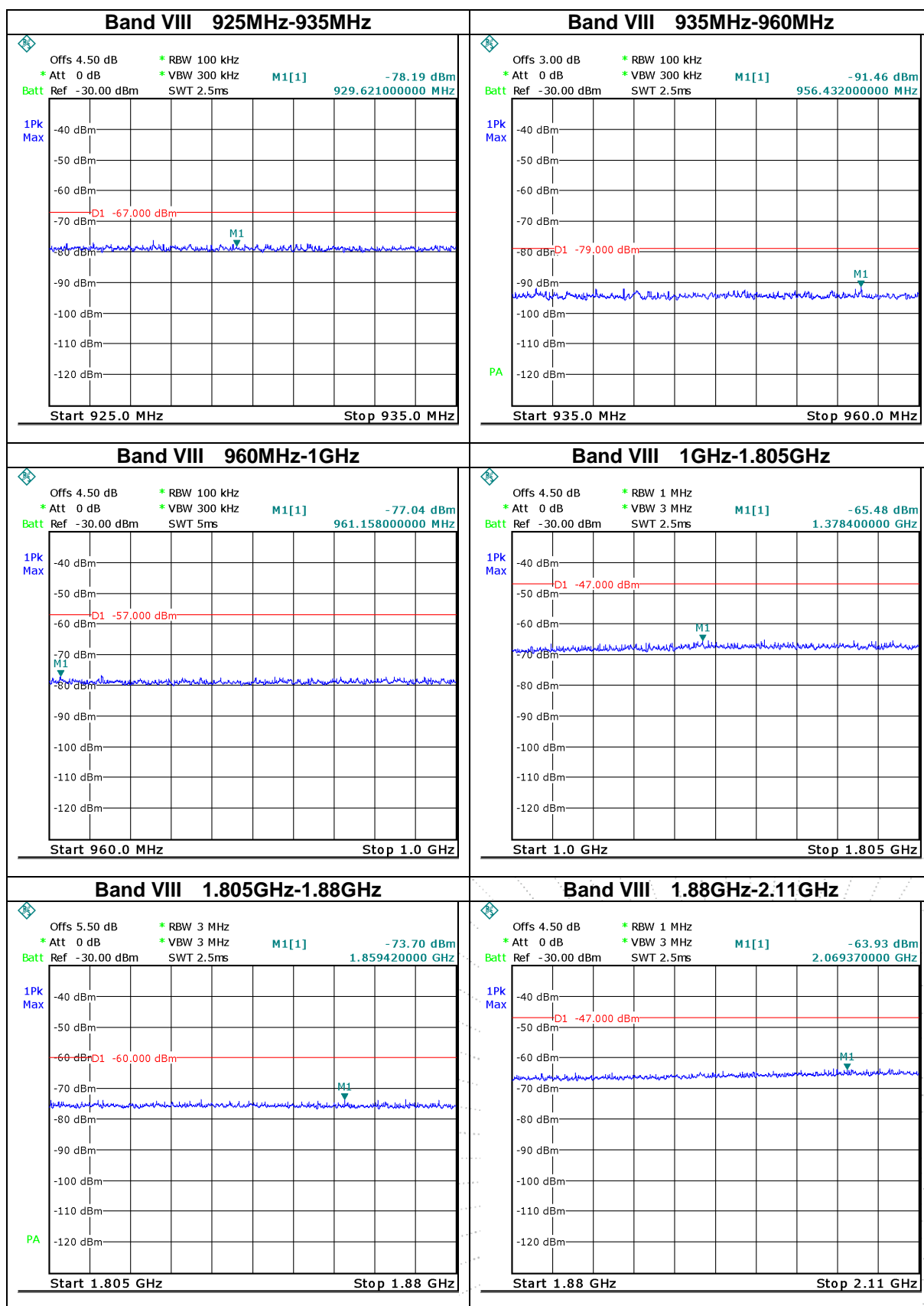


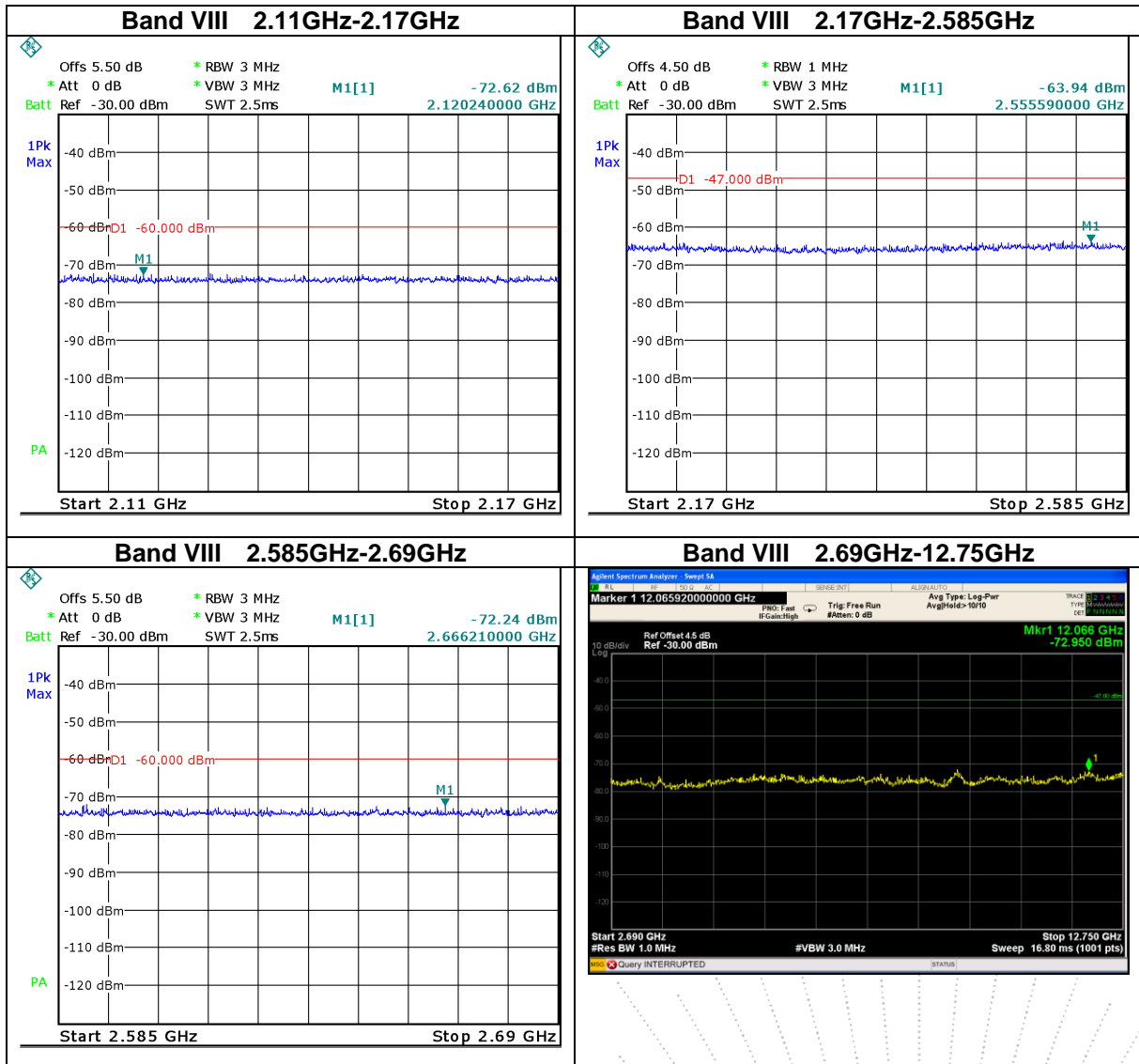


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## 18. Out-Of-Synchronization Handling Of Output Power

### 18.1 Definition

The UE shall monitor the DPCCH quality in order to detect a loss of the signal on Layer 1. The threshold  $Q_{out}$  specifies at what DPCCH quality levels the UE shall shut its power off. The threshold is not defined explicitly, but is defined by the conditions under which the UE shall shut its transmitter off, as stated in this clause.

The DPCCH quality shall be monitored in the UE and compared to the threshold  $Q_{out}$  for the purpose of monitoring synchronization. The threshold  $Q_{out}$  should correspond to a level of DPCCH quality where no reliable detection of the TPC commands transmitted on the downlink DPCCH can be made. This can be at a TPC command error ratio level of e.g. 20 %.

### 18.2 Limit

When the UE estimates the DPCCH quality over the last 160 ms period to be worse than a threshold  $Q_{out}$ , the UE shall shut its transmitter off within 40 ms.

The quality level at the thresholds  $Q_{out}$  correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 4.2.11.2-1, a signal with the quality at the level  $Q_{out}$  can be generated by a  $\frac{DPCCH\_E_c}{I_{or}}$  ratio of -25 dB. The DL reference measurement channel 12,2 kbit/s is specified in TS 134 121-1 [2] and with static propagation conditions. The downlink physical channels, other than those specified in table 4.2.11.2-1, are as specified in TS 134 121-1 [2].

Table 4.2.11.2-1: DCH parameters for test of out-of-synchronization handling

Parameter	Value	Unit
$I_{or}/I_{oc}$	-1	dB
$I_{oc}$	-60	dBm/3,84 MHz
$\frac{DPDCH\_E_c}{I_{or}}$	See figure 4.2.11.2-1: Before point A: -16,6 for UEs not supporting enhanced performance type 1 for DCH -19,6 for UEs supporting enhanced performance type 1 for DCH After point A not defined	dB
$\frac{DPCCH\_E_c}{I_{or}}$	See figure 4.2.11.2-1	dB
Information Data Rate	12,2	kbit/s

Figure 4.2.11.2-1 and table 4.2.11.2-2 show an example scenario where the  $\frac{DPCCH\_E_c}{I_{or}}$  ratio varies from a level where the DPCH is demodulated under normal conditions, down to a level below  $Q_{out}$  where the UE shall shut its power off.

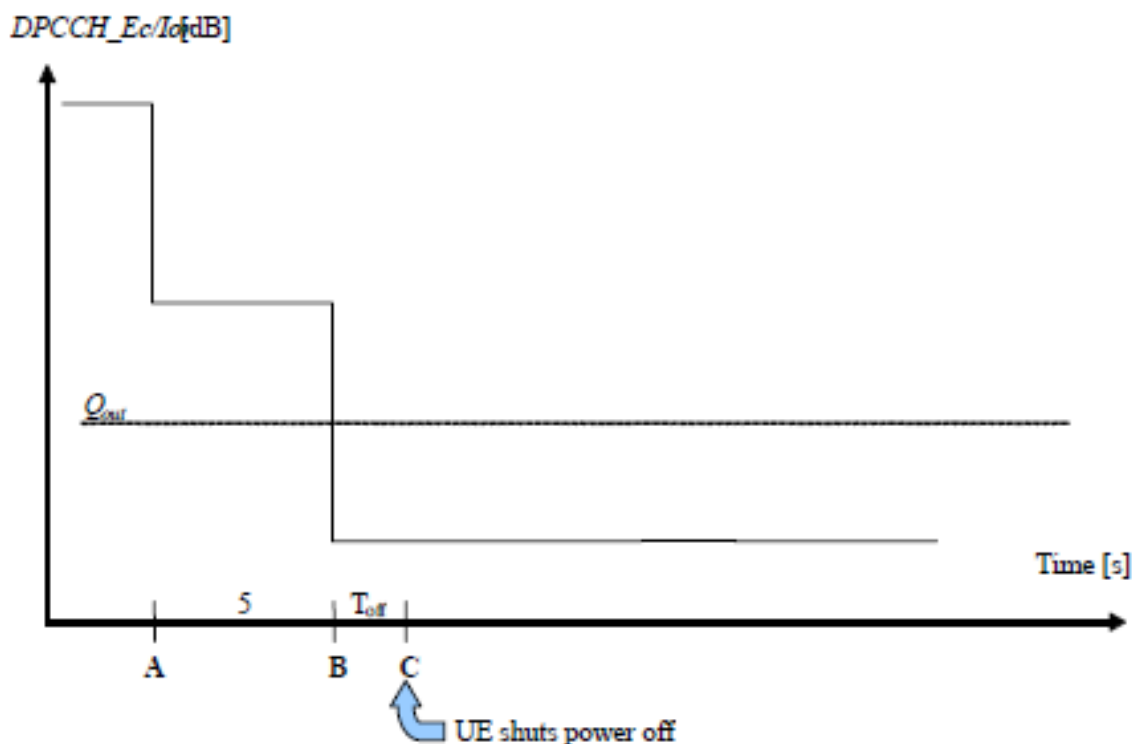


Figure 4.2.11.2-1: Conditions for out-of-synchronization handling in the UE

Table 4.2.11.2-2: Conditions for out-of-synchronization handling in the UE

Clause from figure 4.2.11.2-1	DPCCH_Ec/Ior (UE, not supporting enhanced performance requirements type 1 for DCH)	DPCCH_Ec/Ior (UE, supporting enhanced performance requirements type 1 for DCH)	Unit
Before A	-16.6	-19.6	dB
A to B	-21.6	-24.6	dB
After B	-28.4	-31.4	dB

The requirements for the UE are that it shall shut its transmitter off before point C. The UE transmitter is considered to be OFF if the measured RRC filtered mean power is less than -55 dBm.

### 18.3 EUT Operation Condition

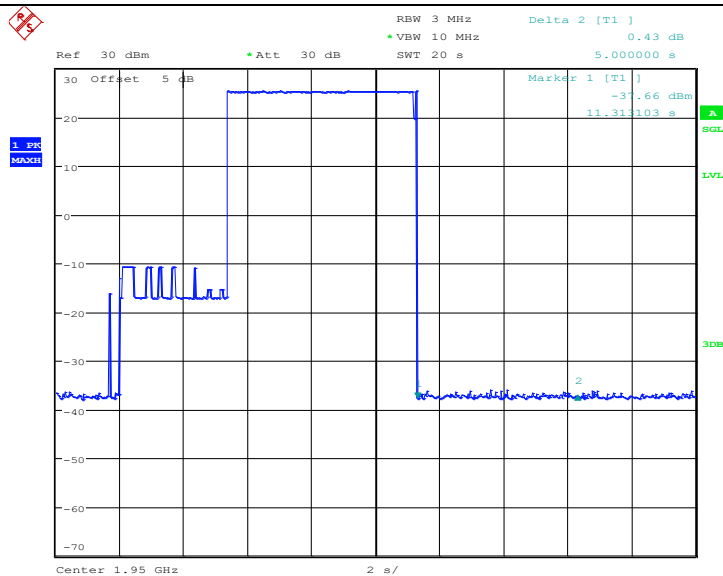
The EUT was programmed to be in transmitting mode.

### 18.4 Test Procedure

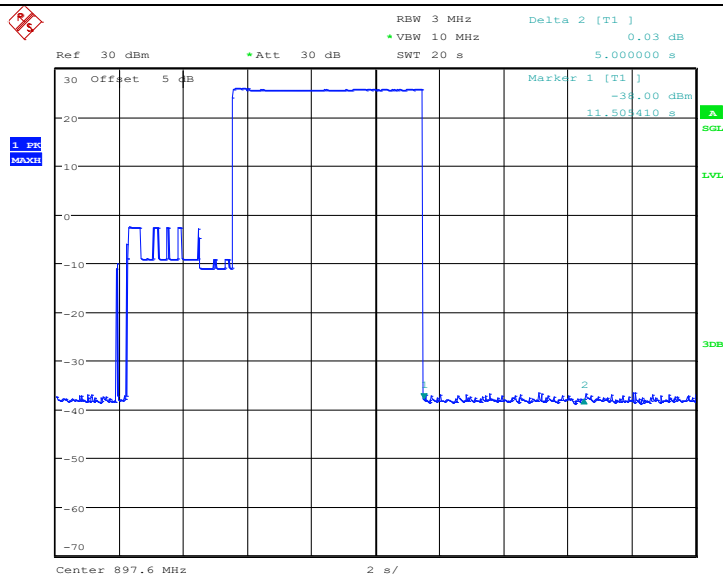
- 1) The SS sends continuously up power control commands to the UE until the UE transmitter power reach maximum level.
- 2) The SS controls the DPCCH\_Ec/Ior ratio level according to table 4.2.11.2-2, 'A to B'.
- 3) The SS controls the DPCCH\_Ec/Ior ratio level according to table 4.2.11.2-2, 'after B'. The SS waits 200ms and then verifies that the UE transmitter has been switched off.
- 4) The SS monitors the UE transmitted power for 5 s and verifies that the UE transmitter is not switched on during this time.

## 18.5 Measurement Record

### WCDMA Band I



### WCDMA Band VIII



## 19. Transmitter Adjacent Channel Leakage Power Ratio (ACLR)

### 19.1 Definition

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the RRC filtered mean power centred on the assigned channel frequency to the RRC filtered mean power centred on an adjacent channel frequency.

### 19.2 Limit

If the adjacent channel power is greater than -50 dBm then the ACLR shall be higher than the value specified in table 4.2.12.1.2-1. The requirements are applicable for all for the values of  $\beta_c$ ,  $\beta_d$ ,  $\beta_{hs}$ ,  $\beta_{ec}$  and  $\beta_{ed}$  defined in TS 125 214 [8].

Table 4.2.12.1.2-1: UE ACLR

Power Class	Adjacent channel frequency relative to assigned channel frequency	ACLR limit
3	+5MHz or -5MHz	32,2dB
3	+10MHz or -10MHz	42,2dB
4	+5MHz or -5MHz	32,2dB
4	+10MHz or -10MHz	42,2dB
NOTE 1: The requirement shall still be met in the presence of switching transients.		
NOTE 2: The ACLR requirements reflect what can be achieved with present state of the art technology.		
NOTE 3: Requirement on the UE shall be reconsidered when the state of the art technology progresses.		

### 19.3 EUT Operation Condition

The EUT was programmed to be in Loopback mode.

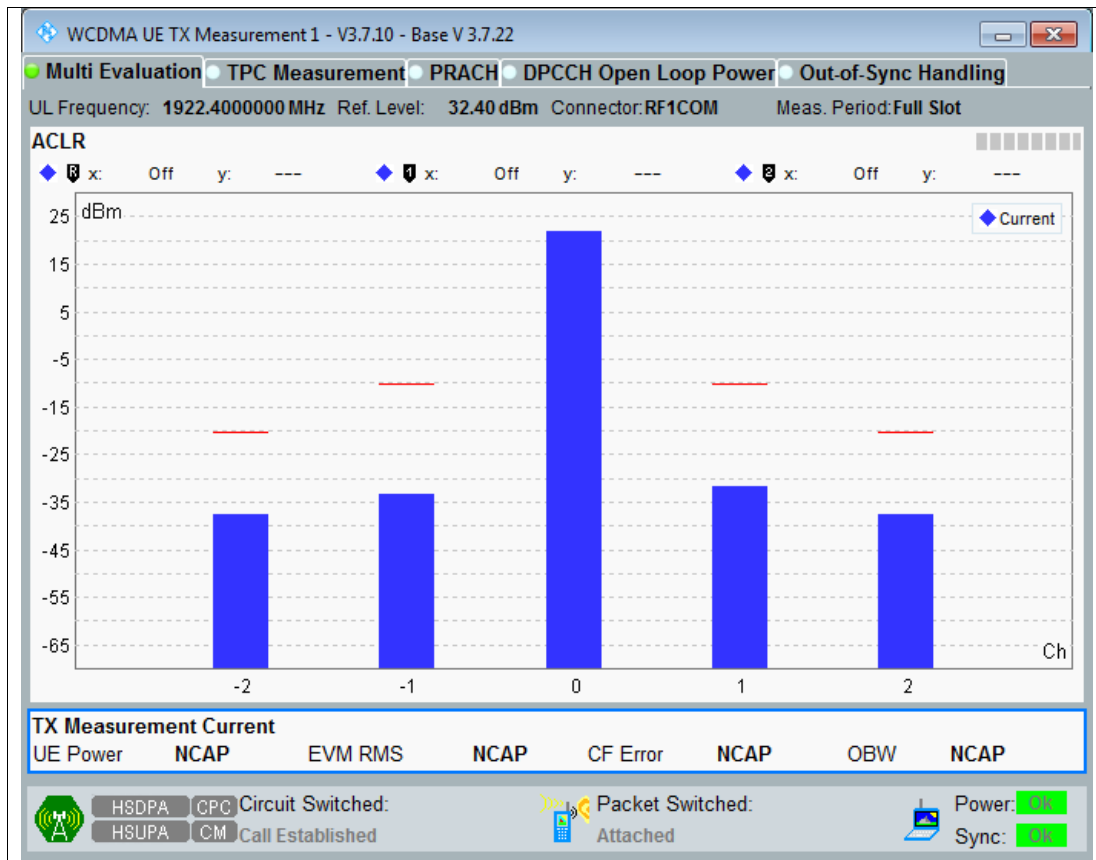
### 19.4 Test Procedure

- 1) The SS sends continuously Up power control commands to the UE until the UE transmitter power reaches maximum level.
- 2) Measure the RRC filtered mean power.
- 3) Measure the RRC filtered mean power of the first adjacent channels and the second adjacent channels.
- 4) Calculate the ratio of the power between the values measured in 2) and 3) above.

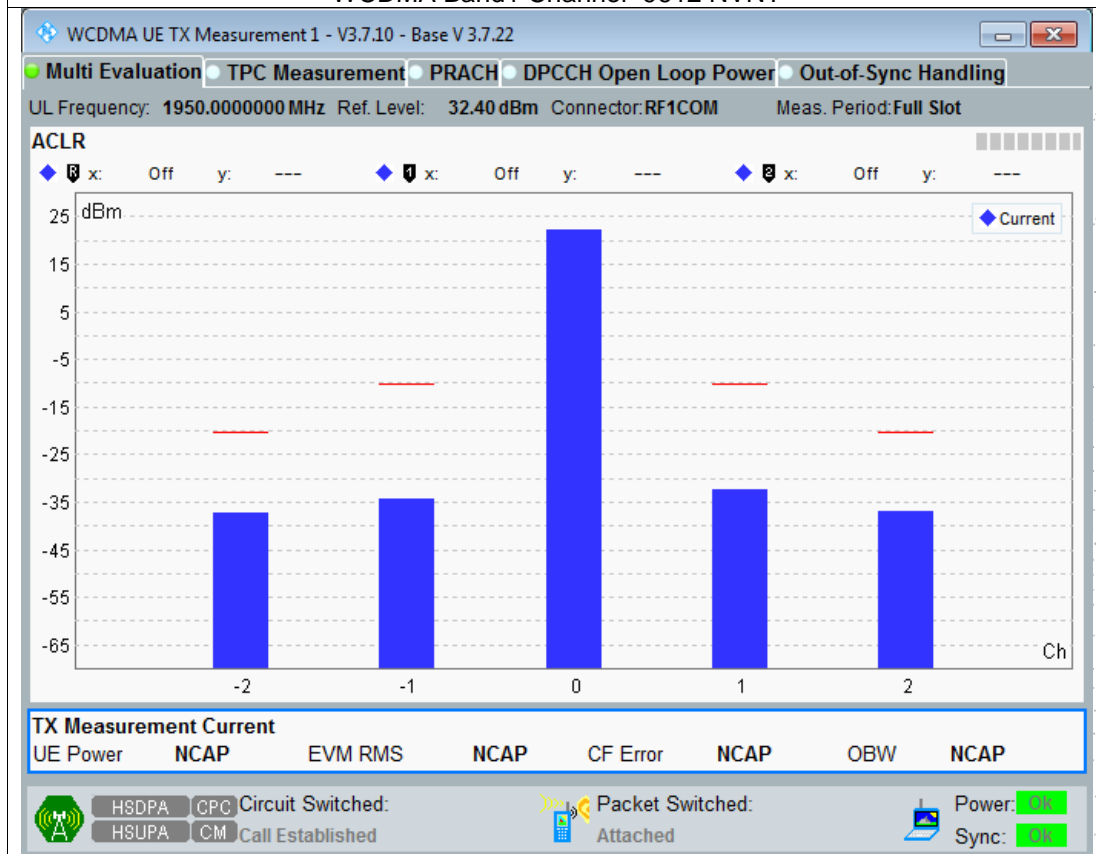
## 19.5 Measurement Record

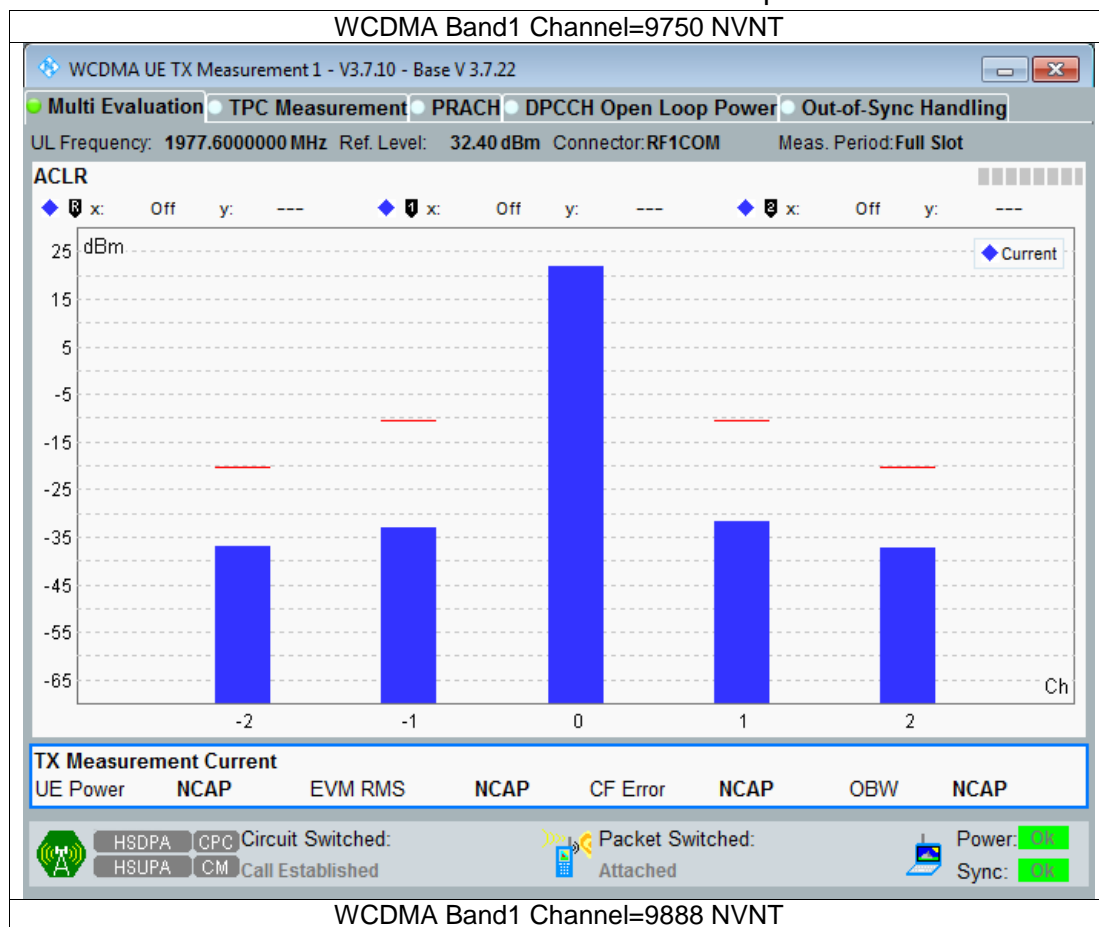
WCDMA Band I Voice Middle Channel				
Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR(-10 MHz)	ACLR(-5 MHz)	ACLR(+5 MHz)	ACLR(+10 MHz)
Normal	-59.60	-55.23	-53.76	-59.44
LTLV	-59.71	-55.33	-54.04	-59.67
LTHV	-59.72	-55.46	-54.13	-59.73
HTLV	-59.85	-55.58	-54.31	-59.92
HTHV	-60.11	-55.71	-54.37	-60.05
WCDMA Band I HSDPA Middle Channel				
Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR(-10 MHz)	ACLR(-5 MHz)	ACLR(+5 MHz)	ACLR(+10 MHz)
Normal	-59.26	-56.26	-54.55	-59.20
LTLV	-59.36	-56.48	-54.56	-59.28
LTHV	-59.37	-56.64	-54.75	-59.42
HTLV	-59.41	-56.92	-54.99	-59.53
HTHV	-59.44	-57.22	-55.28	-59.76
WCDMA Band I HSUPA Middle Channel				
Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR(-10 MHz)	ACLR(-5 MHz)	ACLR(+5 MHz)	ACLR(+10 MHz)
Normal	-58.94	-54.85	-53.62	-59.03
LTLV	-59.20	-54.86	-53.63	-59.24
LTHV	-59.41	-54.93	-53.83	-59.27
HTLV	-59.68	-55.02	-54.06	-59.48
HTHV	-59.93	-55.06	-54.31	-59.57
WCDMA Band VIII Voice Middle Channel				
Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR(-10 MHz)	ACLR(-5 MHz)	ACLR(+5 MHz)	ACLR(+10 MHz)
Normal	-57.53	-46.22	-48.54	-56.75
LTLV	-57.70	-46.46	-48.78	-56.91
LTHV	-57.92	-46.56	-48.92	-56.92
HTLV	-58.20	-46.86	-48.98	-57.16
HTHV	-58.24	-46.99	-49.05	-57.37
WCDMA Band VIII HSDPA Middle Channel				
Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR(-10 MHz)	ACLR(-5 MHz)	ACLR(+5 MHz)	ACLR(+10 MHz)
Normal	-56.42	-44.81	-45.55	-56.63
LTLV	-56.57	-45.02	-45.60	-56.75
LTHV	-56.66	-45.24	-45.85	-56.93
HTLV	-56.82	-45.41	-46.02	-57.10
HTHV	-56.90	-45.70	-46.05	-57.38
WCDMA Band VIII HSUPA Middle Channel				
Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR(-10 MHz)	ACLR(-5 MHz)	ACLR(+5 MHz)	ACLR(+10 MHz)
Normal	-57.37	-50.76	-44.26	-57.88
LTLV	-57.45	-50.83	-44.39	-58.08
LTHV	-57.60	-50.96	-44.67	-58.36
HTLV	-57.79	-51.20	-44.87	-58.62
HTHV	-57.98	-51.26	-45.12	-58.84

The report only shows the worst mode, which is RMC.

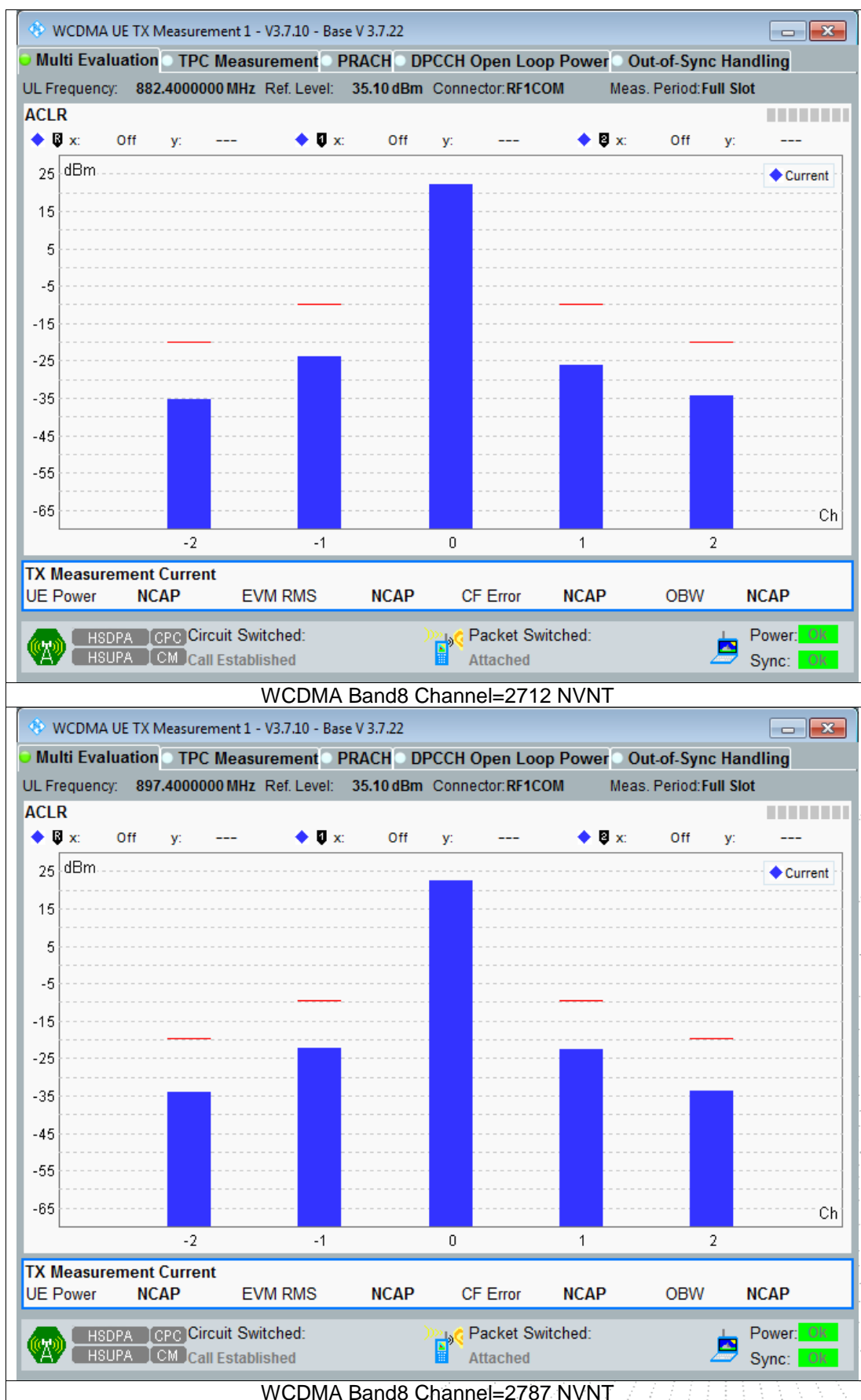


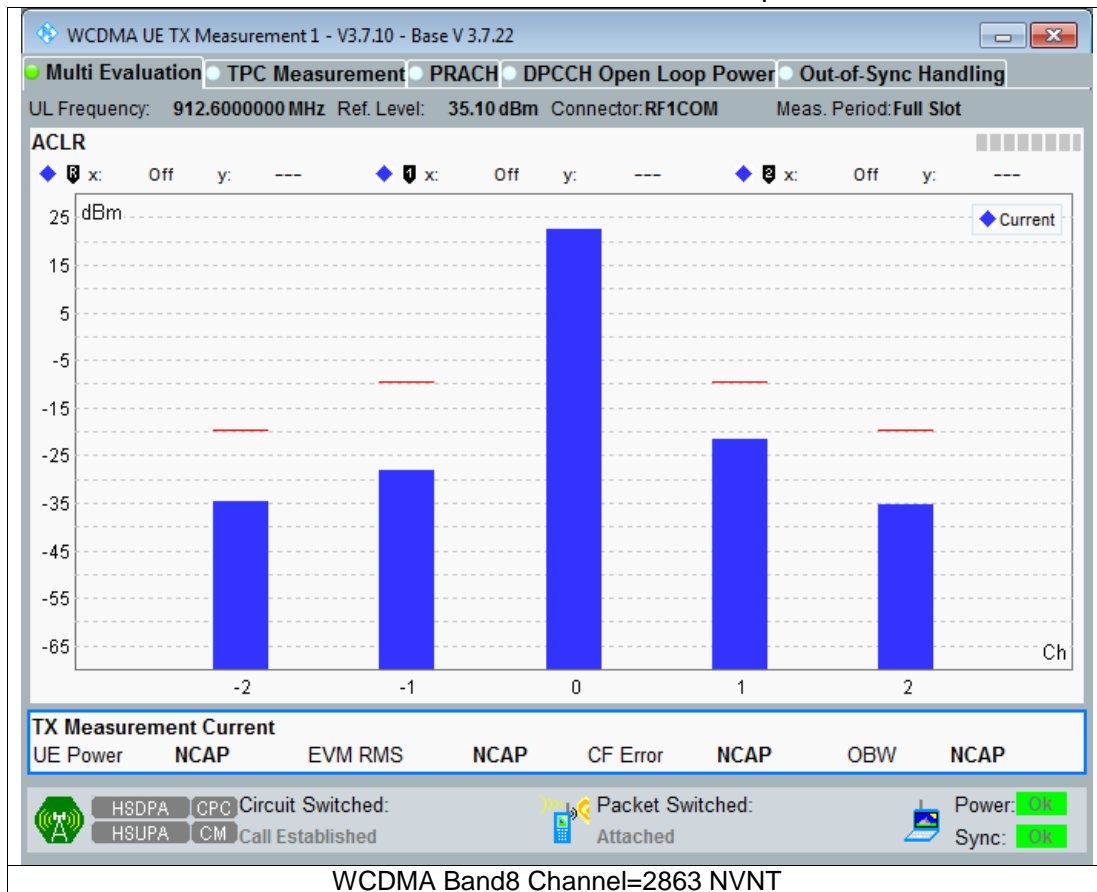
WCDMA Band1 Channel=9612 NVNT





CO., LTD.





## 20. EUT Photographs

EUT Photo 1

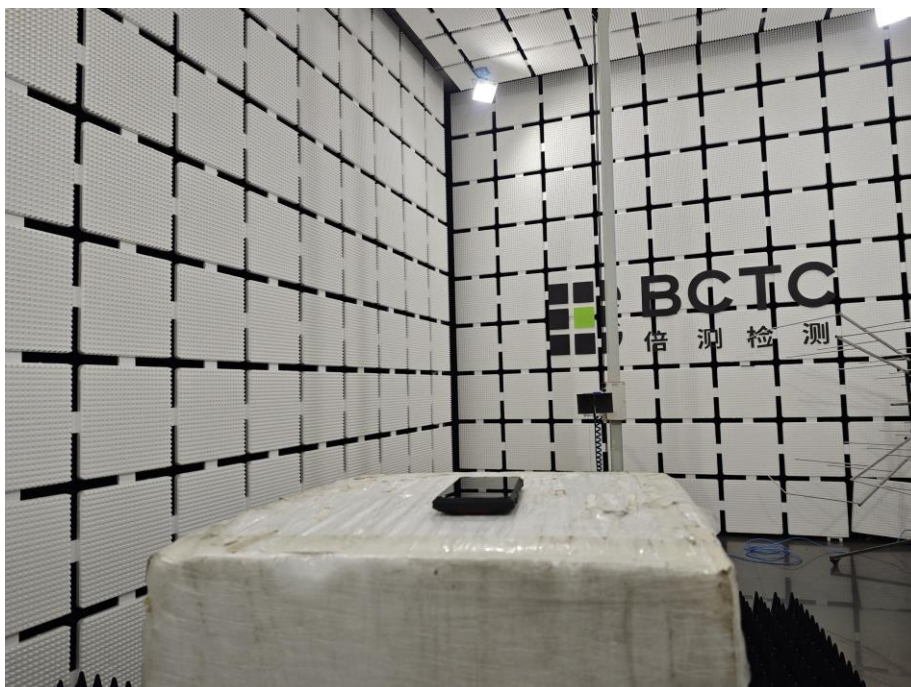


NOTE: Appendix-Photographs Of EUT Constructional Details

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## 21. EUT Test Setup Photographs

Spurious emissions



## STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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