FCC Part 22H & 24E & 27M Test Report

Product Name	:	LE910C4-NF
Trade Name	:	Telit
Model No.	:	LE910C4-NF
FCC ID	:	RI7LE910CXNF
IC ID	:	5131A-LE910CXNF

Applicant	:	Telit Wireless Solutions Co., LTD
Address	:	13th Fl.,Shinyoung Securities Bld, 6, Gukjegeumyung-ro 8-gil, Yeongdeungpo-gu, Seoul, 07330, South Korea

Date of Receipt	:	Jul. 16, 2018
Issued Date	:	Aug. 23, 2018
Report No.	:	1870209R-HPUSP17V00
Report Version	:	V1.0

Testing Laboratory
3024

Test Report Certification

Issued Date: Aug. 23, 2018
Report No.: 1870209R-HPUSP17V00

Product Name	:	LE910C4-NF
Applicant	:	Telit Wireless Solutions Co., LTD
Address	:	13th Fl.,Shinyoung Securities Bld, 6, Gukjegeumyung-ro 8-gil, Yeongdeungpo-gu, Seoul, 07330, South Korea
Manufacturer	:	Telit Wireless Solutions Co., LTD
Trade Name	:	Telit
Model No.	:	LE910C4-NF
FCC ID	:	RI7LE910CXNF
IC ID	:	5131A-LE910CXNF
EUT Voltage	:	DC 3.8V
Testing Voltage	:	DC 3.8V
Applicable Standard	:	FCC CFR Title 47 Part 2, ANSI/TIA-603-D FCC Part 22 Subpart H, FCC Part 24 Subpart E, FCC Part 27 Subpart M Industry Canada RSS-132, Issue 3 Industry Canada RSS-133, Issue 6 Industry Canada RSS-139, Issue 3 ANSI/TIA-603-D-2010 RSS Gen Issue 5
Test Lab	:	Hsin Chu Laboratory
Test Result	:	Complied

Documented By :

(Demi Chang / Senior Engineering Adm. Specialist)

Tested By :

(Clemens Fang / Engineer)

Approved By :

(Roy Wang / Director)

Revision History

Report No.	Version	Description	Issued Date
1870209R-HPUSP17V00	V1.0	Initial issue of report	Aug. 23, 2018

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1. General Information

1.1. EUT Description

Product Name	LE910C4-NF
Trade Name	Telit
Model No.	LE910C4-NF
Tx Frequency Range/ Channel number	WCDMA Band 2: 1852.4-1907.6 MHz WCDMA Band 4: 1712.4-1752.6 MHz WCDMA Band 5: 826.4-846.6 MHz
Rx Frequency Range/ Channel number	WCDMA Band 2: 1932.4-1987.6 MHz WCDMA Band 4: 2112.4-2152.6 MHz WCDMA Band 5: 871.4-891.6 MHz
Type of Modulation	WCDMA: QPSK (Uplink); HSDPA: QPSK (Uplink); HSUPA: QPSK (Uplink)
HW Version	1.00
SW (C4) Version	25.20.661
SW (C1) Version	25.20.261
IMEI No.	354328099989383

Accessories Information	
Antenna	3 Pcs

Antenna Information	
Product Name	HNS (HANKOOK NETWORK SOLUTION)
Model No.	WE14-LF-07
Antenna Type	Dipole Antenna
Antenna Gain	Band 2/4: 3.5dBi Band 5: 1.5dBi

Note:

1. This LE910C4-NF support WCDMA Band 2/4/5 and LTE Band 2/4/5/12/13/14/66/71.
2. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

1.2. Mode of Operation

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

Test Mode
Mode 1: WCDMA Band 2
Mode 2: WCDMA Band 4
Mode 3: WCDMA Band 5

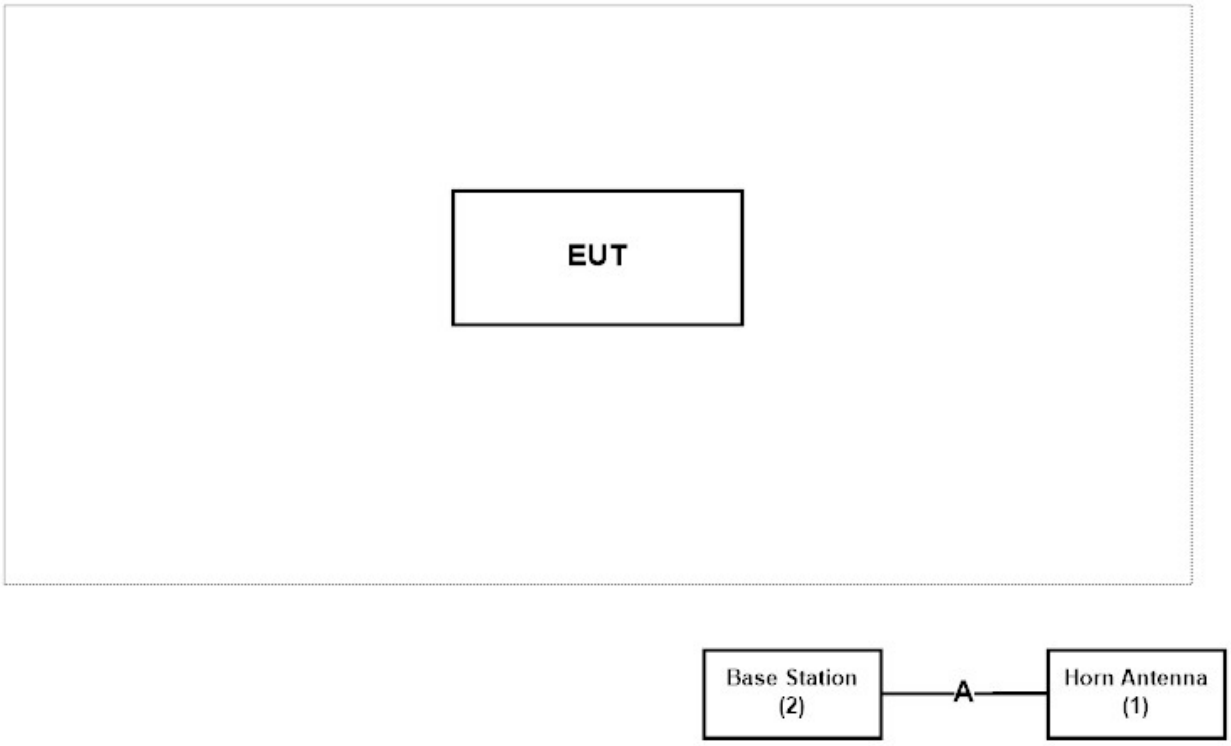
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Horn Antenna	ELECTRO METRICS	EM-6961	103326	--
2	Base Station	R&S	CMW500	106071	--

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	RF Cable	Shielded, 2m.

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment. Horn link with base station.
3	The EUT link with base station and it will continue receive the signal.
4	Repeat the above procedure.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

For WCDMA Band 2

(FCC Part 24 Subpart E, Industry Canada RSS-133, Issue 6, Industry Canada RSS-GEN)

Performed Item	FCC Rule	IC Rule	Limit	Result
RF Output Power	§2.1033 §2.1046 §24.232	§6.4	< 2 Watts	Pass
Occupied Bandwidth	§2.1049	RSS-GEN §4.2	N/A	Pass
Peak To Average Ratio	§24.232(d)	§6.4	≦ 13dB	Pass
Conducted Band Edge	§27.238	§6.5	< -13dBm	Pass
Spurious Emission	§2.1053 §24.238	§6.5	< -13dBm	Pass
Frequency Stability	§2.1055 §24.235	§6.3	< 2.5 ppm	Pass

For WCDMA Band 4

(FCC Part 27 Subpart M, Industry Canada RSS-139, Issue 3, Industry Canada RSS-GEN)

Performed Item	FCC Rule	IC Rule	Limit	Result
RF Output Power	FCC PART 2.1046 and PART 27.50(h)(2)	RSS -139 §6.5	< 1 Watts EIRP	Pass
Occupied Bandwidth	FCC PART 2.1049 and PART 27.53(l)(6)	RSS - Gen §6.6	N/A	Pass
Peak To Average Ratio	§27.50(b)	§6.5	≦ 13dB	Pass
Conducted Band Edge	FCC PART 2.1051 and PART 27.53(l)(4)(6)	RSS - 139 §6.6	< -13 dBm	Pass
Spurious Emission	FCC PART 2.1051 and PART 27.53(l)(4)(6)	RSS - 139 §6.6	< -25 dBm	Pass
Frequency Stability	FCC PART 2.1055(a)(l) and PART 27.54	RSS - 139 §6.4	< 2.5 ppm	Pass

For WCDMA Band 5

(FCC Part 22 Subpart H, Industry Canada RSS-132, Issue 3, Industry Canada RSS-GEN)

Performed Item	FCC Rule	IC Rule	Limit	Result
RF Output Power	§2.1033 §2.1046 §22.913	§5.4	< 7 Watts	Pass
Occupied Bandwidth	§2.1049	RSS-GEN §4.2	N/A	Pass
Peak To Average Ratio	§22.913(d)	§5.4	≦ 13dB	Pass
Conducted Band Edge	§22.917	§5.5	< -13dBm	Pass
Spurious Emission	§2.1053 §22.917	§5.5	< -13dBm	Pass
Frequency Stability	§2.1055 §22.335	§5.3	< 2.5 ppm	Pass

2.2. Test Environment

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	RF Output Power	15-35	23	3
Humidity (%RH)		25-75	52	
Barometric pressure (mbar)		860-1060	950-1000	
Temperature (°C)	Occupied Bandwidth	15-35	23	3
Humidity (%RH)		25-75	52	
Barometric pressure (mbar)		860-1060	950-1000	
Temperature (°C)	Peak To Average Ratio	15-35	23	3
Humidity (%RH)		25-75	52	
Barometric pressure (mbar)		860-1060	950-1000	
Temperature (°C)	Conducted Band Edge	15-35	23	3
Humidity (%RH)		25-75	52	
Barometric pressure (mbar)		860-1060	950-1000	
Temperature (°C)	Spurious Emission	15-35	23	2/3
Humidity (%RH)		25-75	52	
Barometric pressure (mbar)		860-1060	950-1000	
Temperature (°C)	Frequency Stability	15-35	23	3
Humidity (%RH)		25-75	52	
Barometric pressure (mbar)		860-1060	950-1000	

Note: Test Site information refers to Laboratory Information.

Laboratory Information

USA	**:**	**FCC Registration Number: TW3024**
Canada	**:**	**IC Registration Number: 22397-1 / 22397-2 / 22397-3**

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site :
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : http://www.dekra.com.tw/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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2.3. List of Test Equipment

RF Output Power / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/01/02	2019/01/01
Pulse Power Sensor	Anritsu	MA2411B	1531043	2018/01/02	2019/01/01
Pulse Power Sensor	Anritsu	MA2411B	1531044	2018/01/02	2019/01/01
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24

Occupied Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24

Peak To Average Ratio / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24

Conducted Band Edge / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24

Conducted Spurious Emissions / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24

Radiated Spurious Emissions / CB2-H, CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2018/01/31	2019/01/30
Pre-Amplifier	DEKRA.	AP-025C	201801235	2018/03/12	2019/03/11
Pre-Amplifier	EMCI	EMCI 1830I	980366	2018/01/08	2019/01/07
Pre-Amplifier	Dekra	AP-400C	201801231	2017/12/13	2018/12/12

Frequency Stability / SR10-H

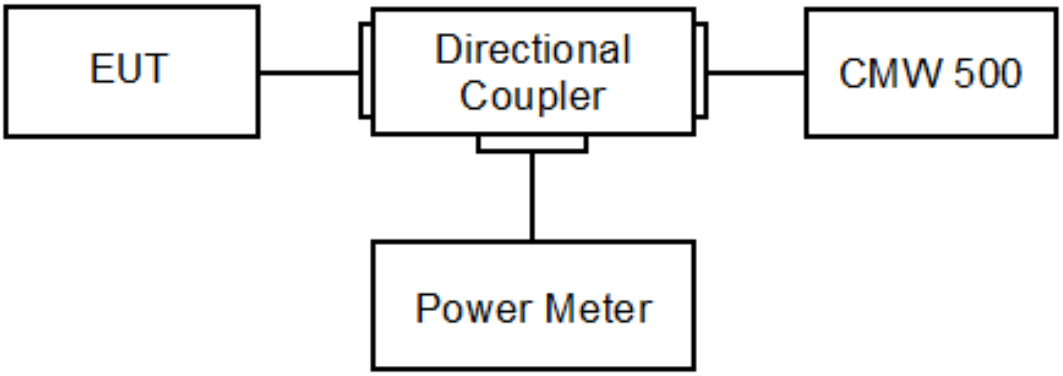
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2018/01/23	2019/01/22

2.4. Measurement Uncertainty

Test Item	Uncertainty
RF Output Power	± 1.27dB
Occupied Bandwidth	± 10 Hz
Peak To Average Ratio	In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13dB.
Conducted Band Edge	± 1.2 dB
Spurious Emissions	The measurement uncertainty is defined as ± 1.27 dB for Conducted Measurement. The measurement uncertainty is defined as ± 3.2 dB for Radiated Measurement.
Frequency Stability	± 10 Hz

3. RF Output Power

3.1. Test Setup



3.2. Test Procedure

a) The RF output of the transmitter was connected to base station simulator.
b) The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
c) Set EUT at maximum average power by base station simulator.
d) Measure lowest, middle, and highest channels for each bandwidth and different modulation.

Effective Isotropic Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi)
Effective Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi) - 2.15dB

3.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause5.2.4
ANSI C63.26-2015 Sub-clause 5.2.4.2

3.4. Test Result

Product	LE910C4-NF		
Test Item	RF Output Power		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/08	Test Site	SR10-H

WCDMA_Band 2_RMC			
Frequency (MHz)	Average Power		Limit (W) EIRP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
1852.4	24.54	0.637	2
1880	24.74	0.667	2
1907.6	24.38	0.614	2

WCDMA_Band 2_HSUPA			
Frequency (MHz)	Average Power		Limit (W) EIRP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
1852.4	22.35	0.385	2
1880	22.53	0.401	2
1907.6	22.21	0.372	2

WCDMA_Band 2_HSDPA			
Frequency (MHz)	Average Power		Limit (W) EIRP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
1852.4	21.86	0.344	2
1880	22.11	0.364	2
1907.6	21.93	0.349	2

Product	LE910C4-NF		
Test Item	RF Output Power		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/08	Test Site	SR10-H

WCDMA_Band 4_RMC			
Frequency (MHz)	Average Power		Limit (W) EIRP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
1712.4	25.10	0.724	1
1732.6	25.07	0.719	1
1752.6	24.82	0.679	1

WCDMA_Band 4_HSUPA			
Frequency (MHz)	Average Power		Limit (W) EIRP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
1712.4	22.51	0.399	1
1732.6	22.85	0.432	1
1752.6	22.65	0.412	1

WCDMA_Band 4_HSDPA			
Frequency (MHz)	Average Power		Limit (W) EIRP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
1712.4	22.35	0.385	1
1732.6	22.47	0.395	1
1752.6	22.44	0.393	1

Product	LE910C4-NF		
Test Item	RF Output Power		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/08	Test Site	SR10-H

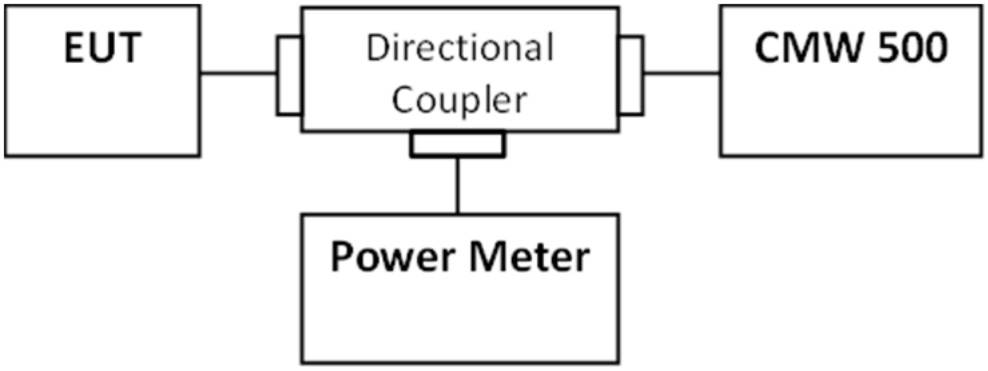
WCDMA_Band 5_RMC			
Frequency (MHz)	Average Power		Limit (W) ERP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
826.4	24.94	0.622	7
836.6	25.04	0.637	7
846.6	25.14	0.652	7

WCDMA_Band 5_HSUPA			
Frequency (MHz)	Average Power		Limit (W) ERP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
826.4	22.91	0.390	7
836.6	22.93	0.392	7
846.6	22.78	0.378	7

WCDMA_Band 5_HSDPA			
Frequency (MHz)	Average Power		Limit (W) ERP
	Conducted Output Power (dBm)	RF Output Power (W) EIRP	
826.4	22.30	0.339	7
836.6	22.41	0.348	7
846.6	22.59	0.362	7

4. Occupied Bandwidth

4.1. Test Setup



4.2. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The 26 dB bandwidth and 99% occupied bandwidth of the low & middle & high channel for the highest RF powers were measured.

4.3. Test Method

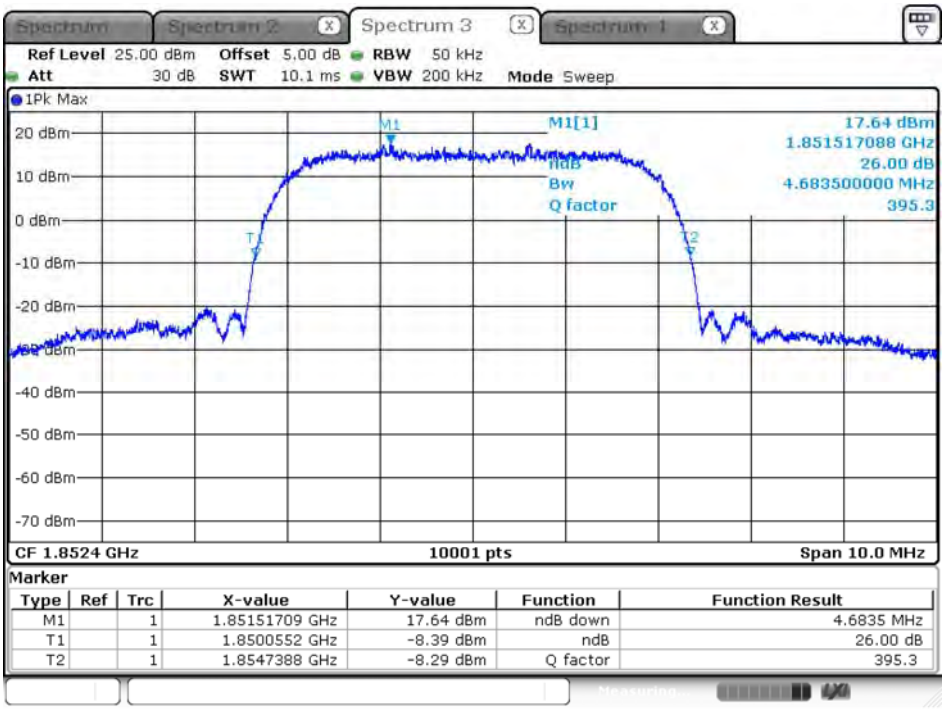
KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 4.2 & 4.3
ANSI C63.26-2015 Sub-clause 5.4.3 & 5.4.4

4.4. Test Result

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/06	Test Site	SR10-H

FCC Part 22H			
WCDMA Band 2_RMC			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
1852.4	4.683	4.132	N/A
1880	4.700	4.138	N/A
1907.6	4.693	4.128	N/A

WCDMA_Band 2_RMC_1852.4MHz (-26dB BW)



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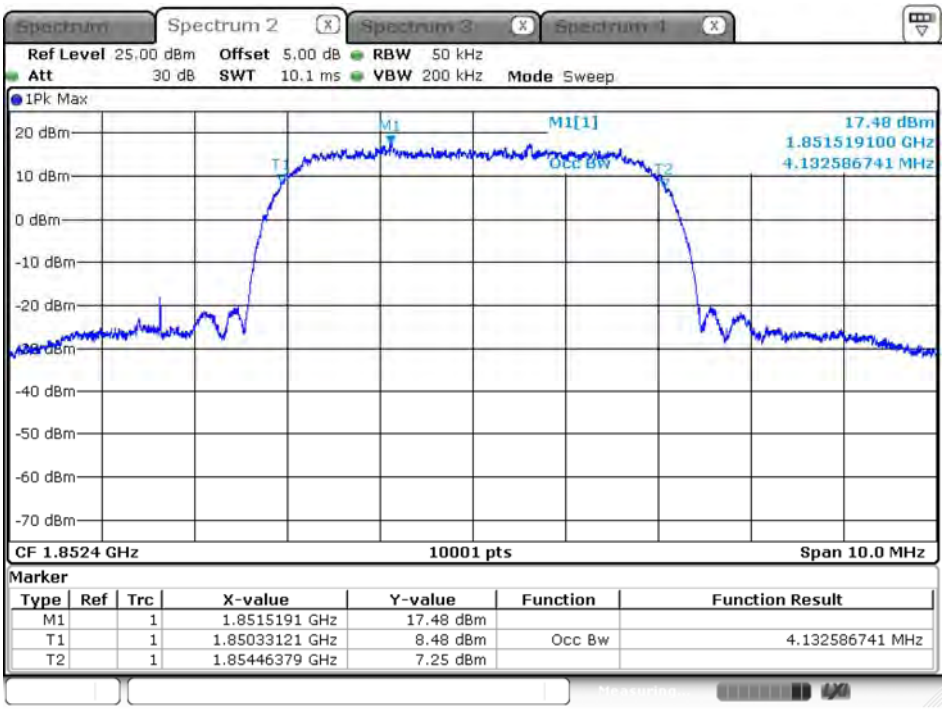

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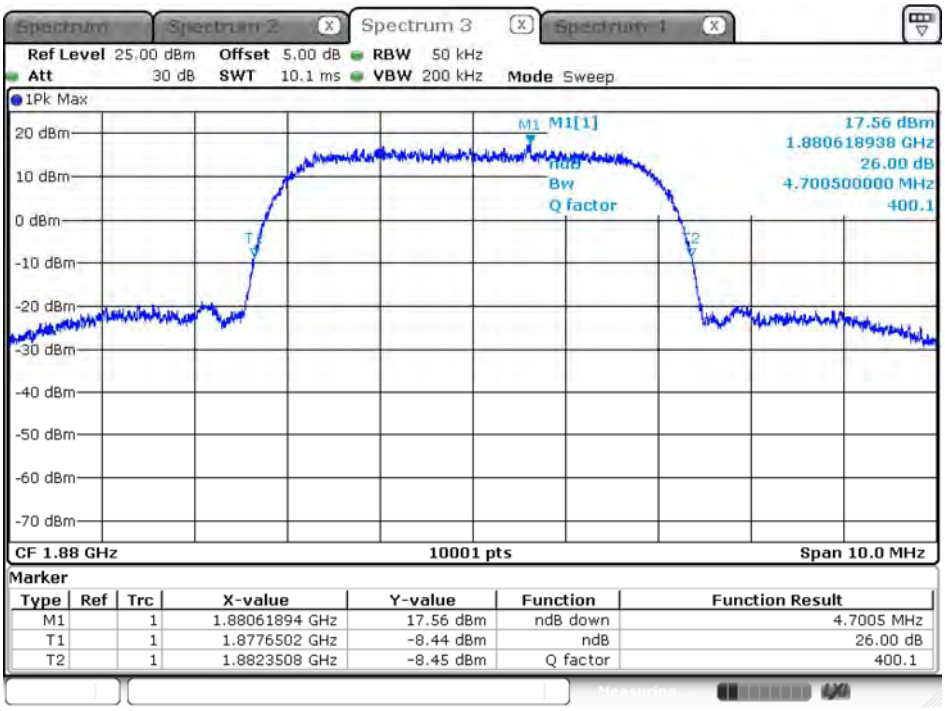
WCDMA_Band 2_RMC_1880.0MHz (-26dB BW)



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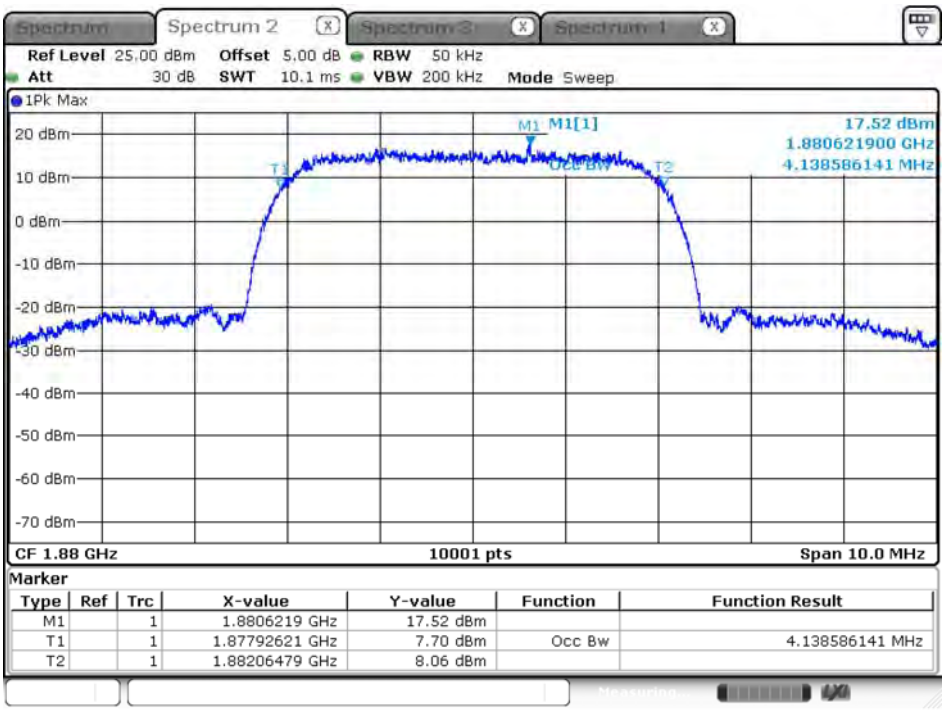
WCDMA_Band 2_RMC_1880.0MHz (99% BW)



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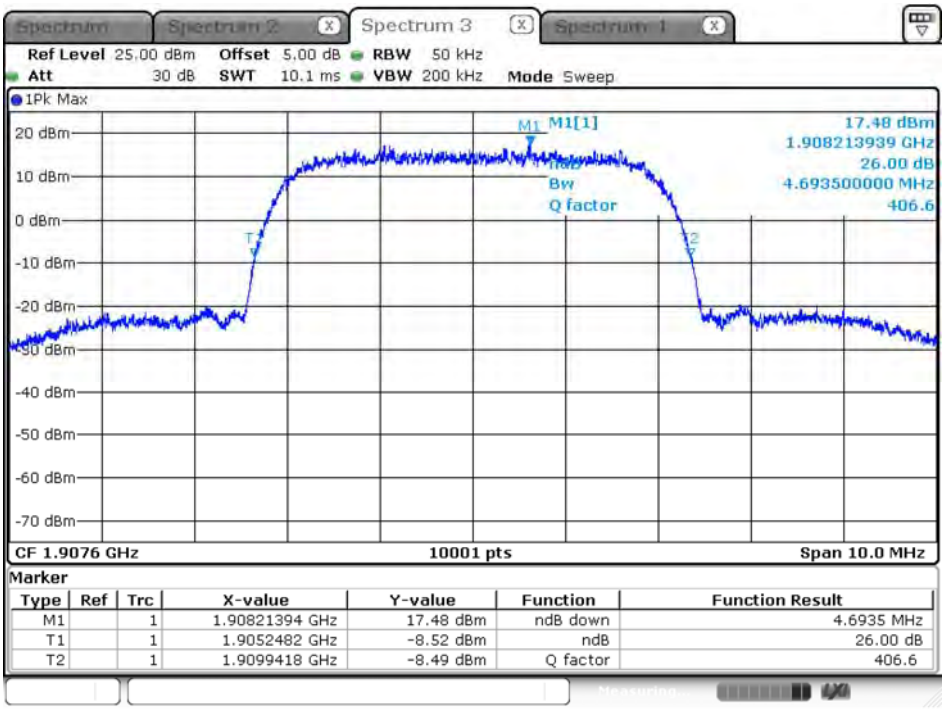
WCDMA_Band 2_RMC_1907.6MHz (-26dB BW)



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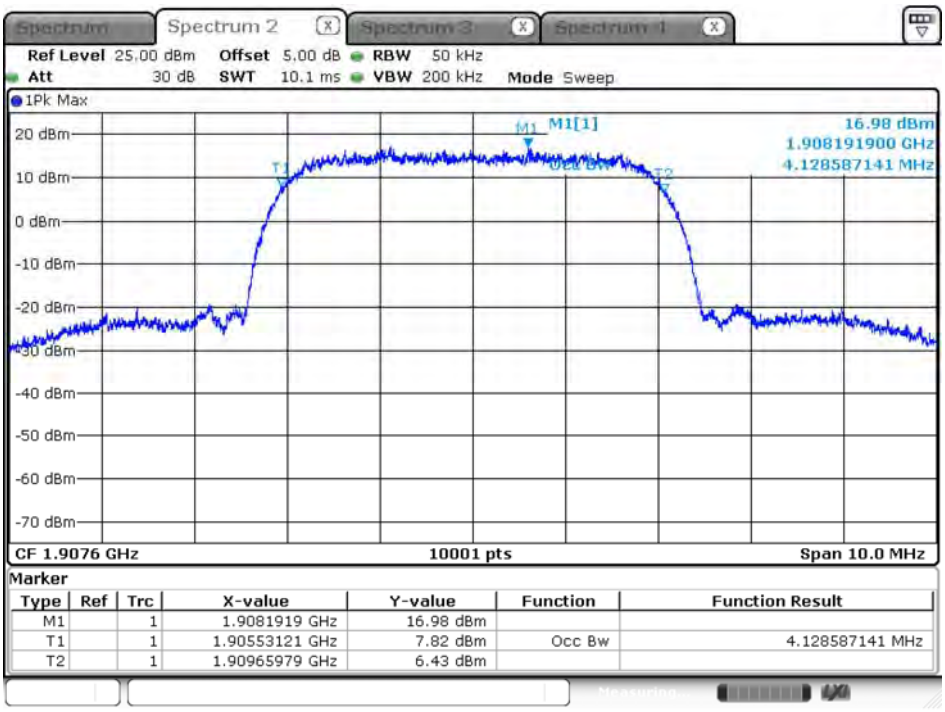
WCDMA_Band 2_RMC_1907.6MHz (99% BW)



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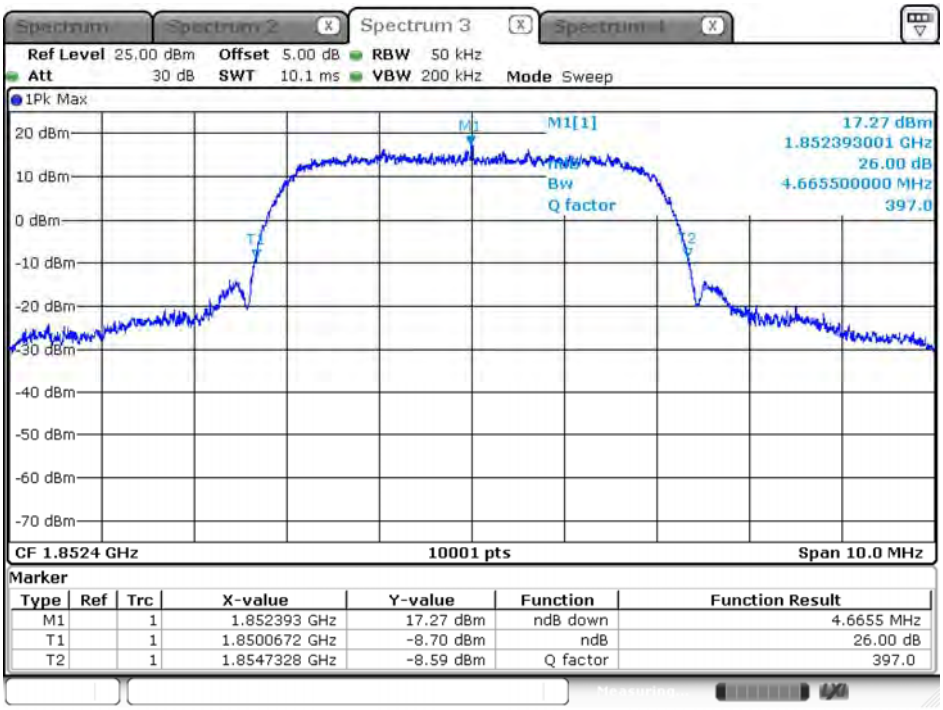
Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/06	Test Site	SR10-H

FCC Part 22H			
WCDMA Band 2_HSDPA			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
1852.4	4.665	4.137	N/A
1880	4.651	4.133	N/A
1907.6	4.672	4.133	N/A

WCDMA_Band 2_HSDPA_1852.4MHz (-26dB BW)



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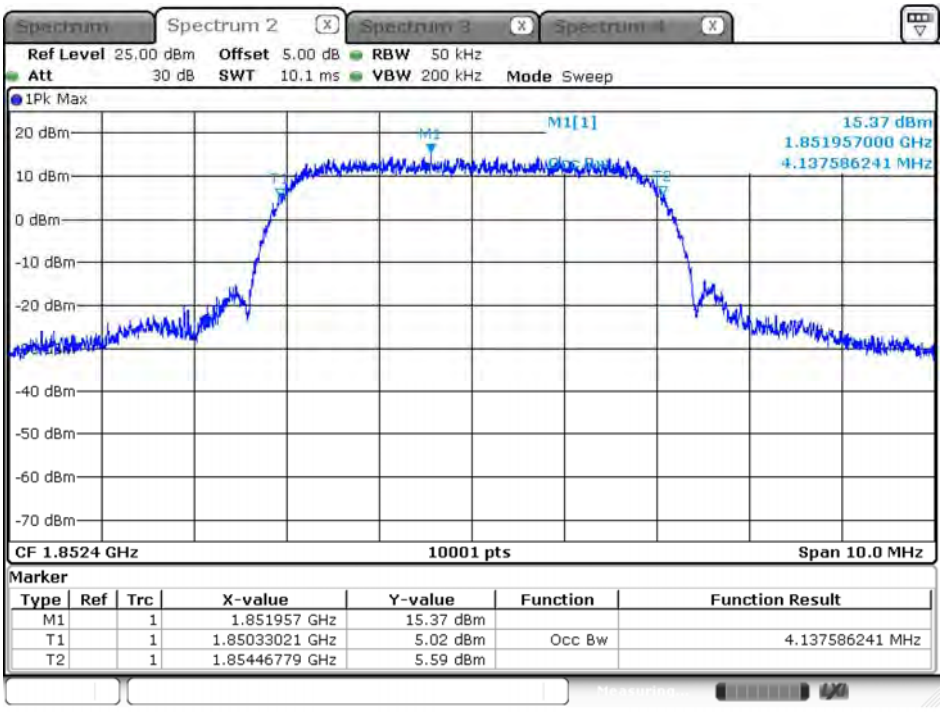

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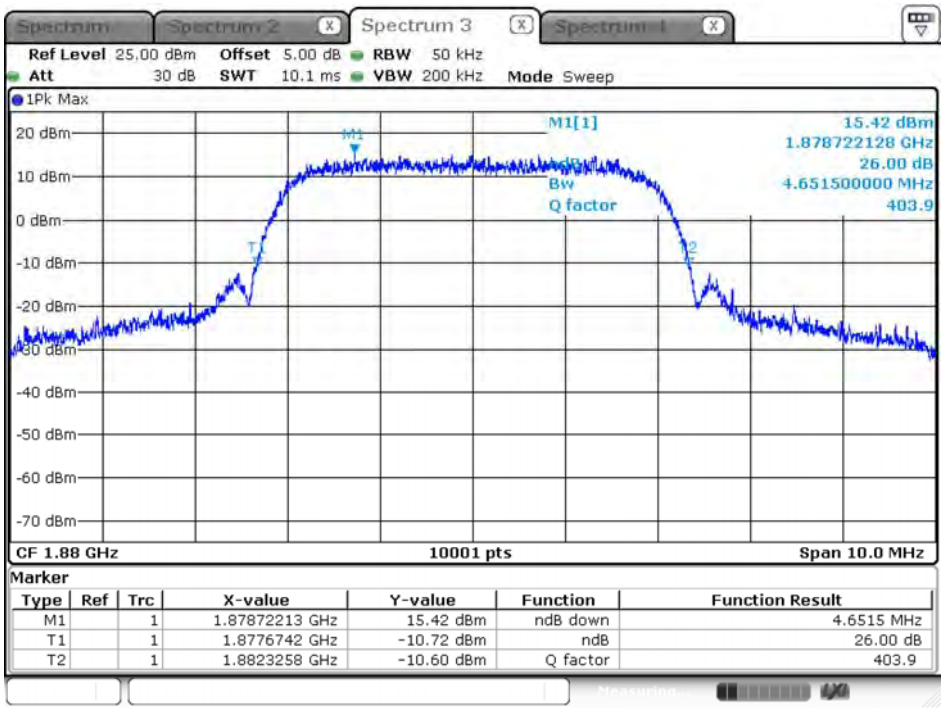

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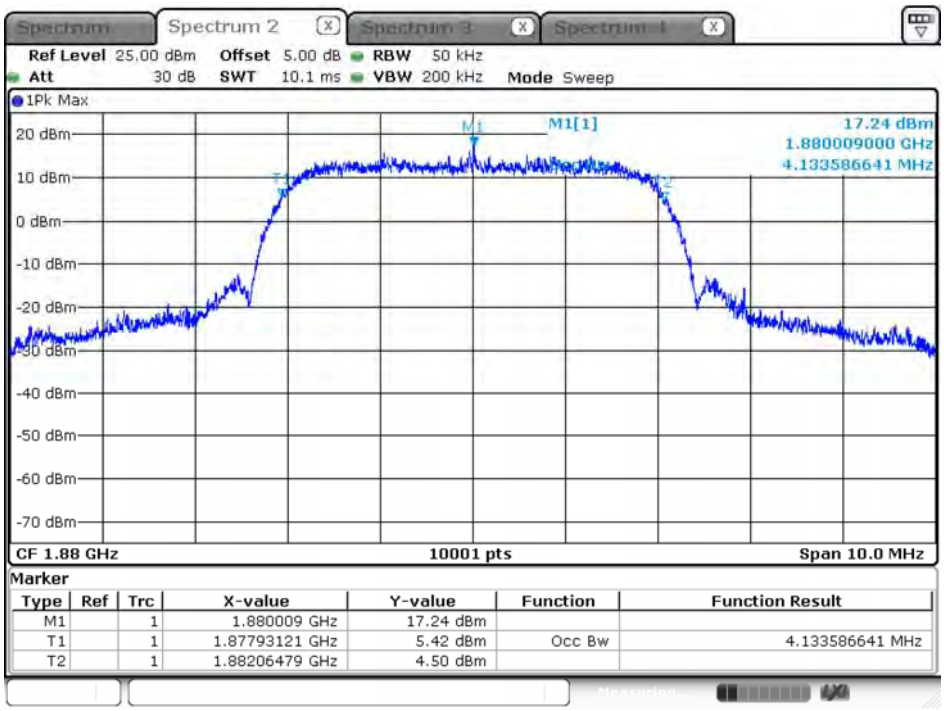

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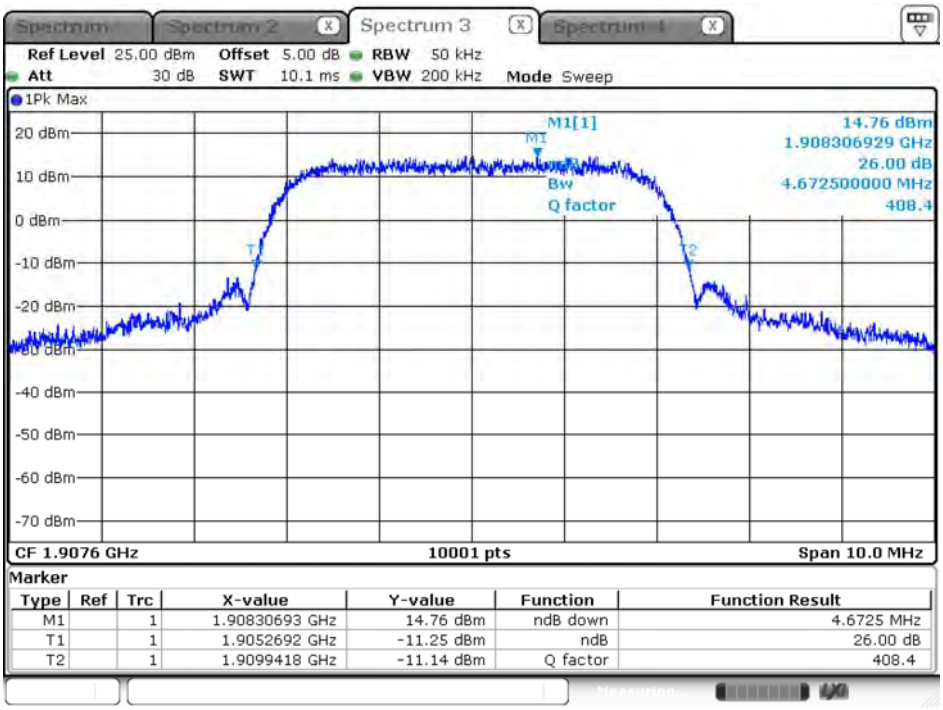
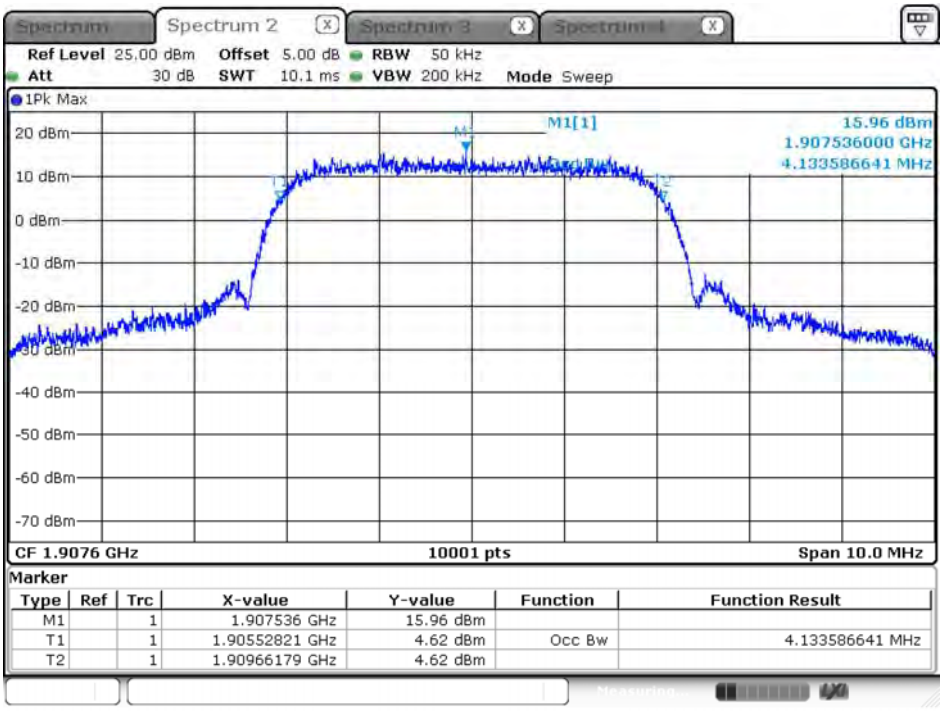


Date: 6.AUG.2018 17:27:00

WCDMA_Band 2_HSDPA_1907.6MHz (99% BW)

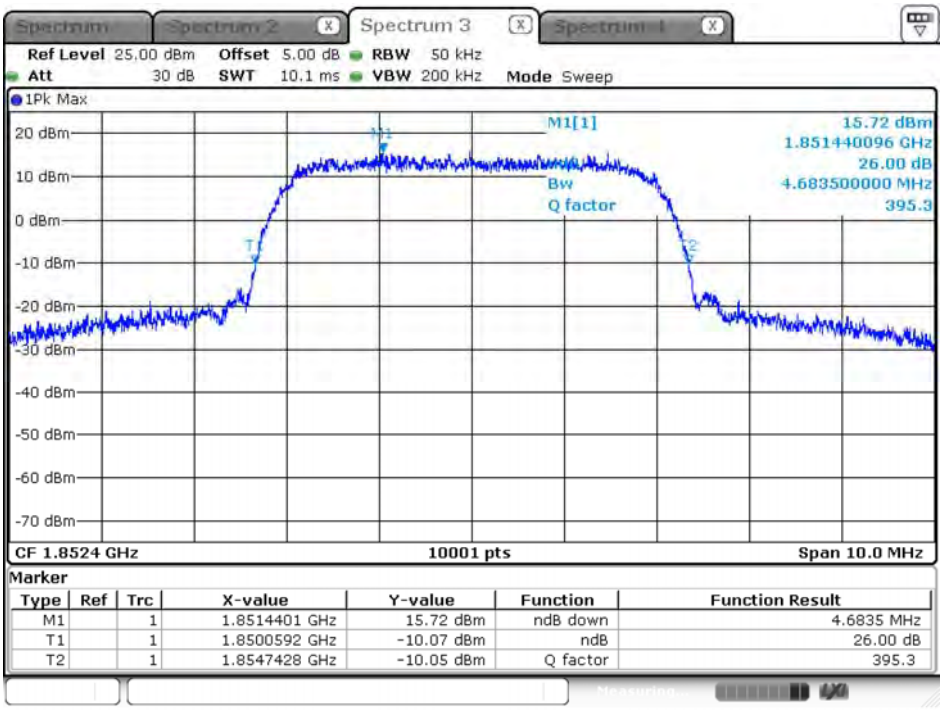


Date: 6.AUG.2018 17:26:30

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/06	Test Site	SR10-H

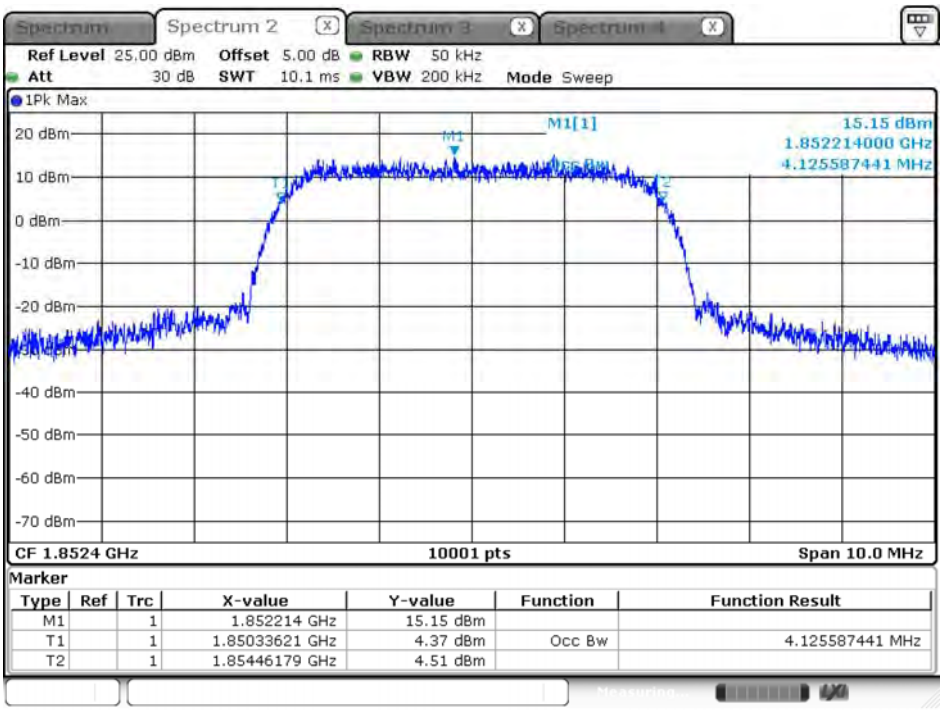
FCC Part 22H			
WCDMA Band 2_HSUPA			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
1852.4	4.683	4.125	N/A
1880	4.662	4.136	N/A
1907.6	4.627	4.133	N/A

WCDMA_Band 2_HSUPA_1852.4MHz (-26dB BW)



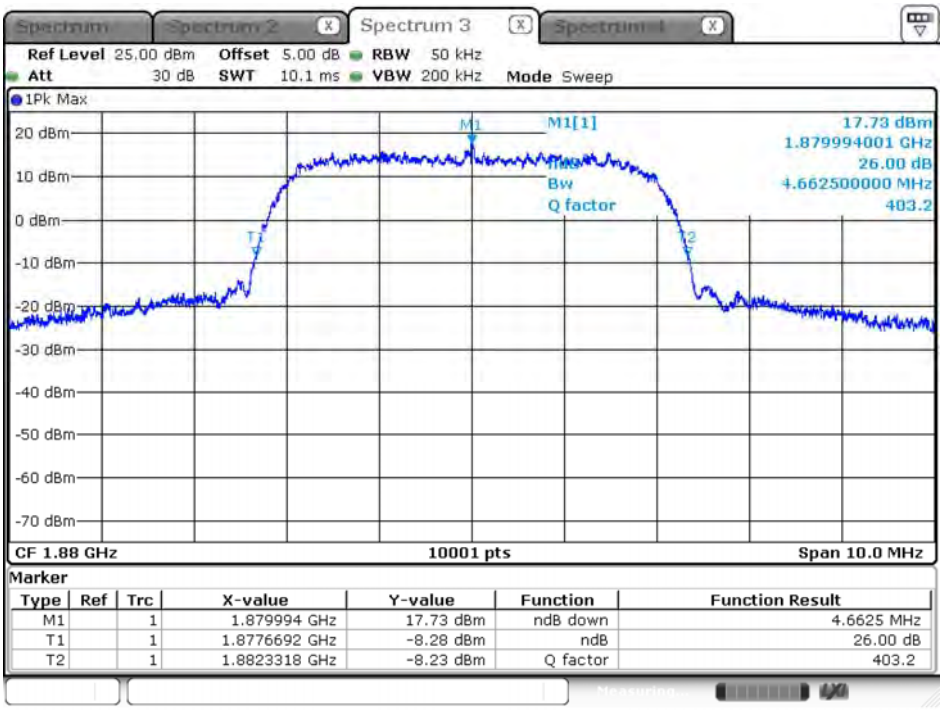
Date: 6.AUG.2018 17:15:08

WCDMA_Band 2_HSUPA_1852.4MHz (99% BW)



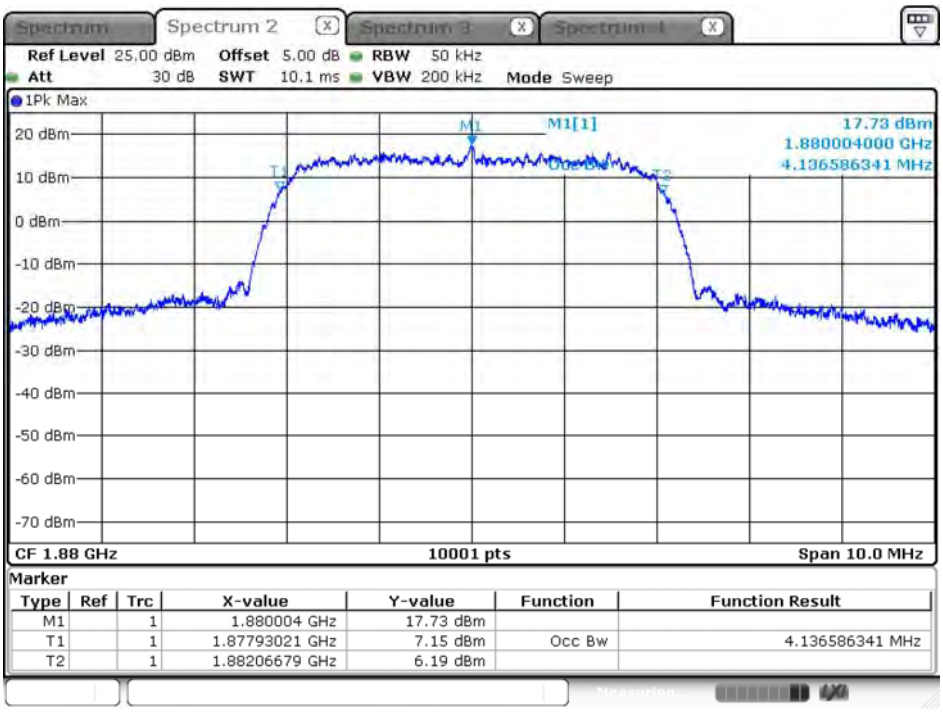
Date: 6.AUG.2018 17:15:37

WCDMA_Band 2_HSUPA_1880.0MHz (-26dB BW)



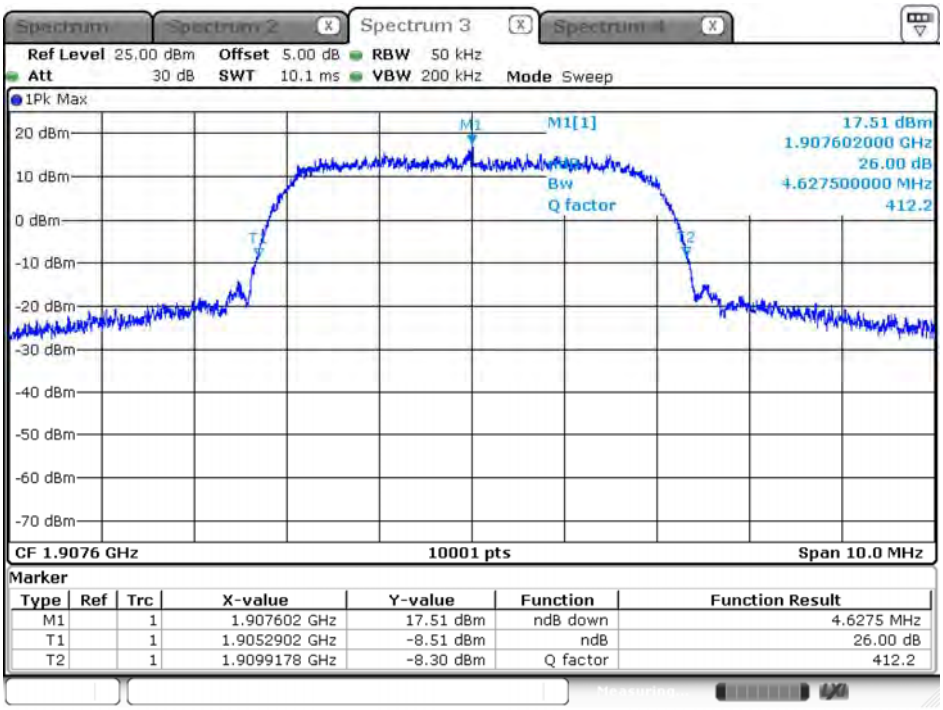
Date: 6.AUG.2018 17:12:05

WCDMA_Band 2_HSUPA_1880.0MHz (99% BW)



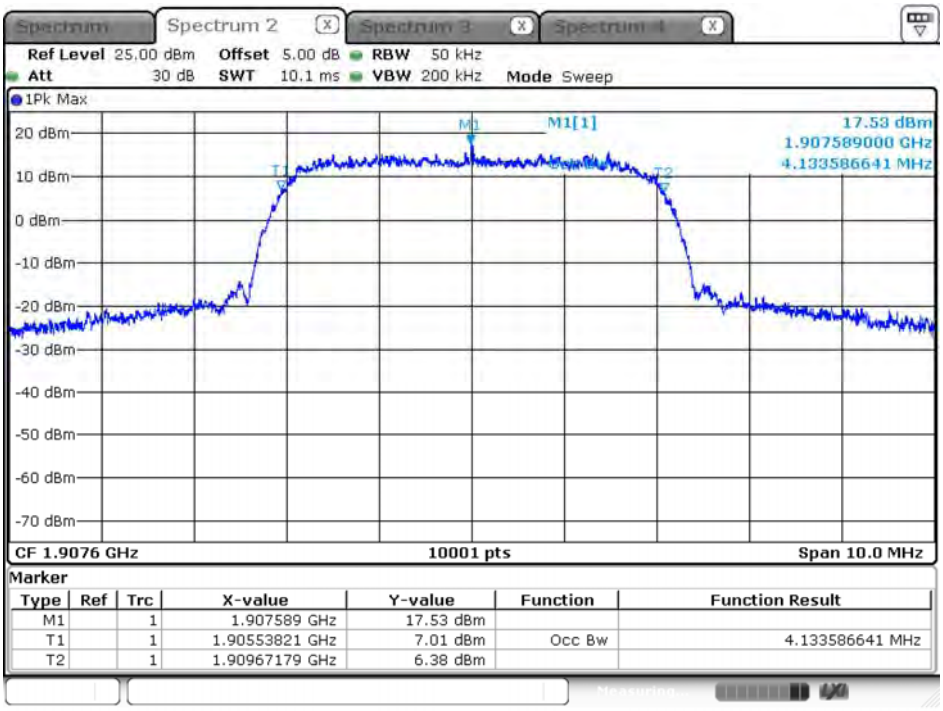
Date: 6.AUG.2018 17:10:45

WCDMA_Band 2_HSUPA_1907.6MHz (-26dB BW)



Date: 6.AUG.2018 17:08:12

WCDMA_Band 2_HSUPA_1907.6MHz (99% BW)

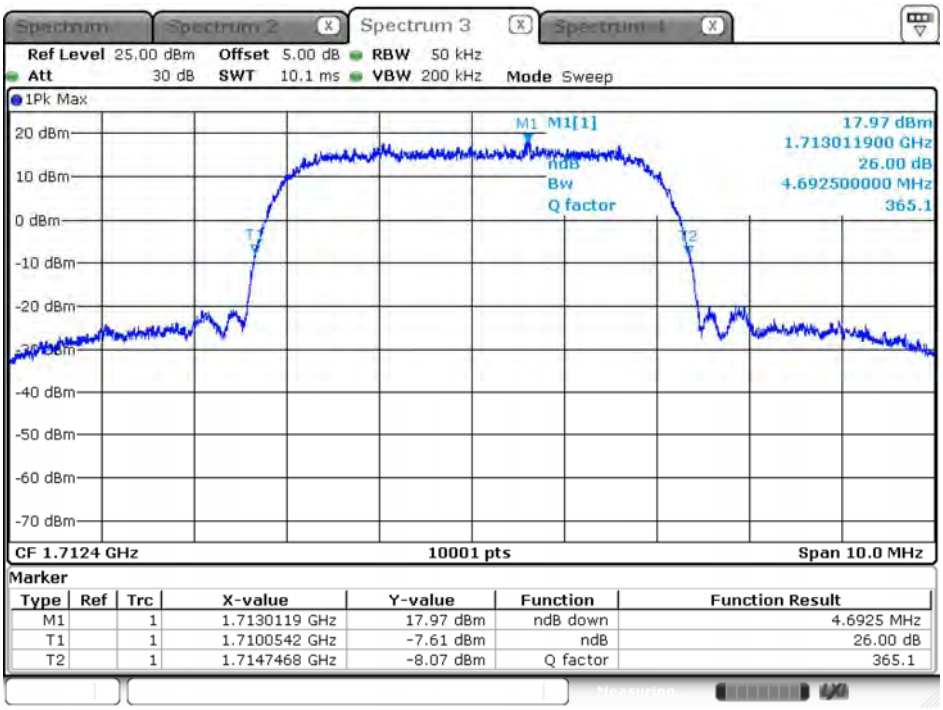


Date: 6.AUG.2018 17:07:45

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/07	Test Site	SR10-H

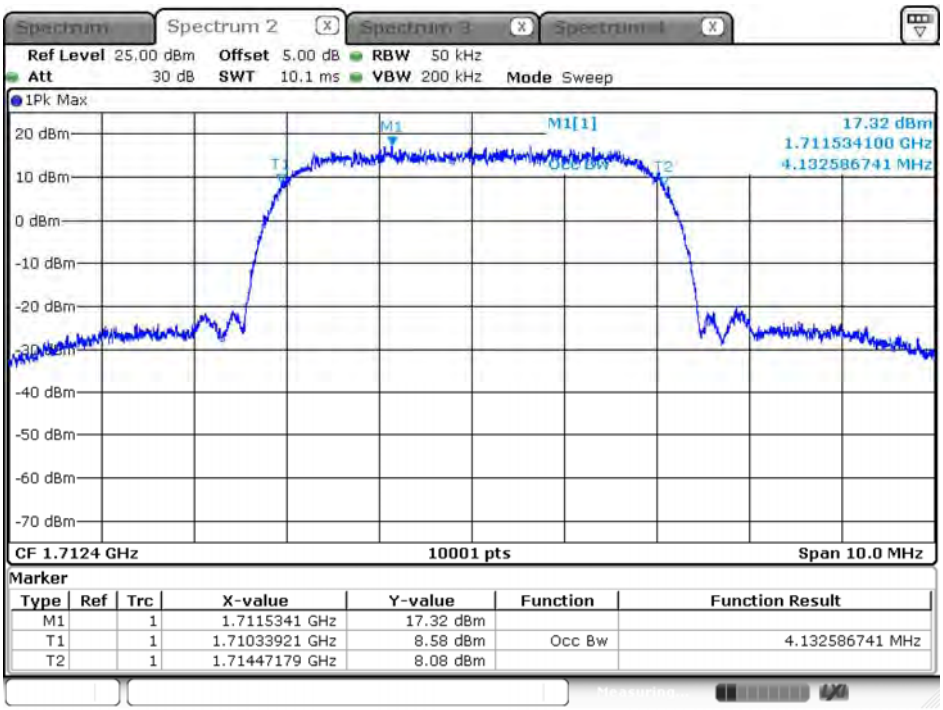
FCC Part 22H			
WCDMA Band 4_RMC			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
1712.4	4.692	4.132	N/A
1732.6	4.686	4.135	N/A
1752.6	4.714	4.144	N/A

WCDMA_Band 4_RMC_1712.4MHz (-26dB BW)



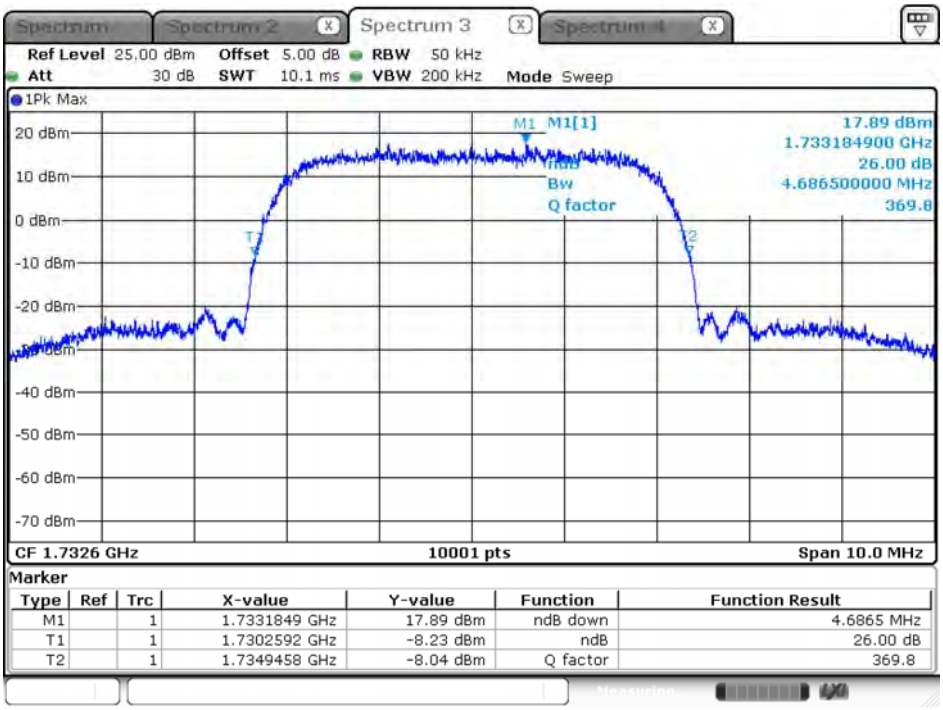
Date: 7.AUG.2018 10:06:36

WCDMA_Band 4_RMC_1712.4MHz (99% BW)



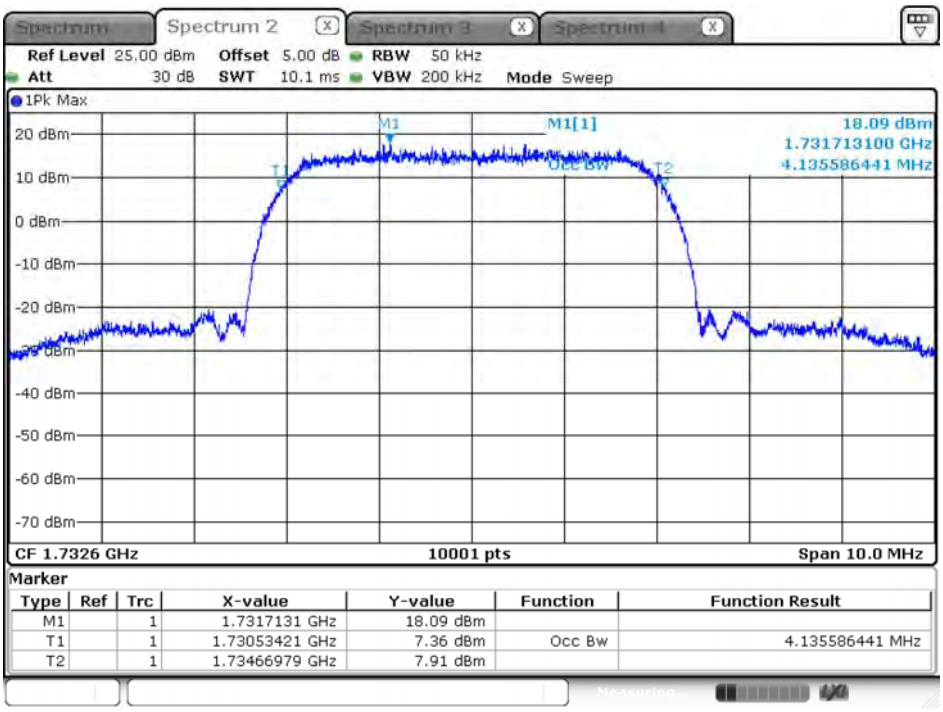
Date: 7.AUG.2018 10:07:23

WCDMA_Band 4_RMC_1732.6MHz (-26dB BW)



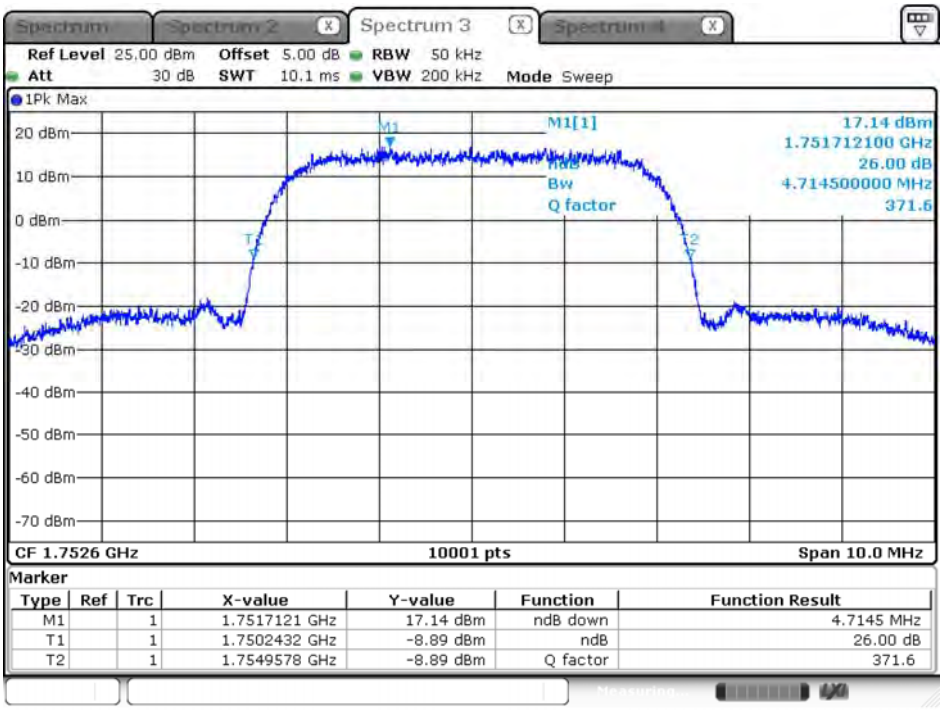
Date: 7.AUG.2018 10:08:21

WCDMA_Band 4_RMC_1732.6MHz (99% BW)



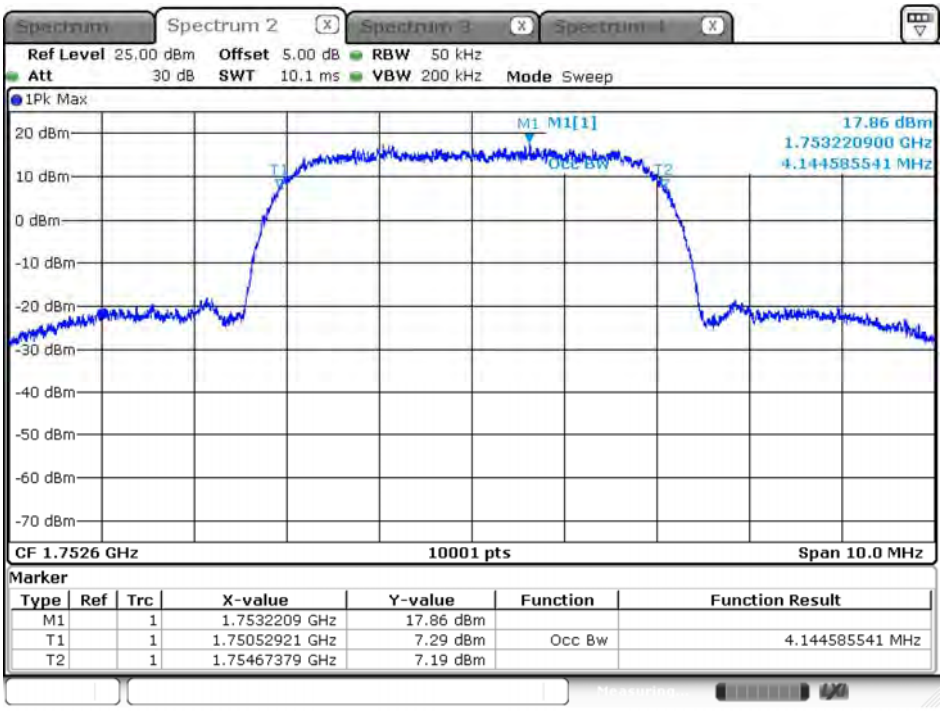
Date: 7.AUG.2018 10:08:07

WCDMA_Band 4_RMC_1752.6MHz (-26dB BW)



Date: 7.AUG.2018 10:09:30

WCDMA_Band 4_RMC_1752.6MHz (99% BW)

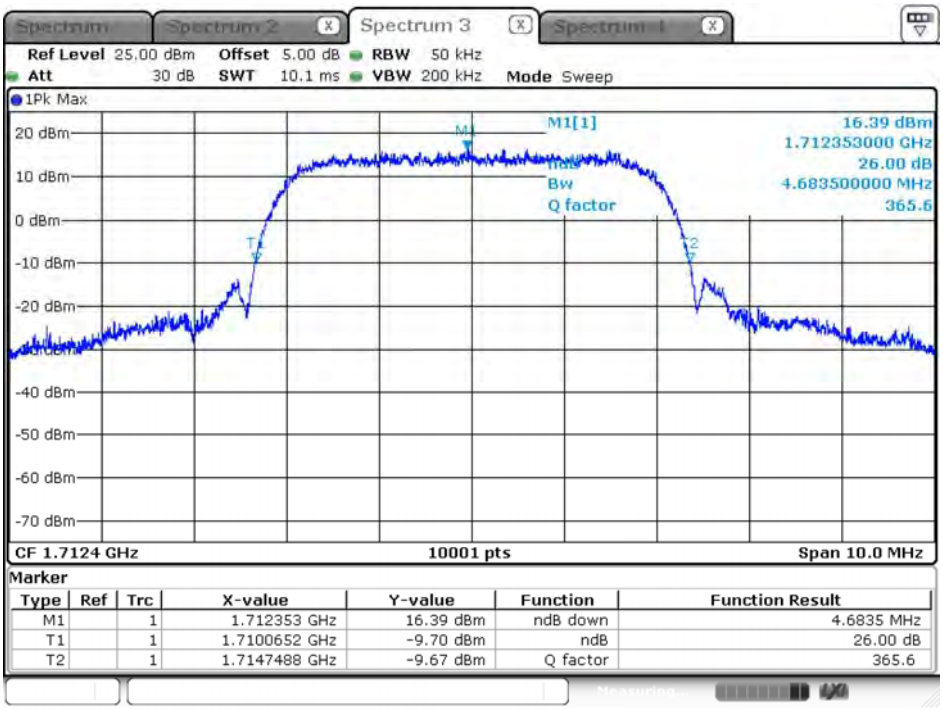


Date: 7.AUG.2018 10:09:19

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/07	Test Site	SR10-H

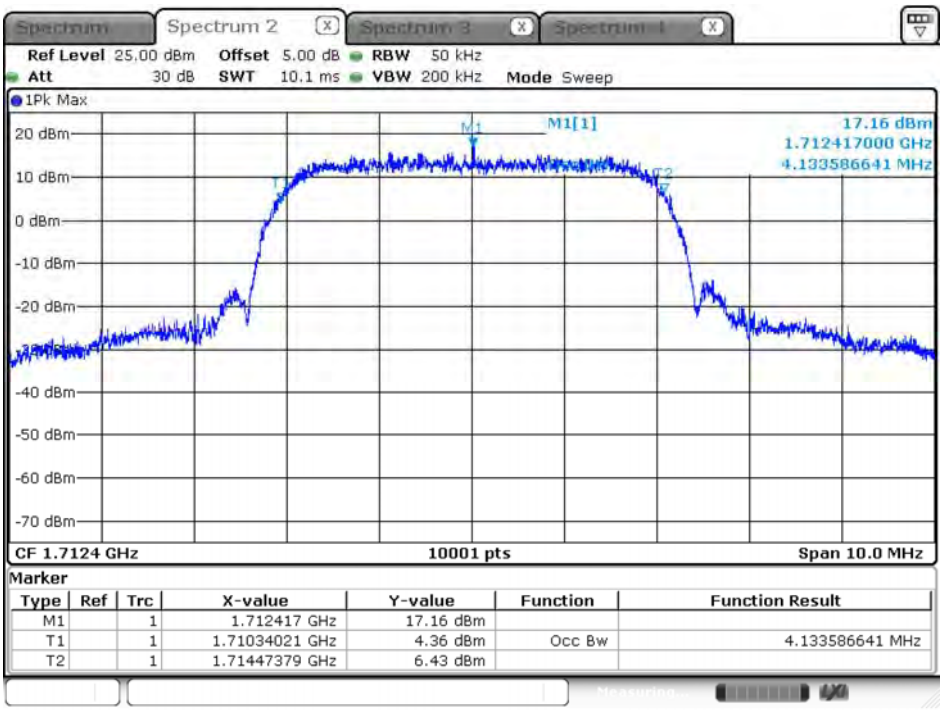
FCC Part 22H			
WCDMA Band 4_HSDPA			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
1712.4	4.683	4.133	N/A
1732.6	4.691	4.127	N/A
1752.6	4.702	4.143	N/A

WCDMA_Band 4_HSDPA_1712.4MHz (-26dB BW)



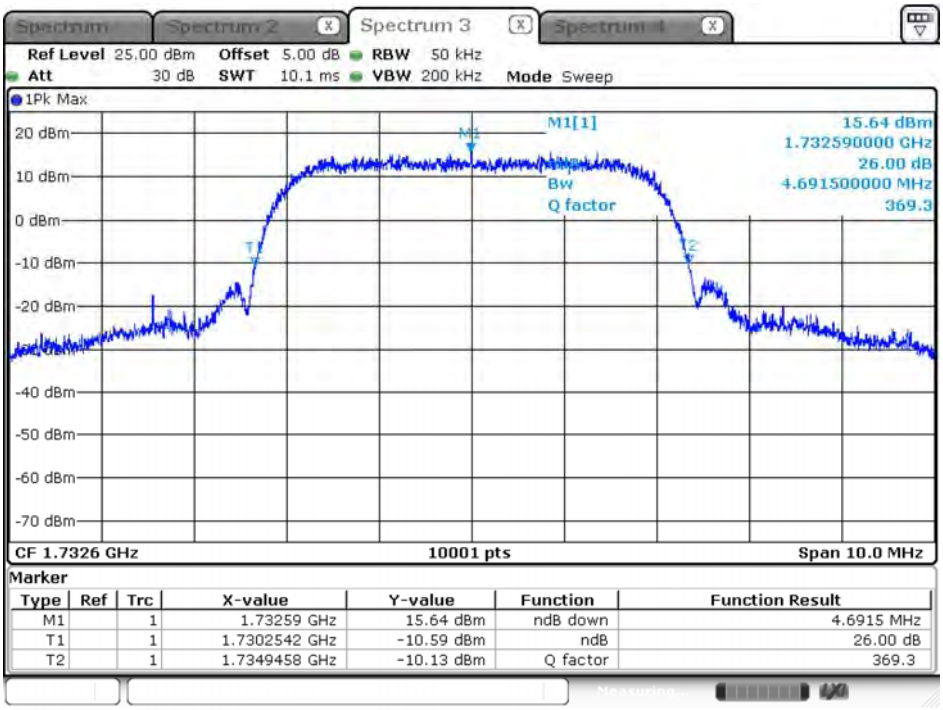
Date: 7.AUG.2018 10:14:03

WCDMA_Band 4_HSDPA_1712.4MHz (99% BW)



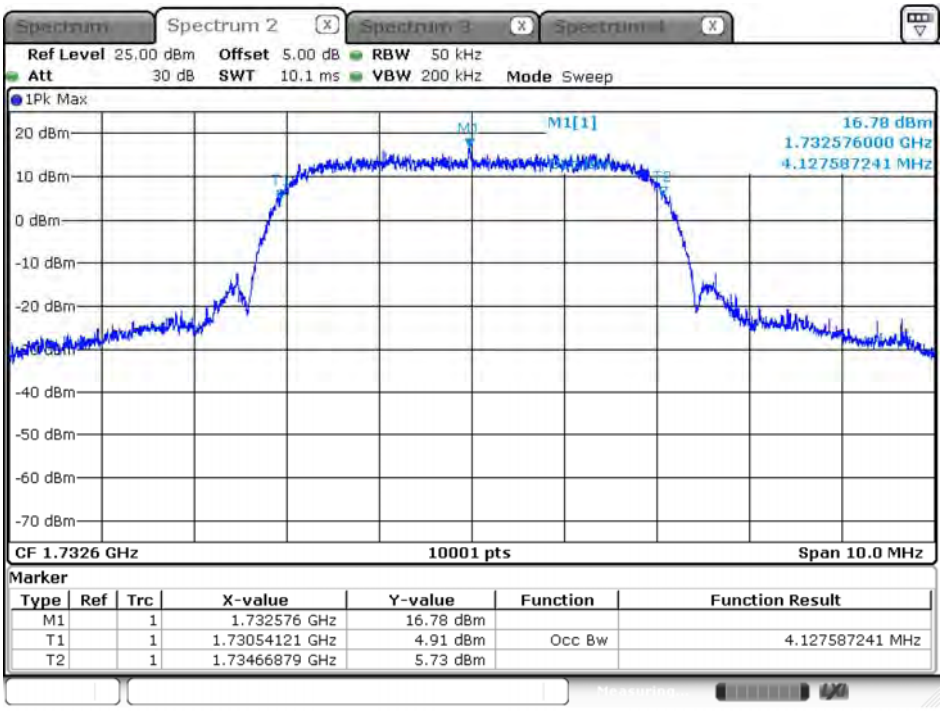
Date: 7.AUG.2018 10:14:29

WCDMA_Band 4_HSDPA_1732.6MHz (-26dB BW)



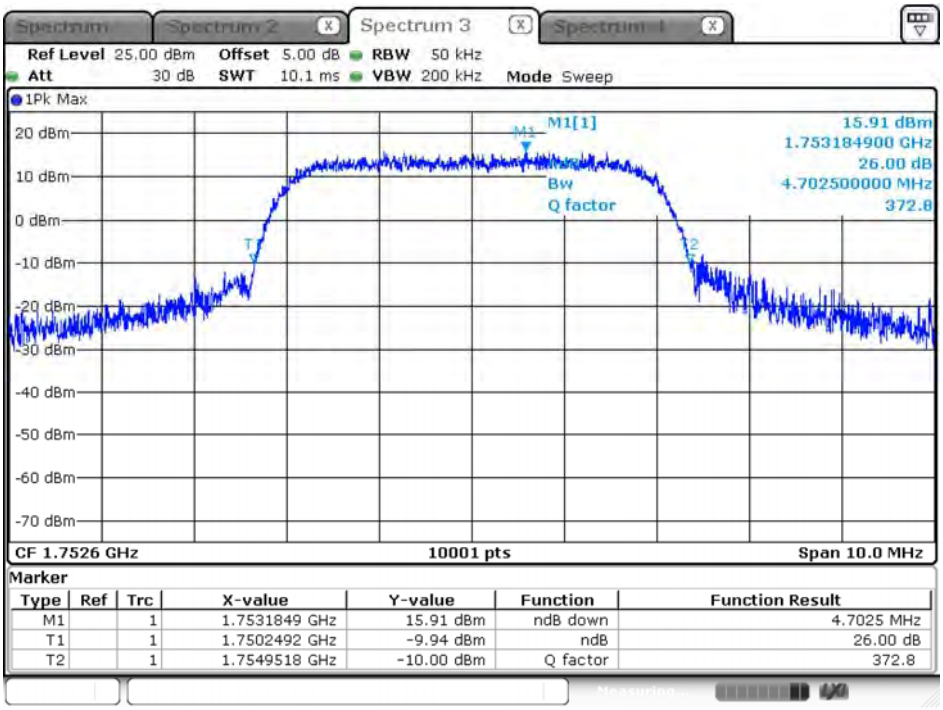
Date: 7.AUG.2018 10:16:03

WCDMA_Band 4_HSDPA_1732.6MHz (99% BW)



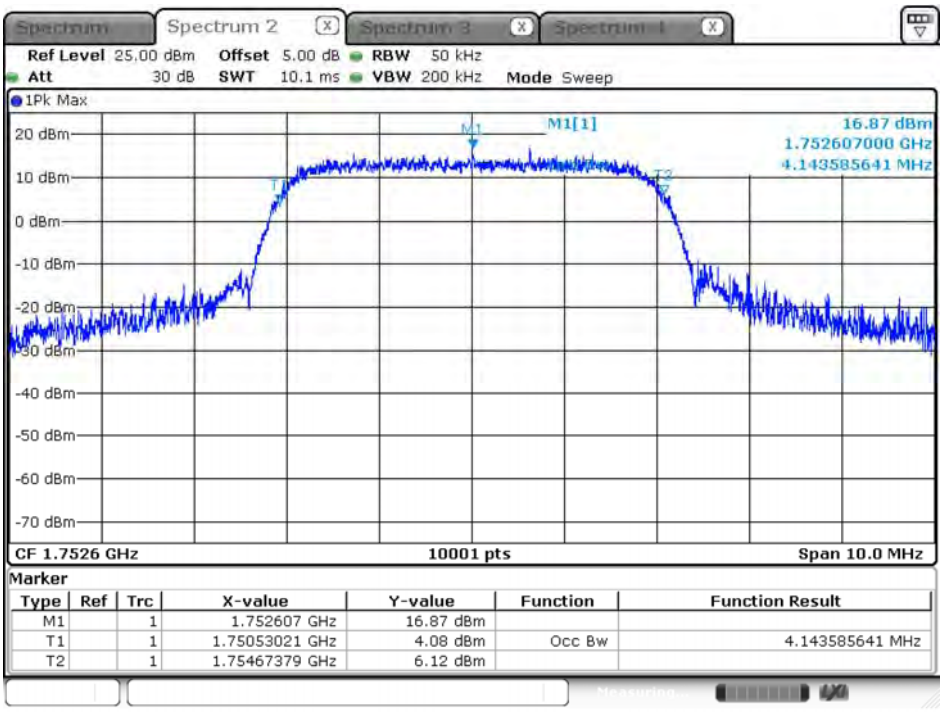
Date: 7.AUG.2018 10:15:49

WCDMA_Band 4_HSDPA_1752.6MHz (-26dB BW)



Date: 7.AUG.2018 10:17:19

WCDMA_Band 4_HSDPA_1752.6MHz (99% BW)

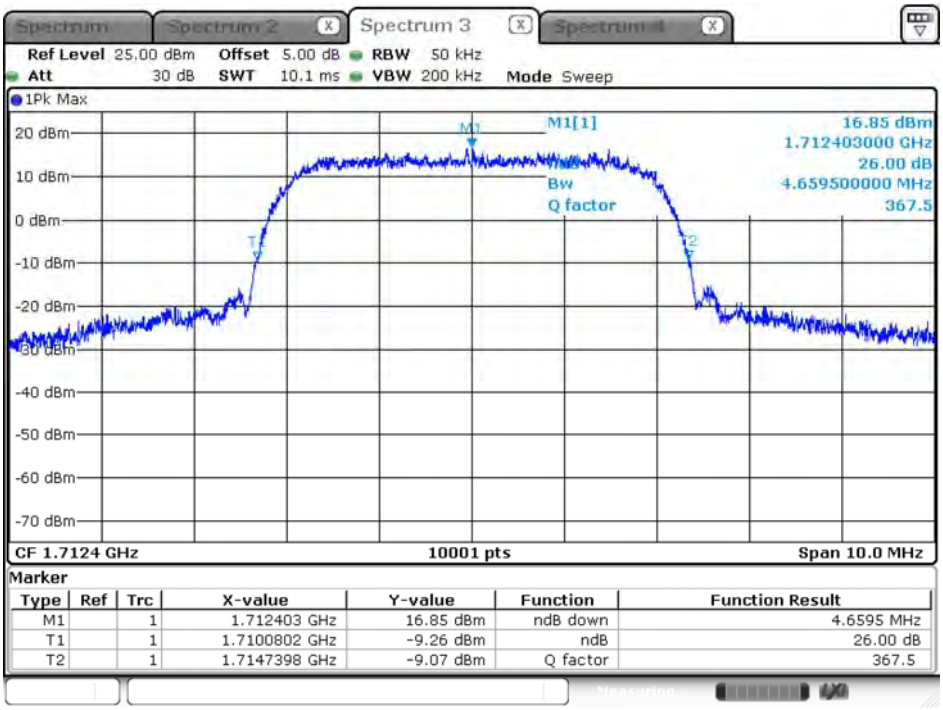


Date: 7.AUG.2018 10:17:01

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/07	Test Site	SR10-H

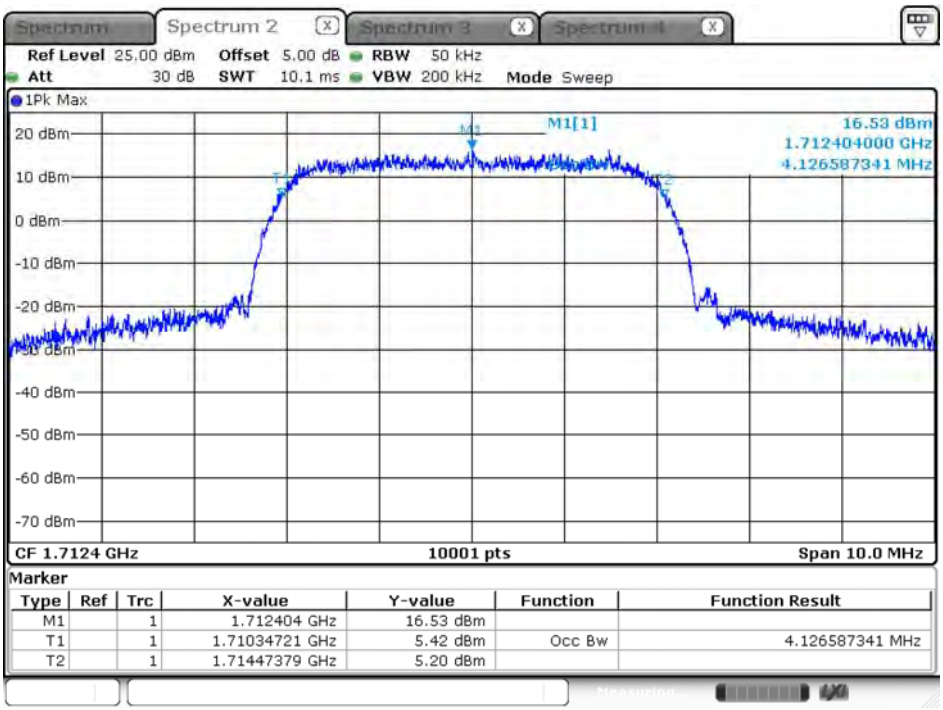
FCC Part 22H			
WCDMA Band 4_HSUPA			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
1712.4	4.659	4.126	N/A
1732.6	4.639	4.131	N/A
1752.6	4.672	4.136	N/A

WCDMA_Band 4_HSUPA_1712.4MHz (-26dB BW)



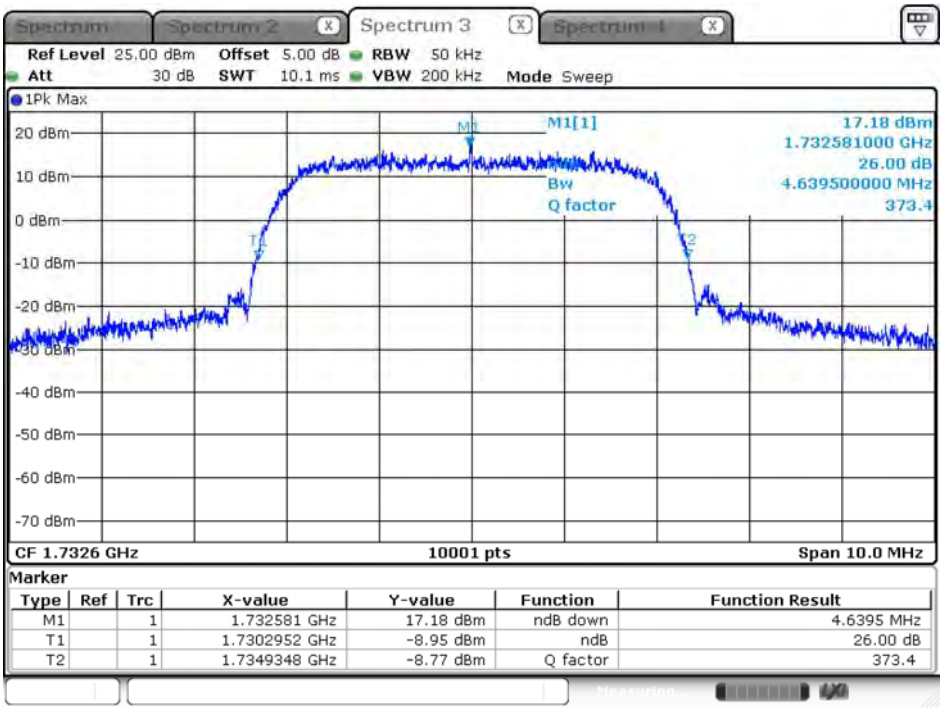
Date: 7.AUG.2018 10:12:42

WCDMA_Band 4_HSUPA_1712.4MHz (99% BW)



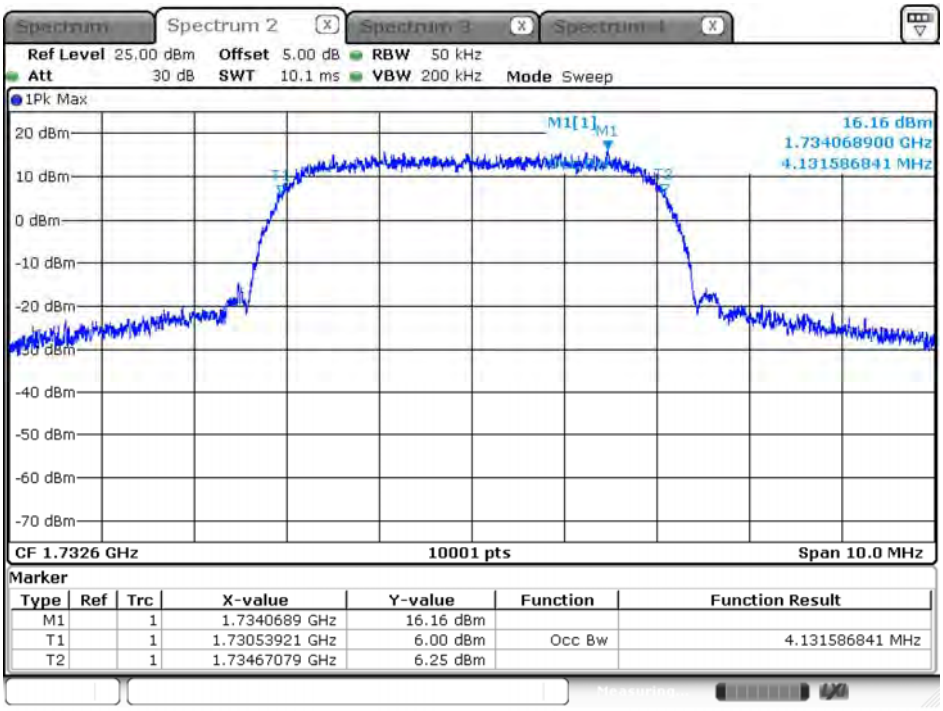
Date: 7.AUG.2018 10:12:22

WCDMA_Band 4_HSUPA_1732.6MHz (-26dB BW)



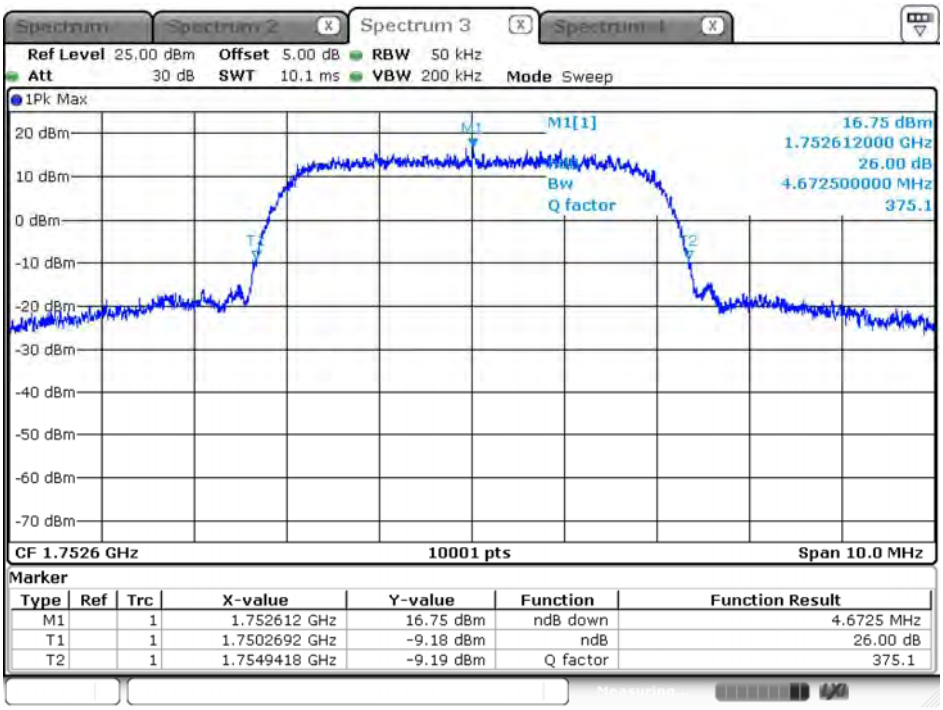
Date: 7.AUG.2018 10:11:28

WCDMA_Band 4_HSUPA_1732.6MHz (99% BW)



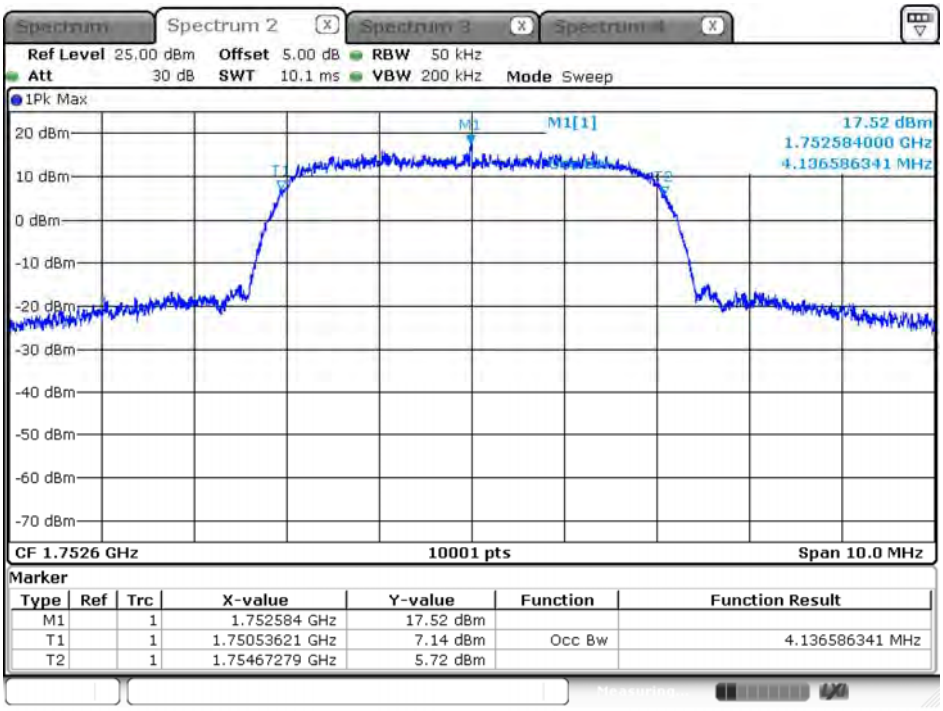
Date: 7.AUG.2018 10:11:13

WCDMA_Band 4_HSUPA_1752.6MHz (-26dB BW)



Date: 7.AUG.2018 10:10:16

WCDMA_Band 4_HSUPA_1752.6MHz (99% BW)

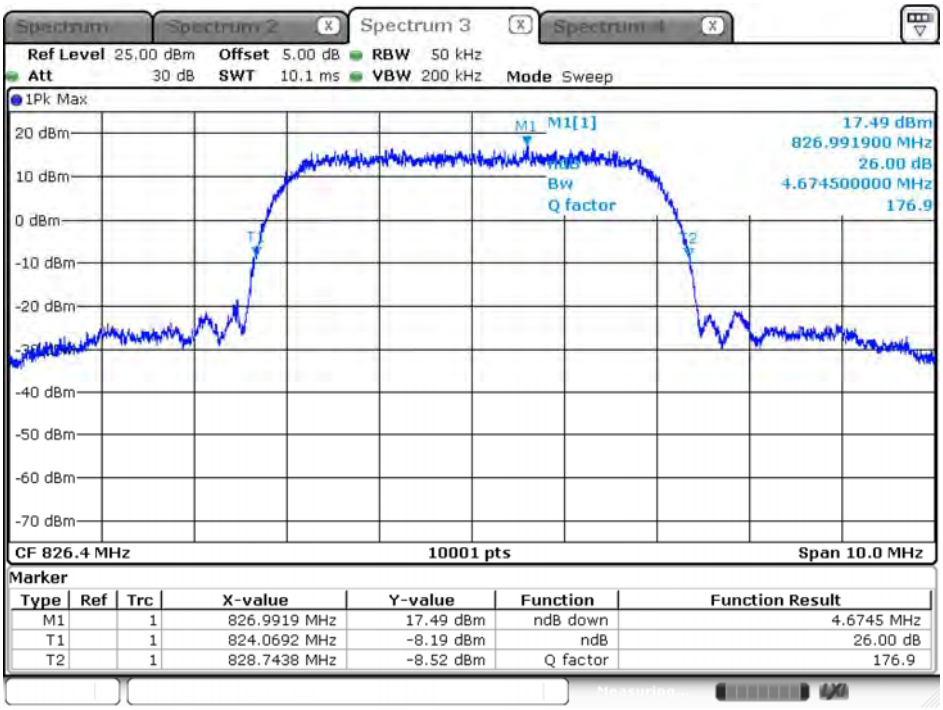


Date: 7.AUG.2018 10:10:36

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/07	Test Site	SR10-H

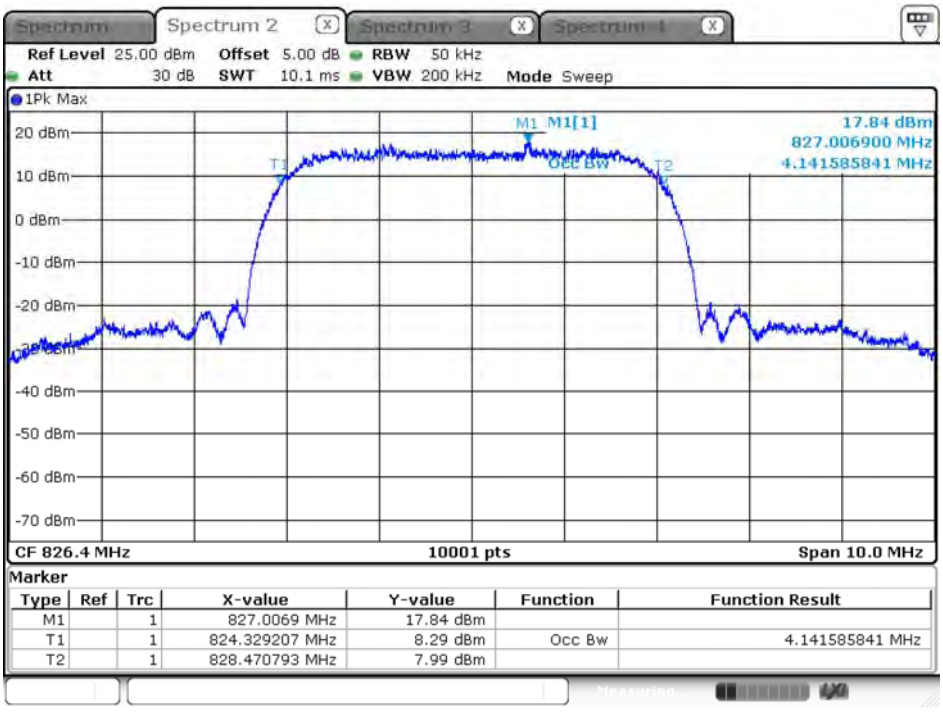
FCC Part 22H			
WCDMA Band 5_RMC			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
826.4	4.674	4.141	N/A
836.6	4.682	4.129	N/A
846.6	4.702	4.160	N/A

WCDMA_Band 5_RMC_826.4MHz (-26dB BW)



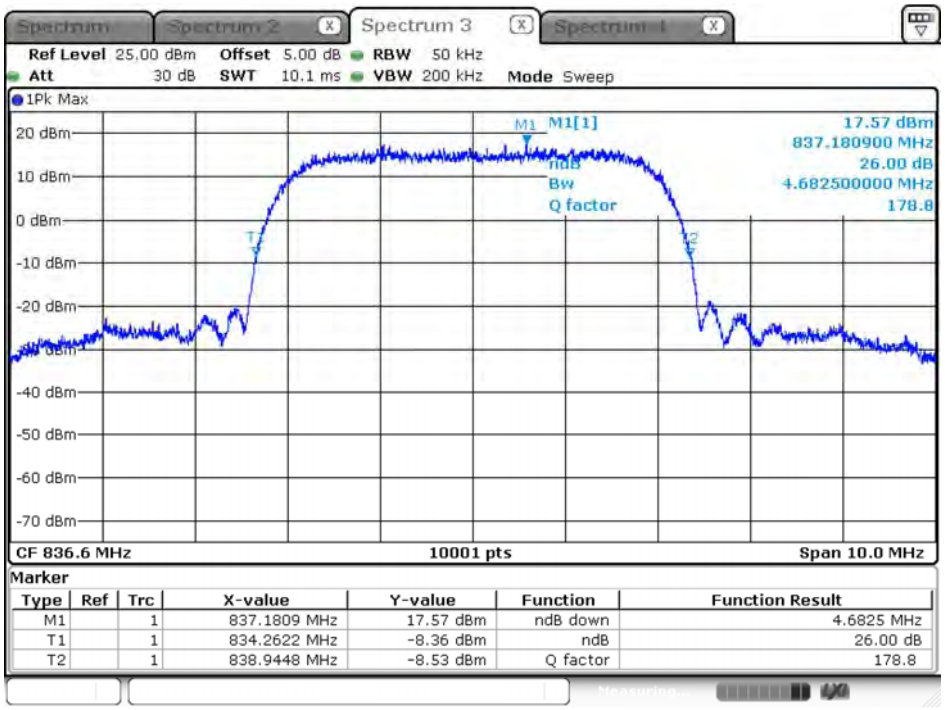
Date: 7.AUG.2018 10:32:06

WCDMA_Band 5_RMC_826.4MHz (99% BW)



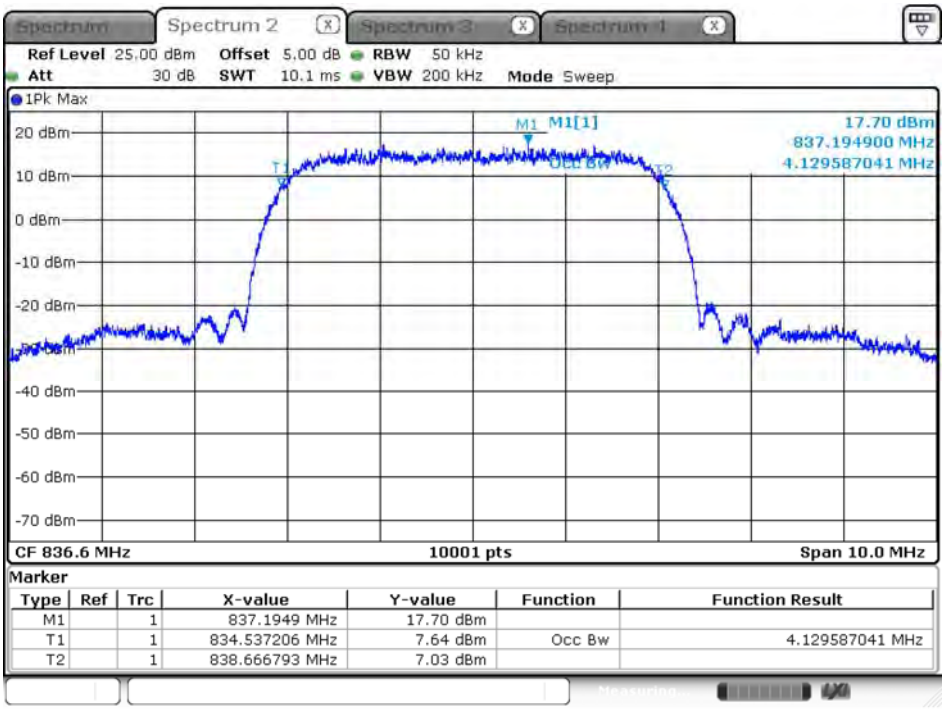
Date: 7.AUG.2018 10:31:49

WCDMA_Band 5_RMC_836.6MHz (-26dB BW)



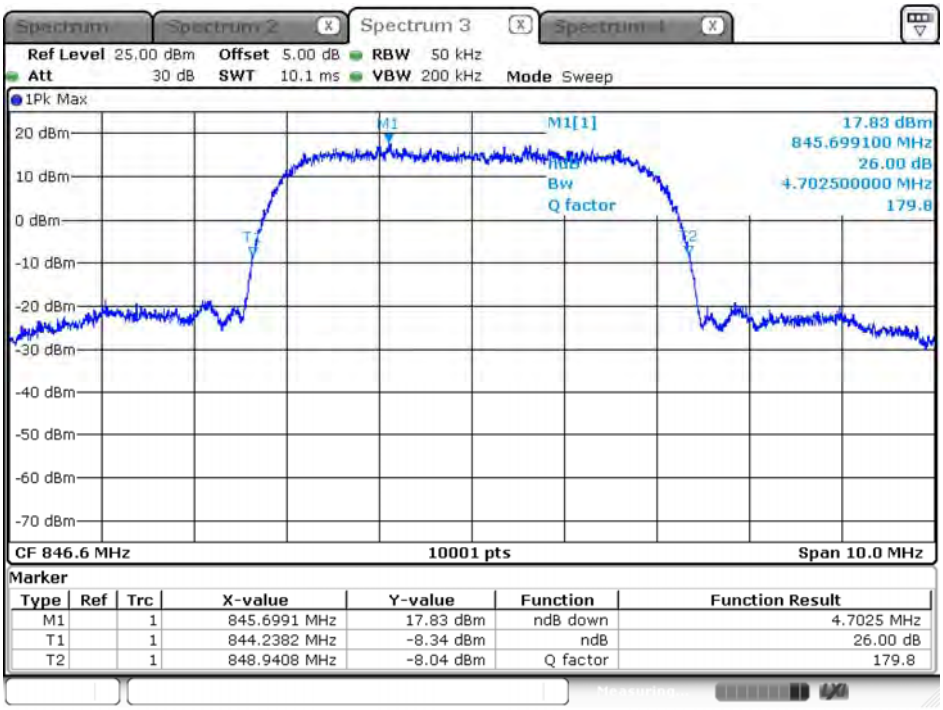
Date: 7.AUG.2018 10:33:44

WCDMA_Band 5_RMC_836.6MHz (99% BW)



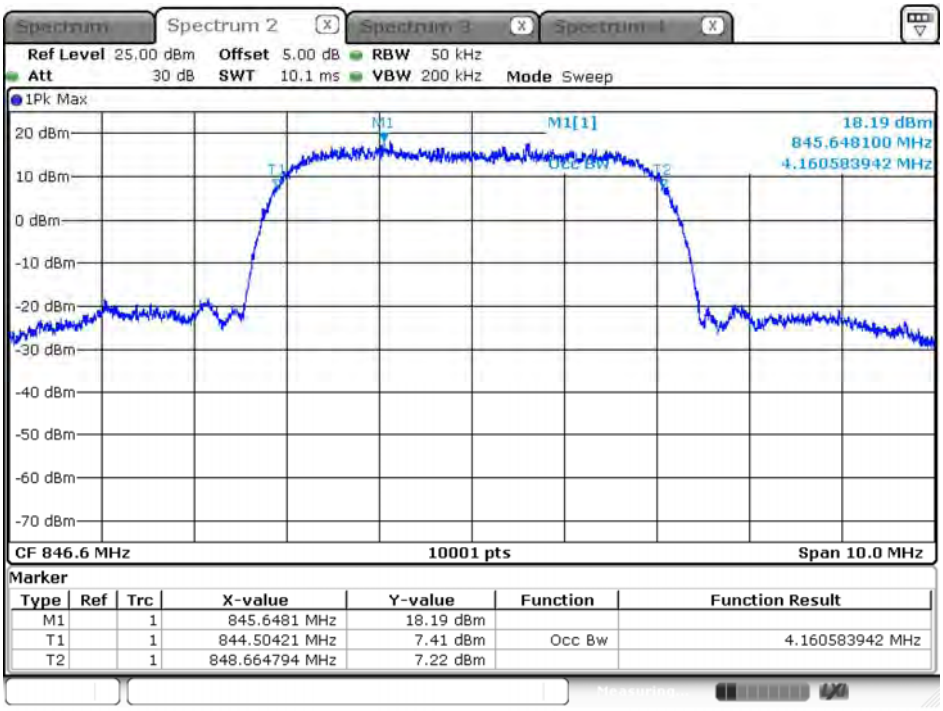
Date: 7.AUG.2018 10:33:18

WCDMA_Band 5_RMC_846.6MHz (-26dB BW)



Date: 7.AUG.2018 10:35:06

WCDMA_Band 5_RMC_846.6MHz (99% BW)

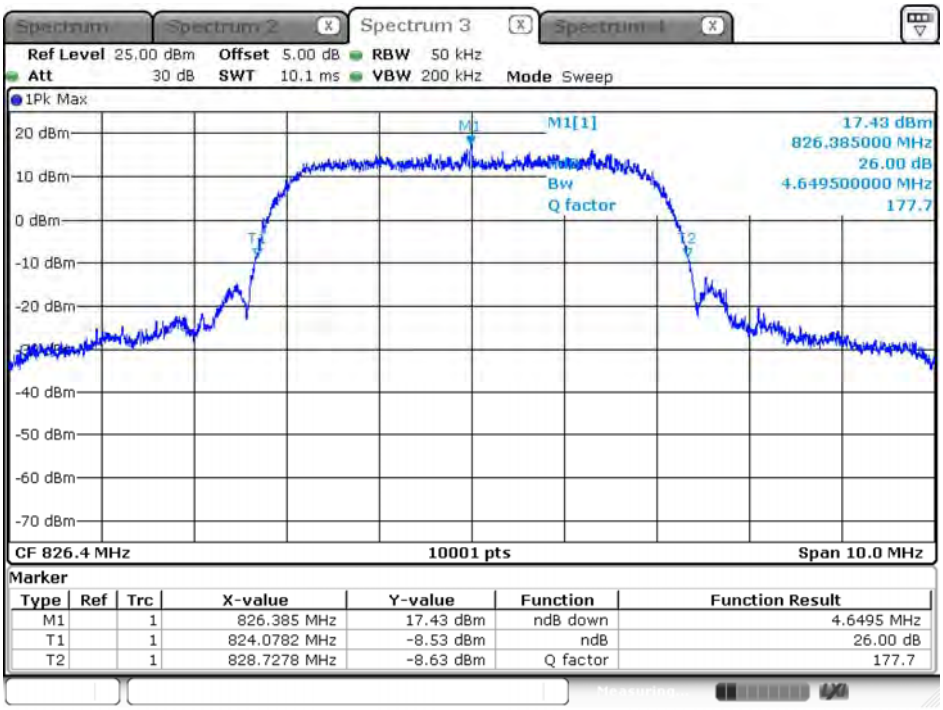


Date: 7.AUG.2018 10:34:44

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/07	Test Site	SR10-H

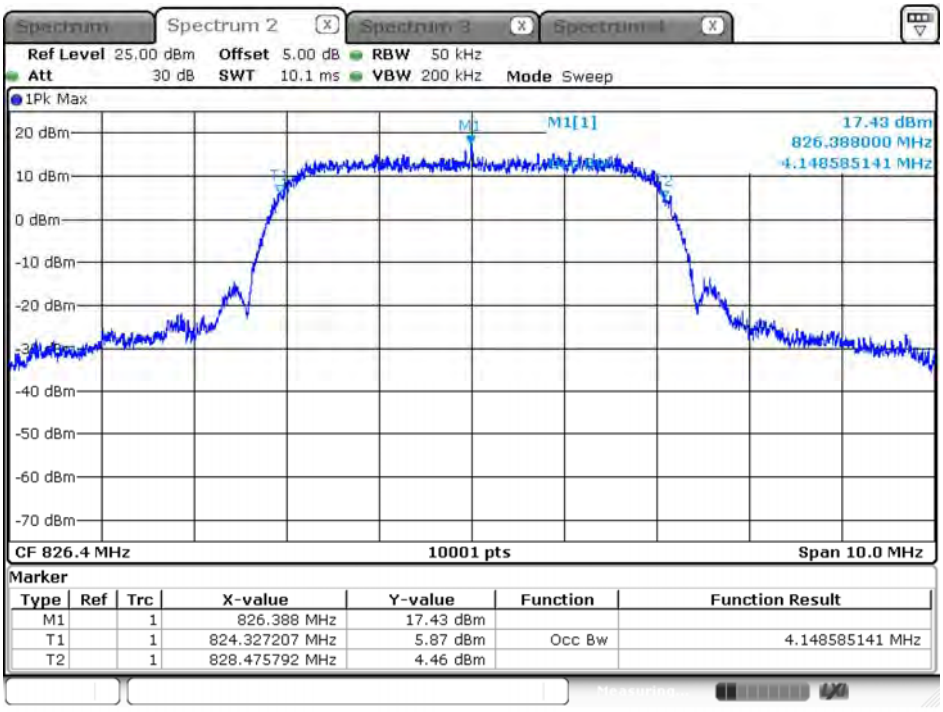
FCC Part 22H			
WCDMA Band 5_HSDPA			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
826.4	4.649	4.148	N/A
836.6	4.734	4.193	N/A
846.6	4.696	4.161	N/A

WCDMA_Band 5_HSDPA_826.4MHz (-26dB BW)



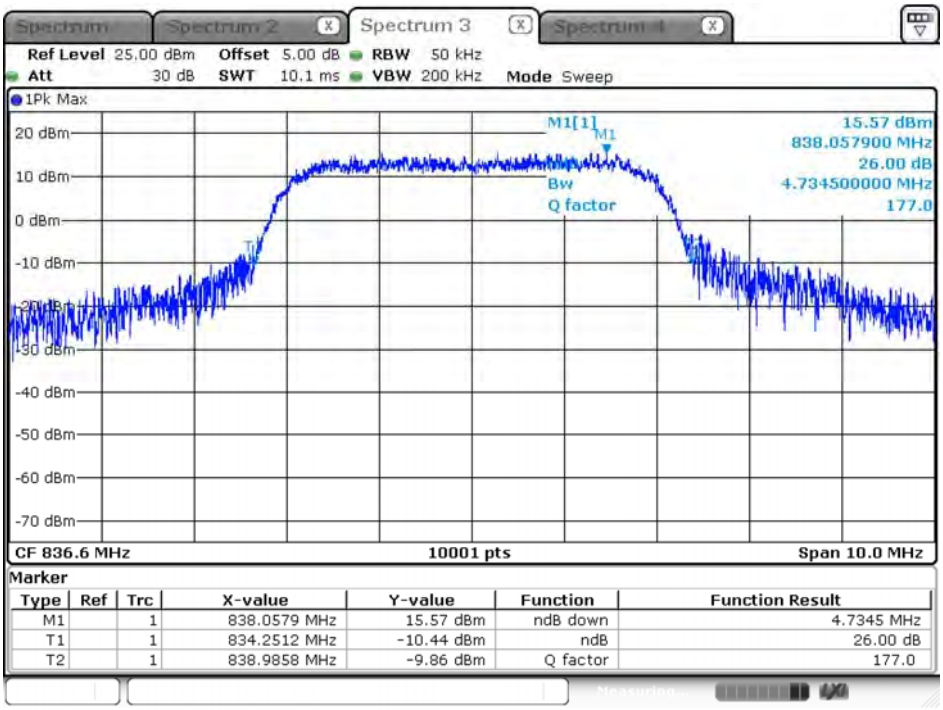
Date: 7.AUG.2018 10:22:17

WCDMA_Band 5_HSDPA_826.4MHz (99% BW)



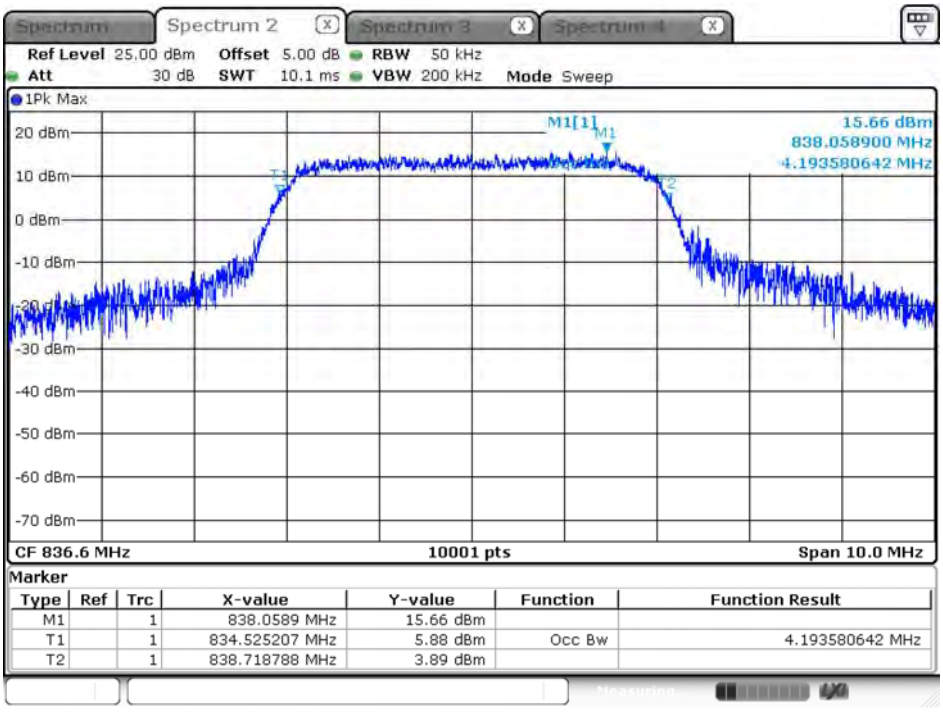
Date: 7.AUG.2018 10:21:35

WCDMA_Band 5_HSDPA_836.6MHz (-26dB BW)



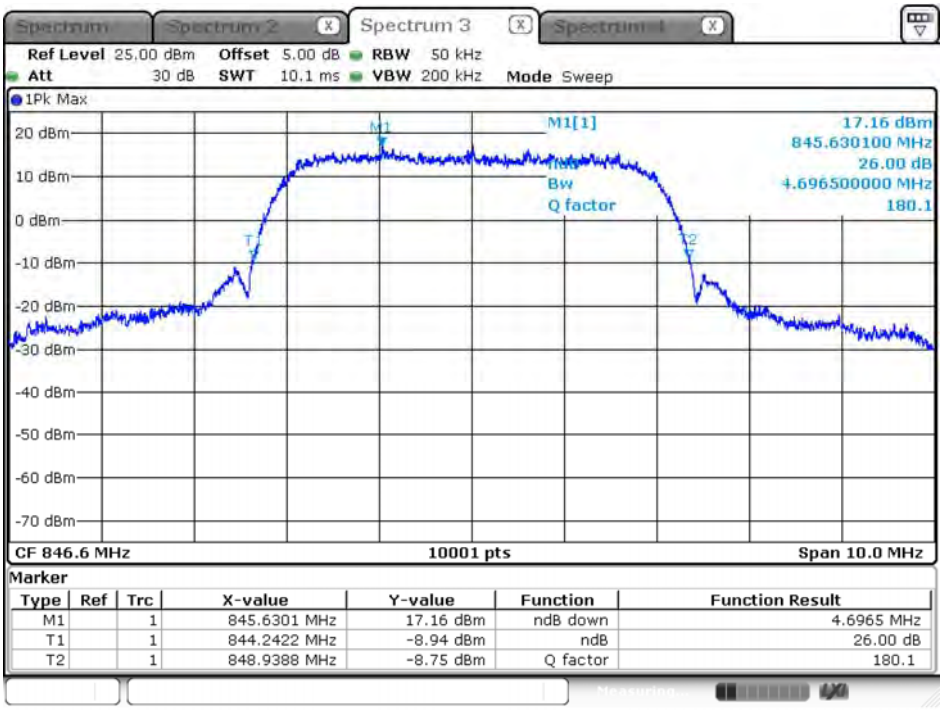
Date: 7.AUG.2018 10:23:58

WCDMA_Band 5_HSDPA_836.6MHz (99% BW)



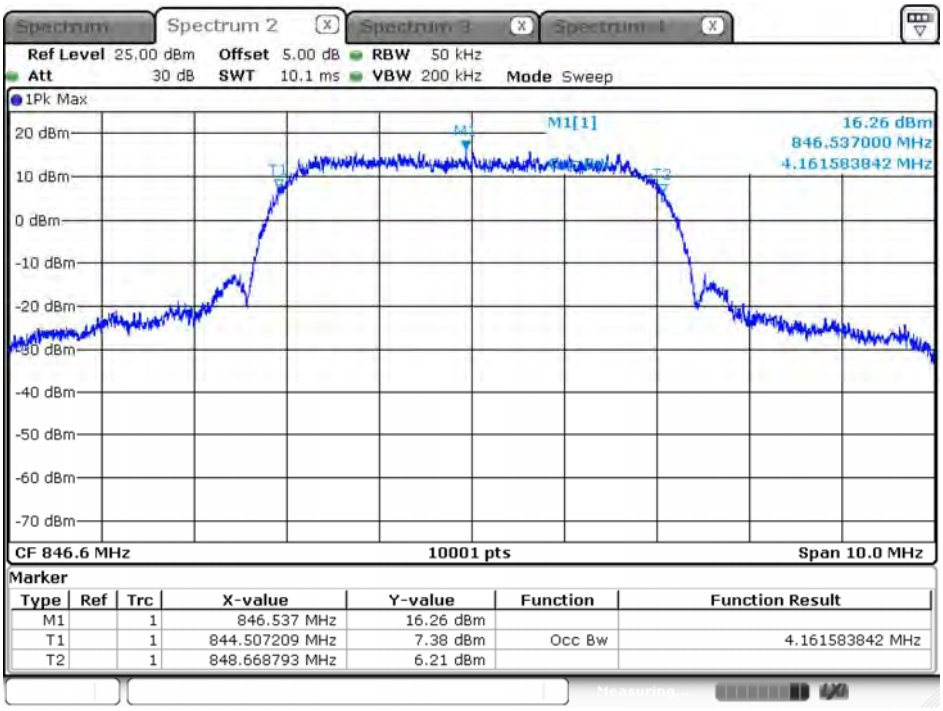
Date: 7.AUG.2018 10:23:45

WCDMA_Band 5_HSDPA_846.6MHz (-26dB BW)



Date: 7.AUG.2018 10:26:31

WCDMA_Band 5_HSDPA_846.6MHz (99% BW)

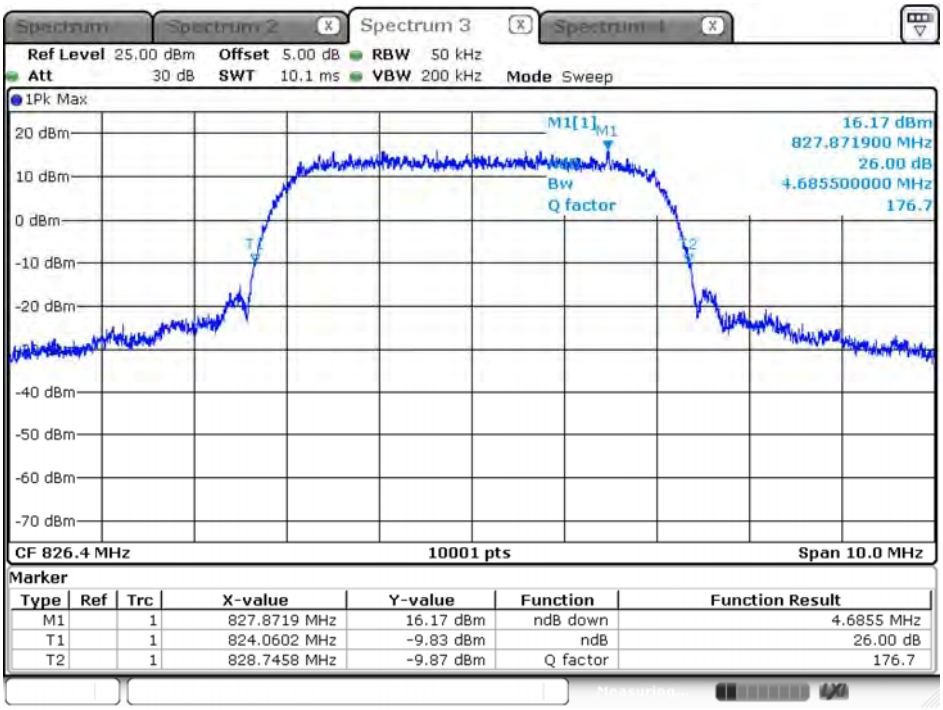


Date: 7.AUG.2018 10:25:17

Product	LE910C4-NF		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/07	Test Site	SR10-H

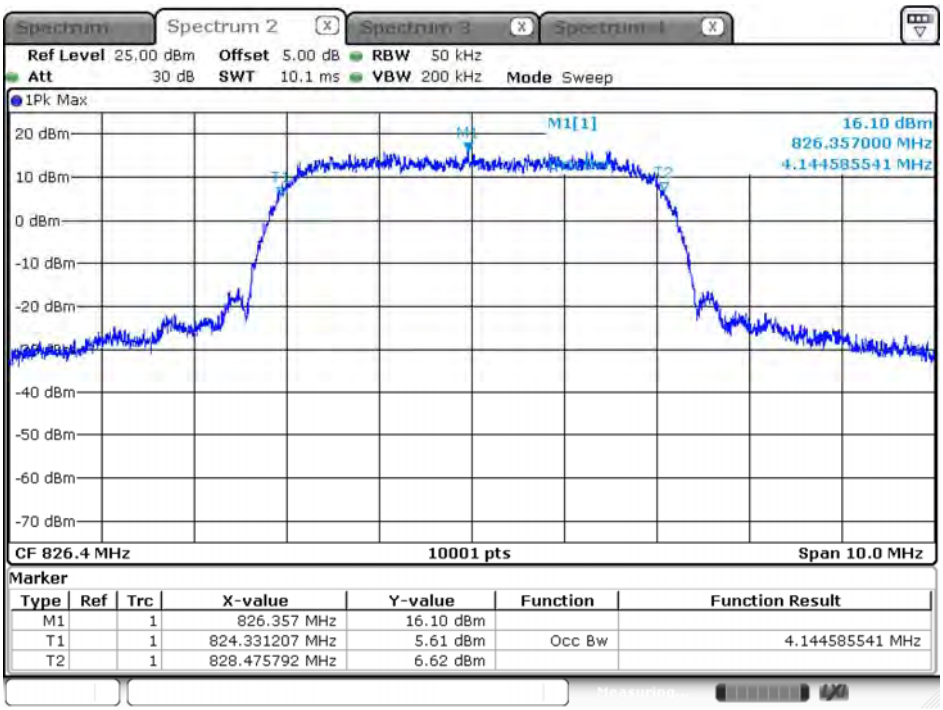
FCC Part 22H			
WCDMA Band 5_HSUPA			
Frequency (MHz)	-26dB BW Measure Level (MHz)	99% BW Measure Level (MHz)	Limit (MHz)
826.4	4.685	4.144	N/A
836.6	4.750	4.190	N/A
846.6	4.683	4.156	N/A

WCDMA_Band 5_HSUPA_826.4MHz (-26dB BW)



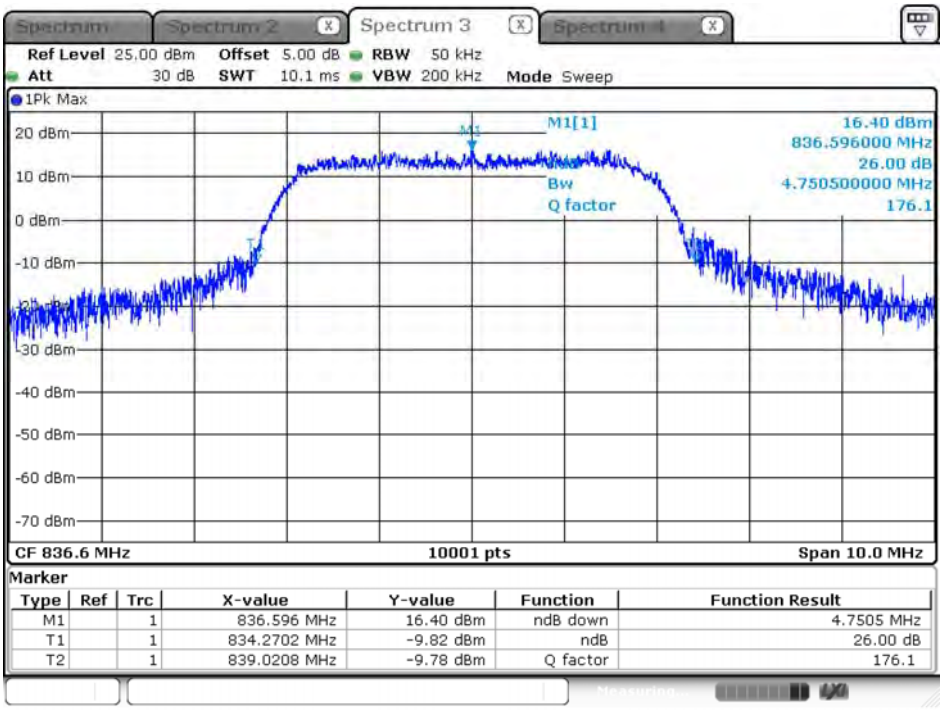
Date: 7.AUG.2018 10:30:32

WCDMA_Band 5_HSUPA_826.4MHz (99% BW)



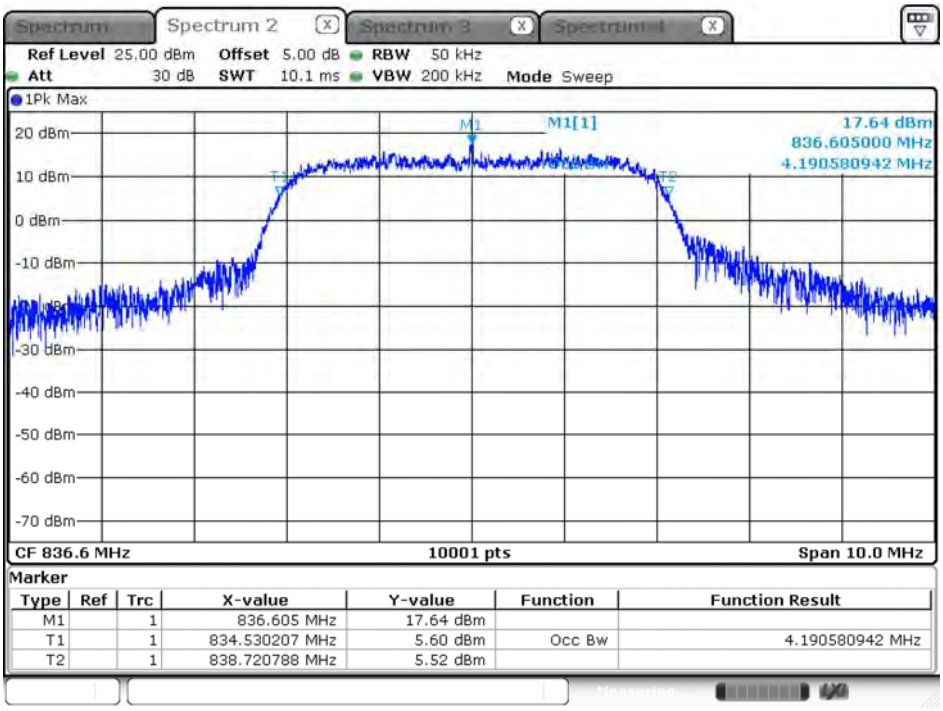
Date: 7.AUG.2018 10:30:54

WCDMA_Band 5_HSUPA_836.6MHz (-26dB BW)



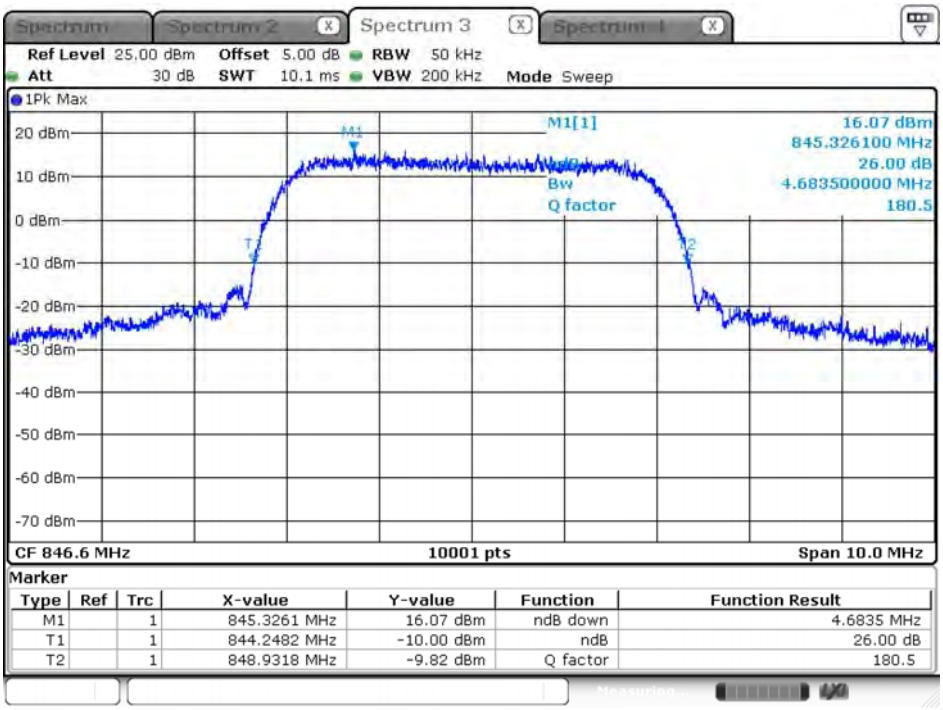
Date: 7.AUG.2018 10:29:02

WCDMA_Band 5_HSUPA_836.6MHz (99% BW)



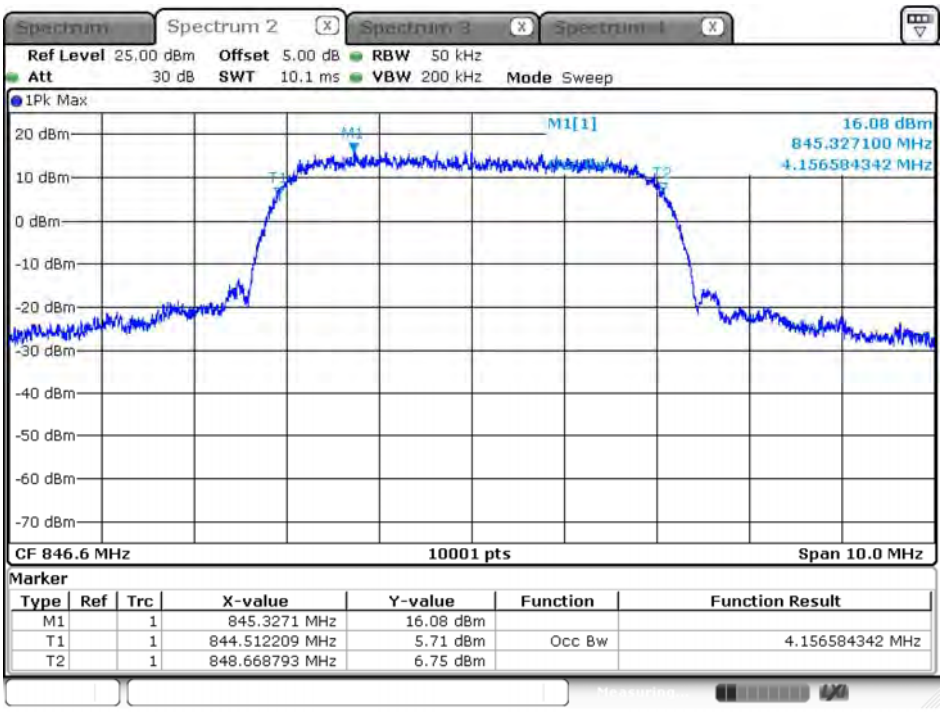
Date: 7.AUG.2018 10:29:25

WCDMA_Band 5_HSUPA_846.6MHz (-26dB BW)



Date: 7.AUG.2018 10:27:34

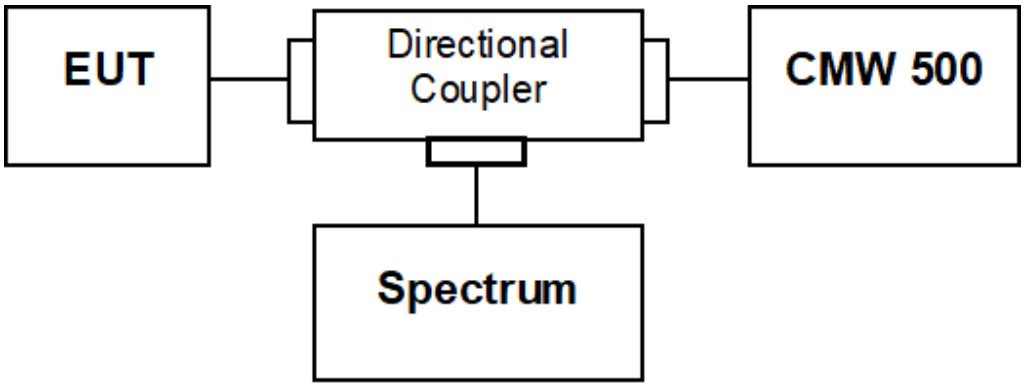
WCDMA_Band 5_HSUPA_846.6MHz (99% BW)



Date: 7.AUG.2018 10:27:56

5. Peak To Average Ratio

5.1. Test Setup



5.2. Test Procedure

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PAPR level associated with a probability of 0.1 %.

5.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.7.2

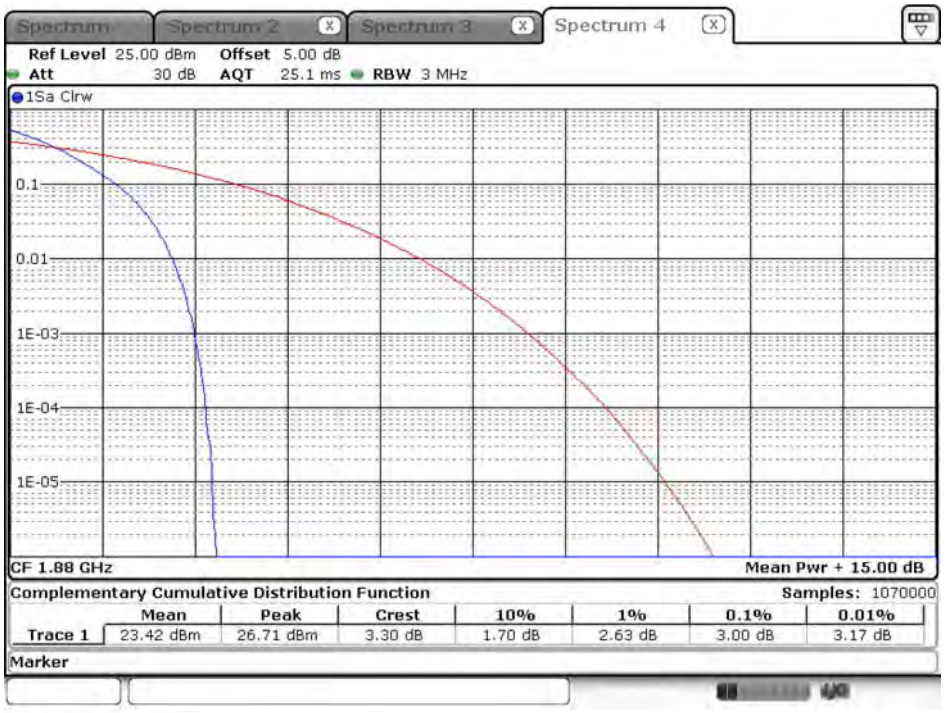
ANSI C63.26-2015 Sub-clause 5.2.3.4

5.4. Test Result

Product	LE910C4-NF		
Test Item	Peak To Average Ratio		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/07	Test Site	SR10-H

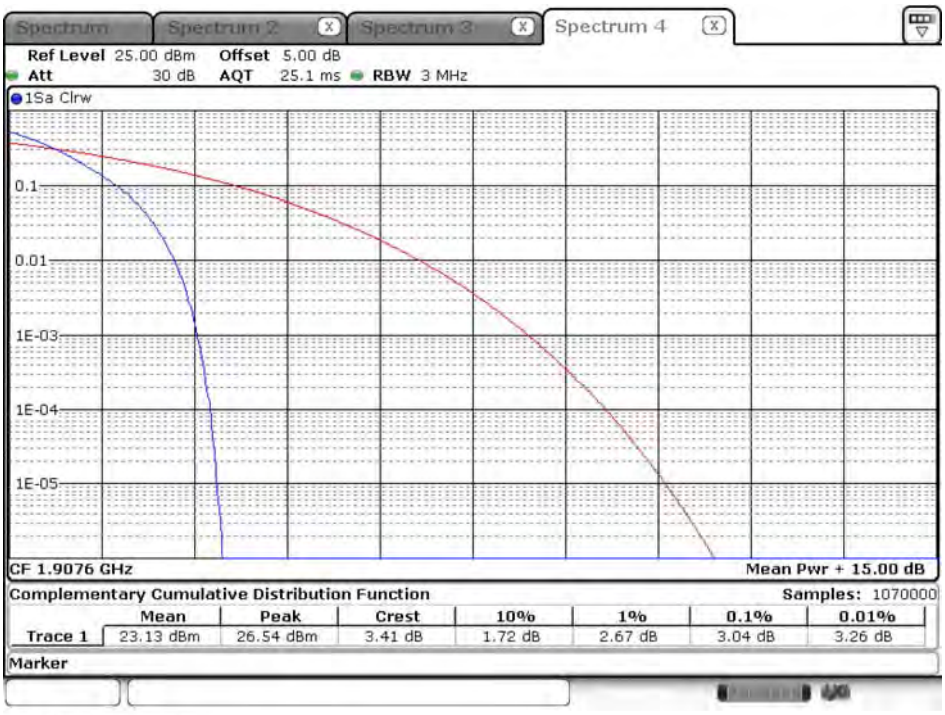
WCDMA_Band 2_RMC_1852.4MHz

WCDMA_Band 2_RMC_1880.0MHz



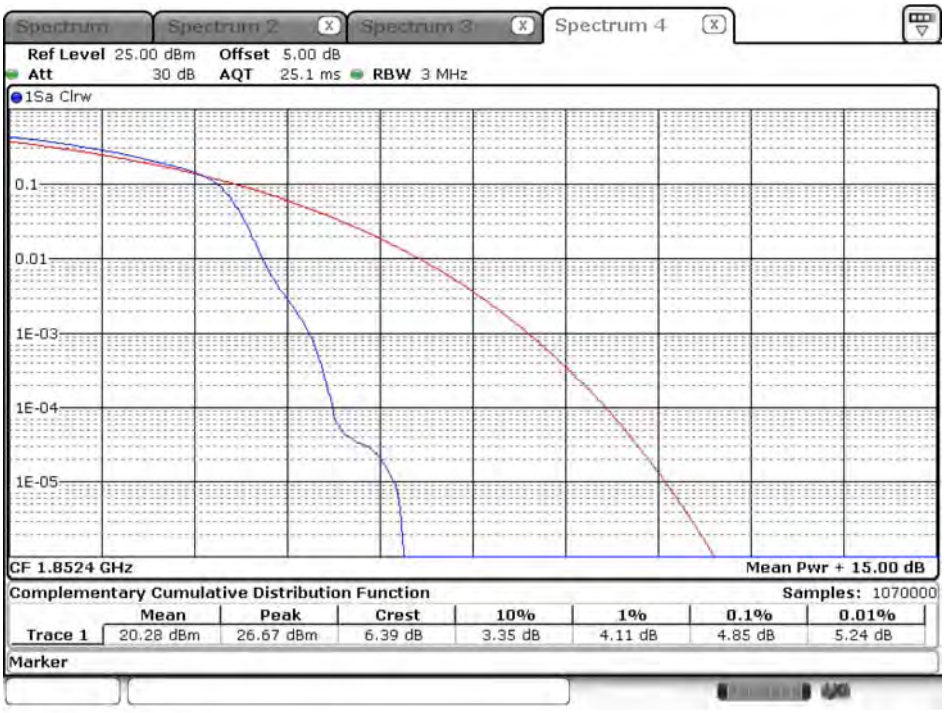
Date: 7.AUG.2018 11:11:00

WCDMA_Band 2_RMC_1907.6MHz



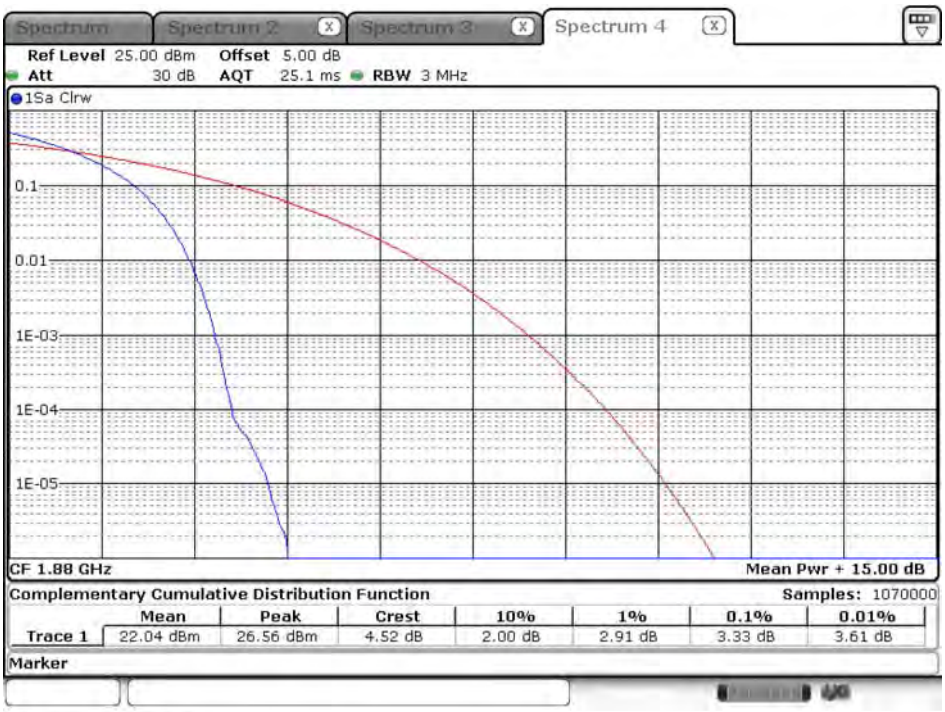
Date: 7.AUG.2018 11:10:30

WCDMA_Band 2_HSDPA_1852.4MHz



Date: 7.AUG.2018 11:12:32

WCDMA_Band 2_HSDPA_1880.0MHz

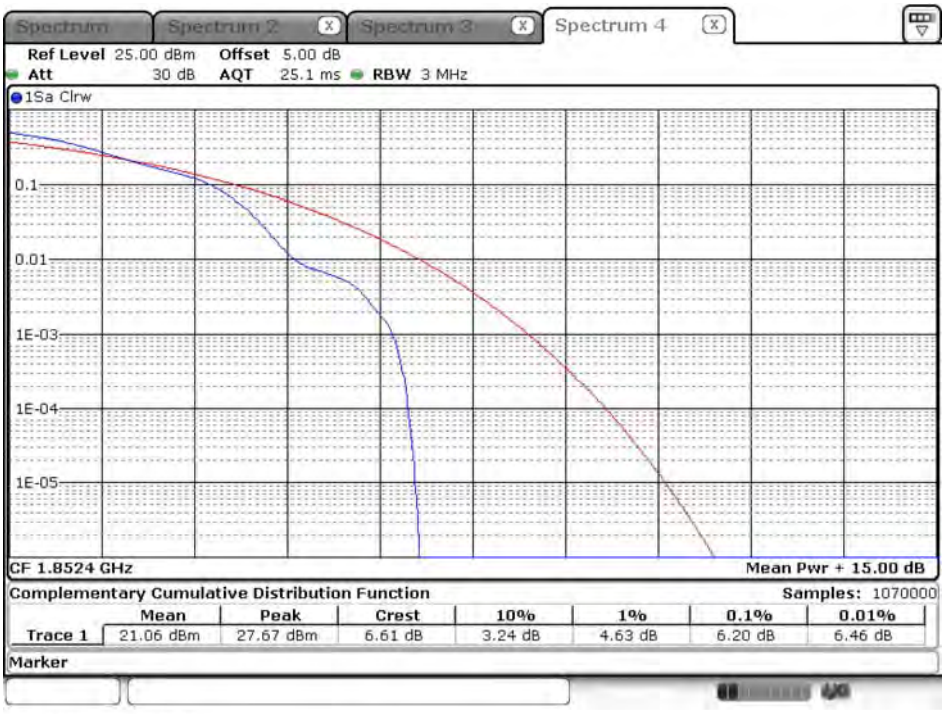


Date: 7.AUG.2018 11:12:52

WCDMA_Band 2_HSDPA_1907.6MHz

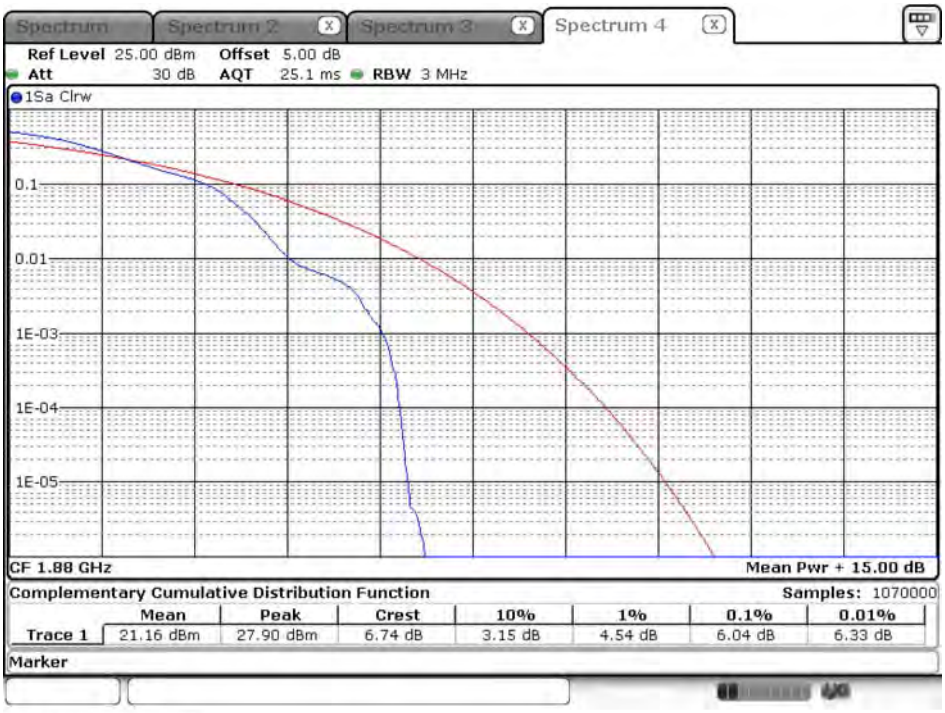
Date: 7.AUG.2018 11:14:04

WCDMA_Band 2_HSUPA_1852.4MHz



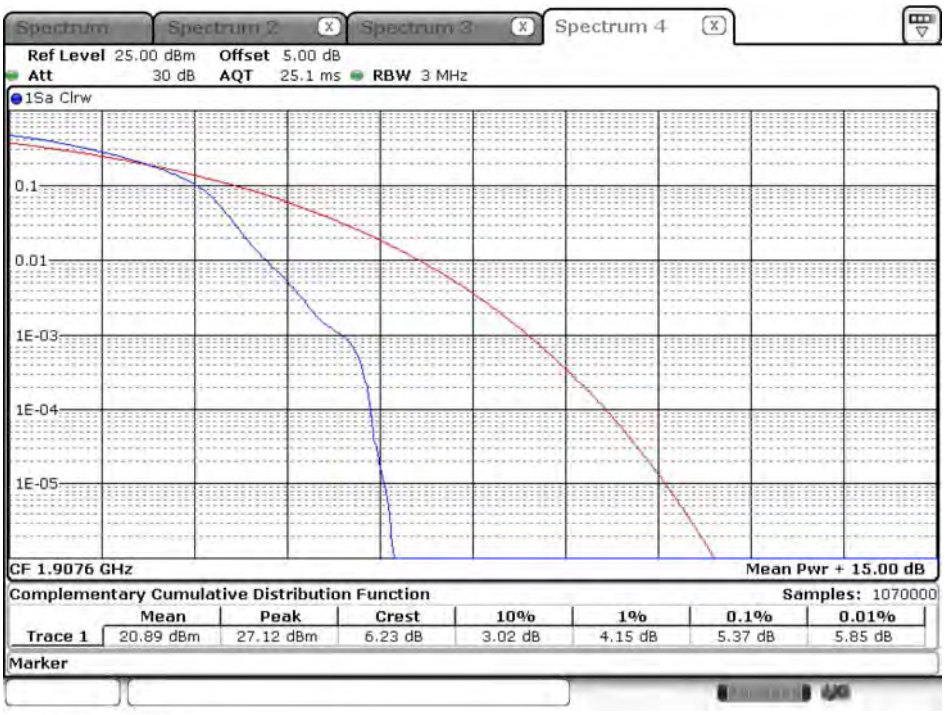
Date: 7.AUG.2018 11:15:50

WCDMA_Band 2_HSUPA_1880.0MHz



Date: 7.AUG.2018 11:15:07

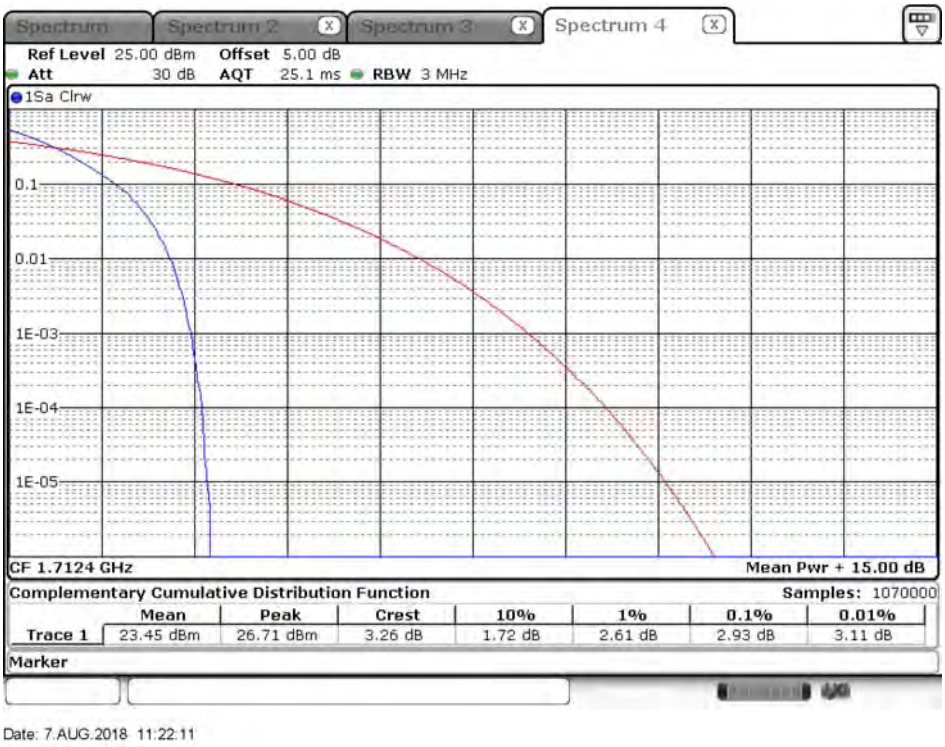
WCDMA_Band 2_HSUPA_1907.6MHz



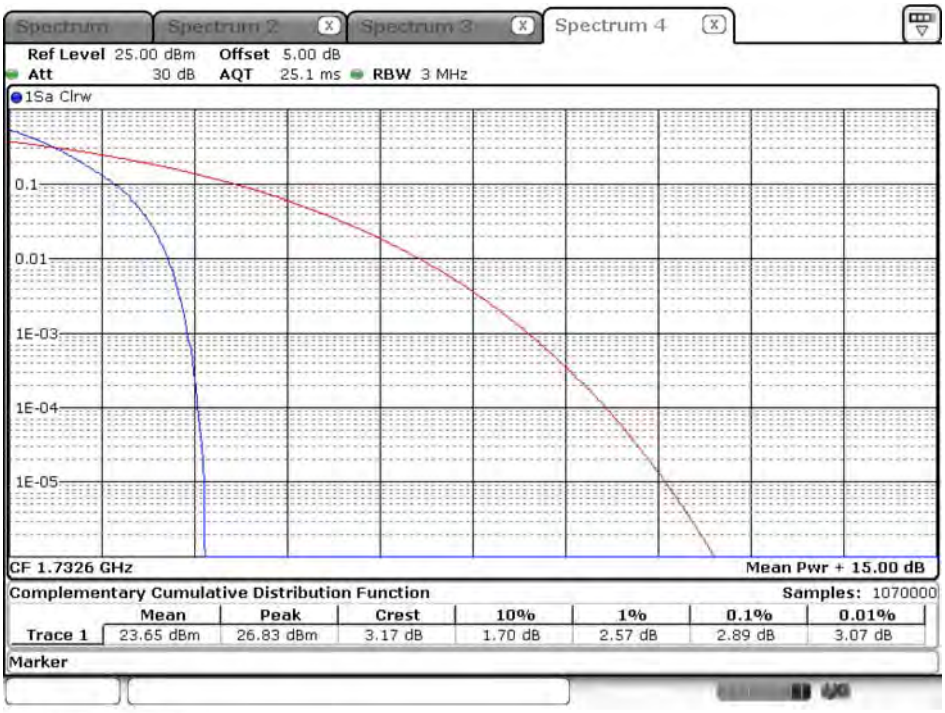
Date: 7.AUG.2018 11:14:48

Product	LE910C4-NF		
Test Item	Peak To Average Ratio		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/07	Test Site	SR10-H

WCDMA_Band 4_RMC_1712.4MHz

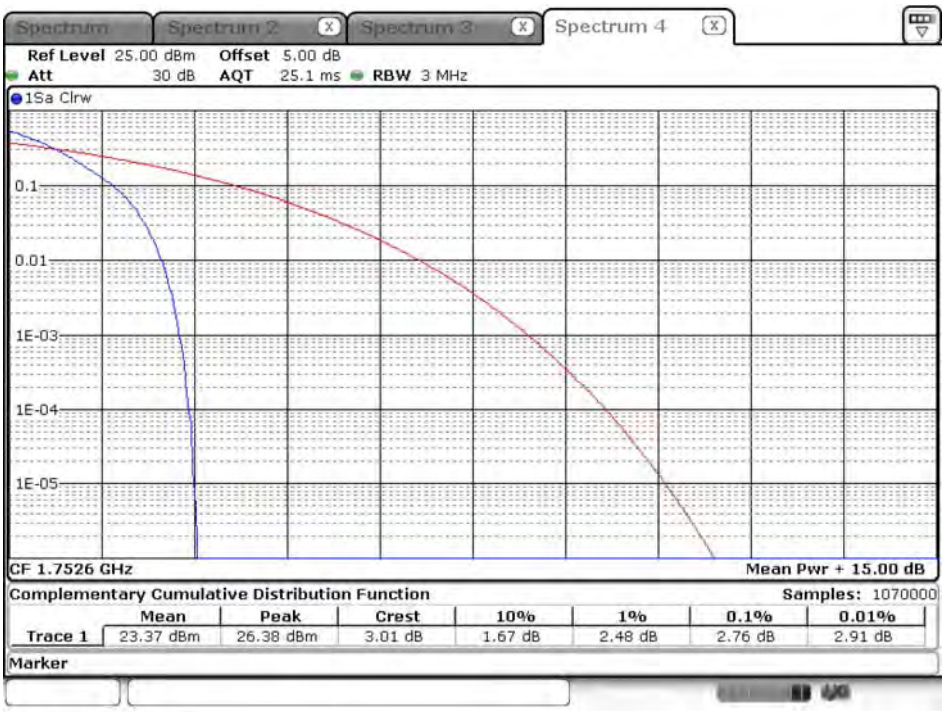


WCDMA_Band 4_RMC_1732.6MHz



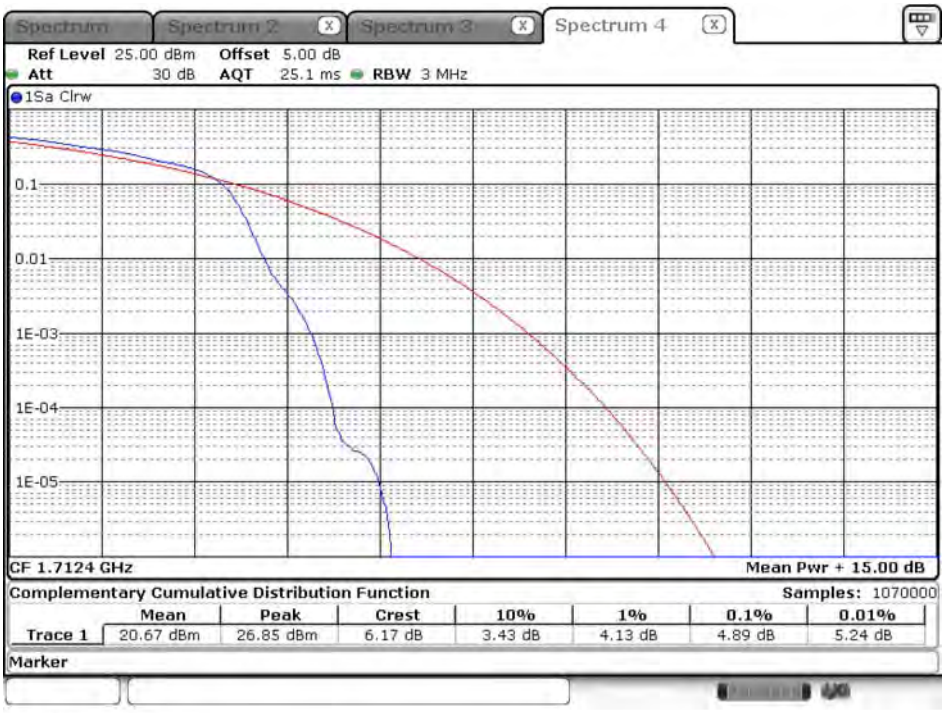
Date: 7.AUG.2018 11:22:36

WCDMA_Band 4_RMC_1752.6MHz



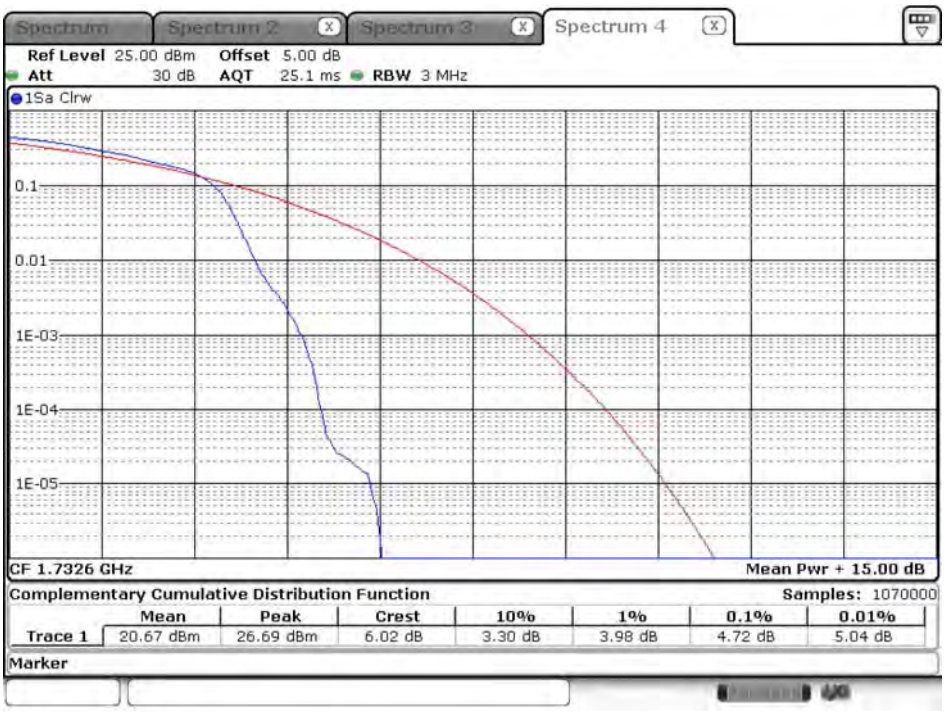
Date: 7.AUG.2018 11:23:03

WCDMA_Band 4_HSDPA_1712.4MHz



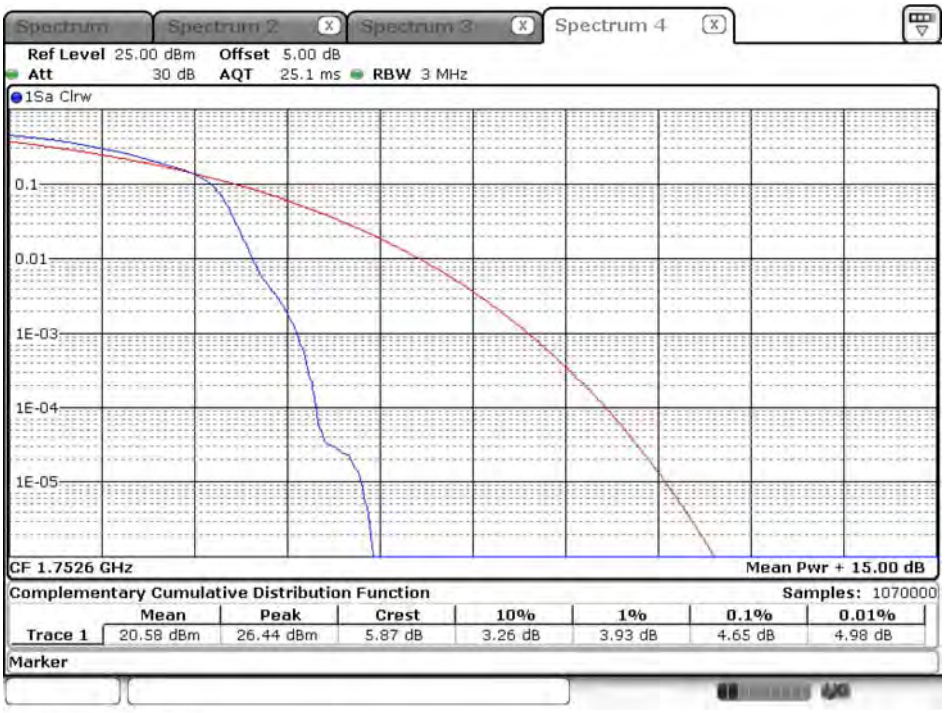
Date: 7.AUG.2018 11:21:26

WCDMA_Band 4_HSDPA_1732.6MHz



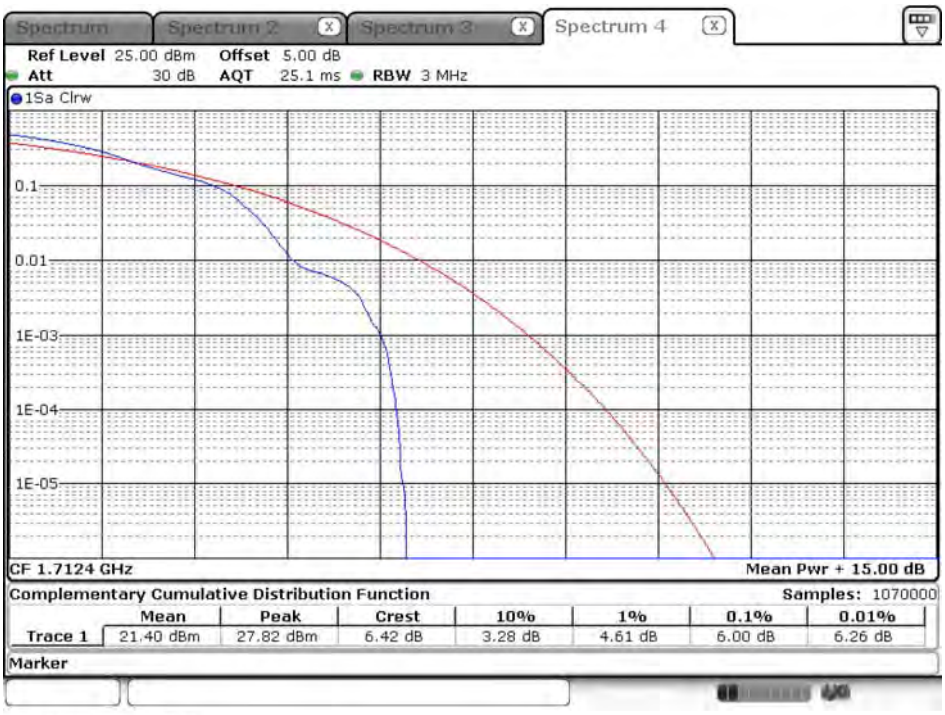
Date: 7.AUG.2018 11:21:06

WCDMA_Band 4_HSDPA_1752.6MHz



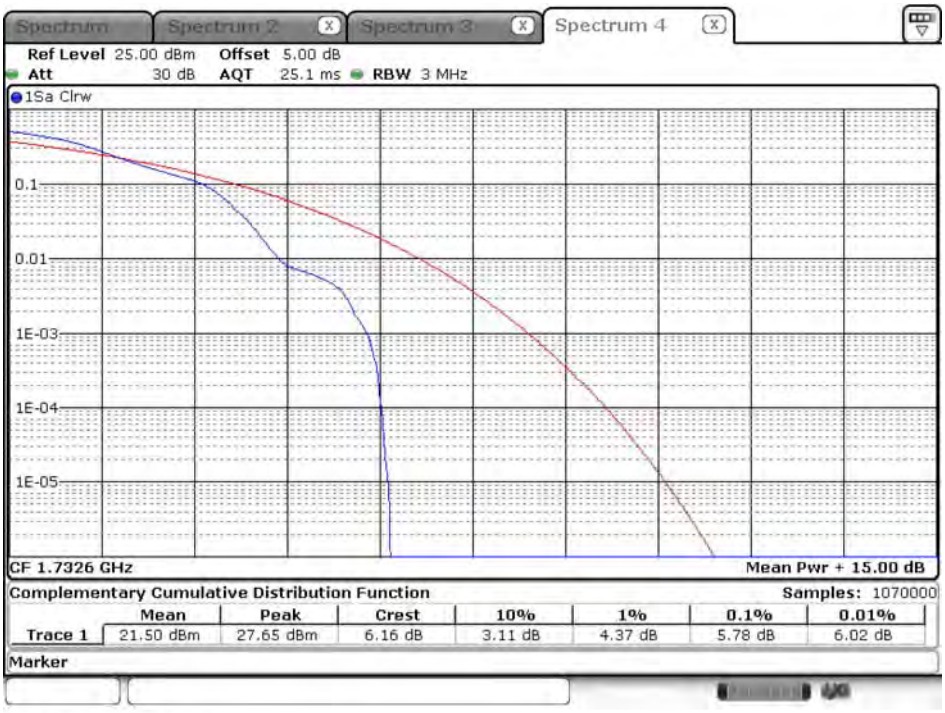
Date: 7.AUG.2018 11:20:43

WCDMA_Band 4_HSUPA_1712.4MHz



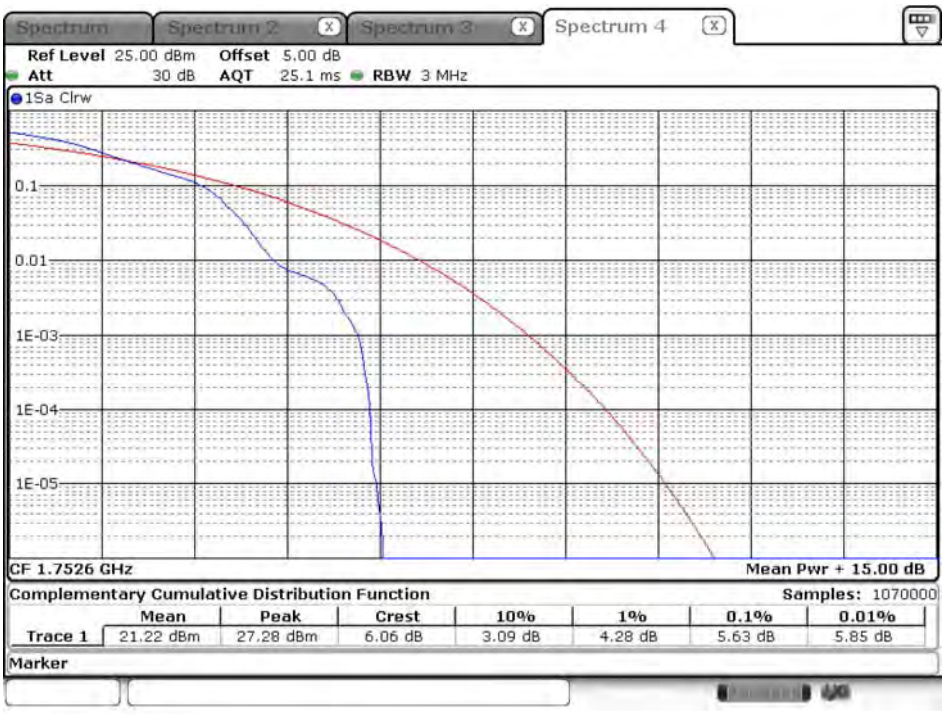
Date: 7.AUG.2018 11:16:43

WCDMA_Band 4_HSUPA_1732.6MHz



Date: 7.AUG.2018 11:17:58

WCDMA_Band 4_HSUPA_1752.6MHz

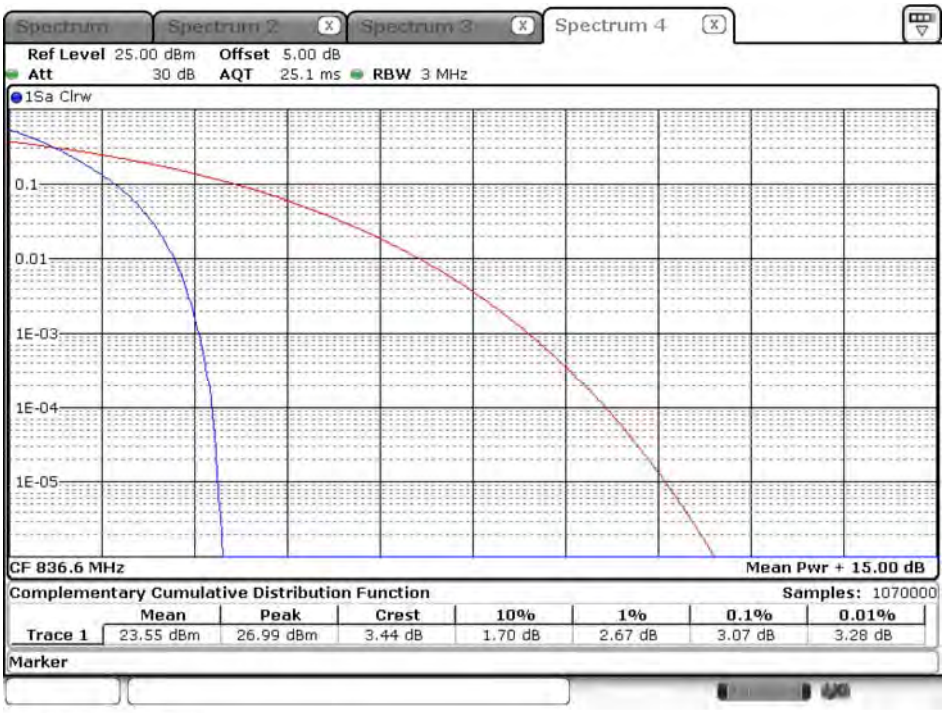


Date: 7.AUG.2018 11:20:08

Product	LE910C4-NF		
Test Item	Peak To Average Ratio		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/07	Test Site	SR10-H

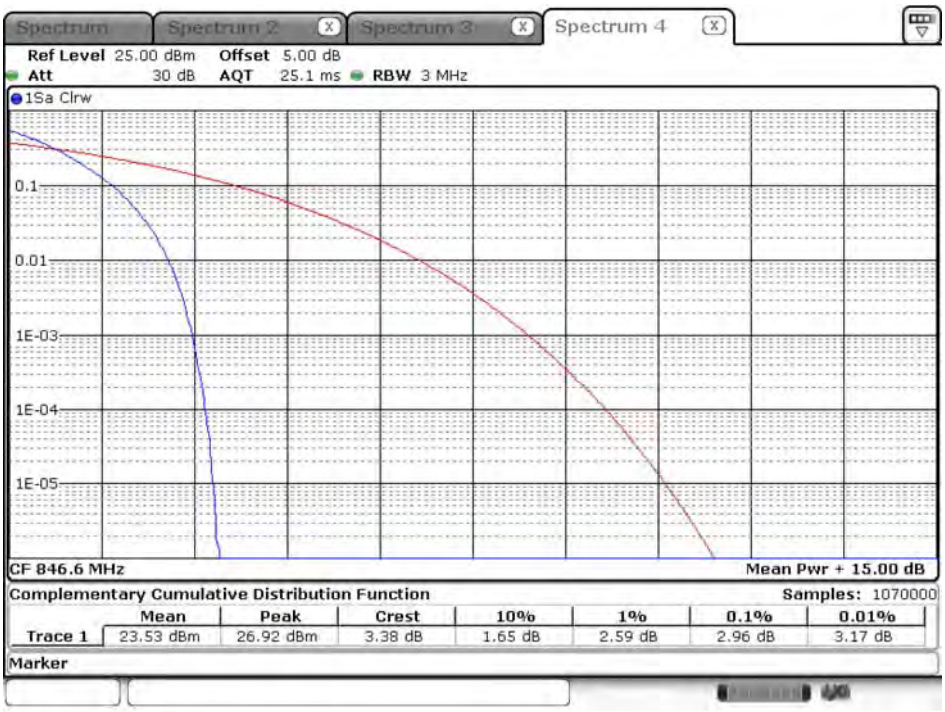
WCDMA_Band 5_RMC_826.4MHz

WCDMA_Band 5_RMC_836.6MHz



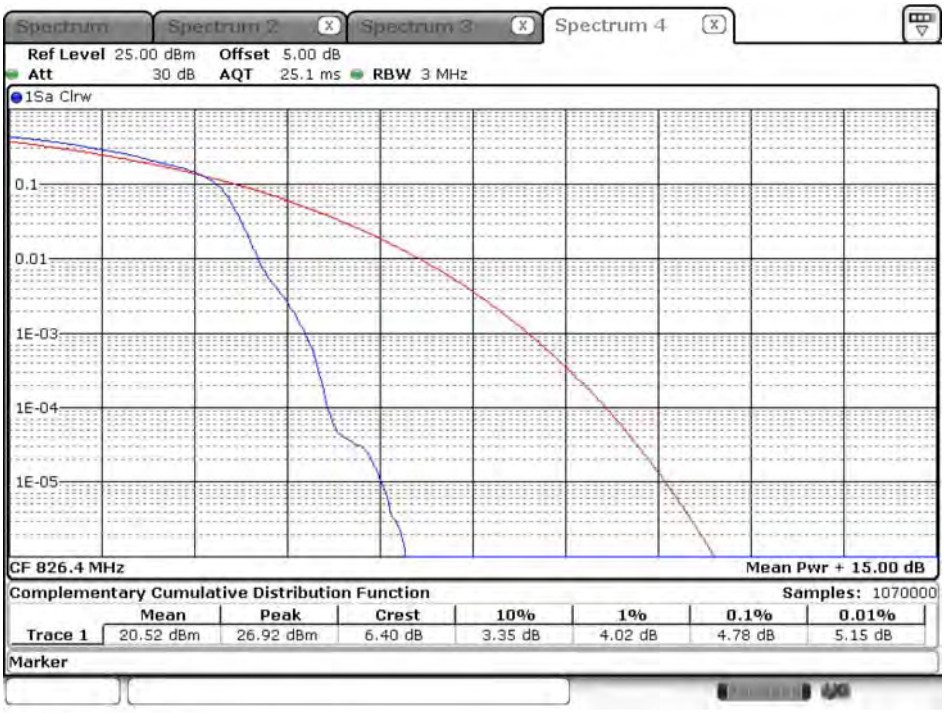
Date: 7.AUG.2018 11:29:24

WCDMA_Band 5_RMC_846.6MHz



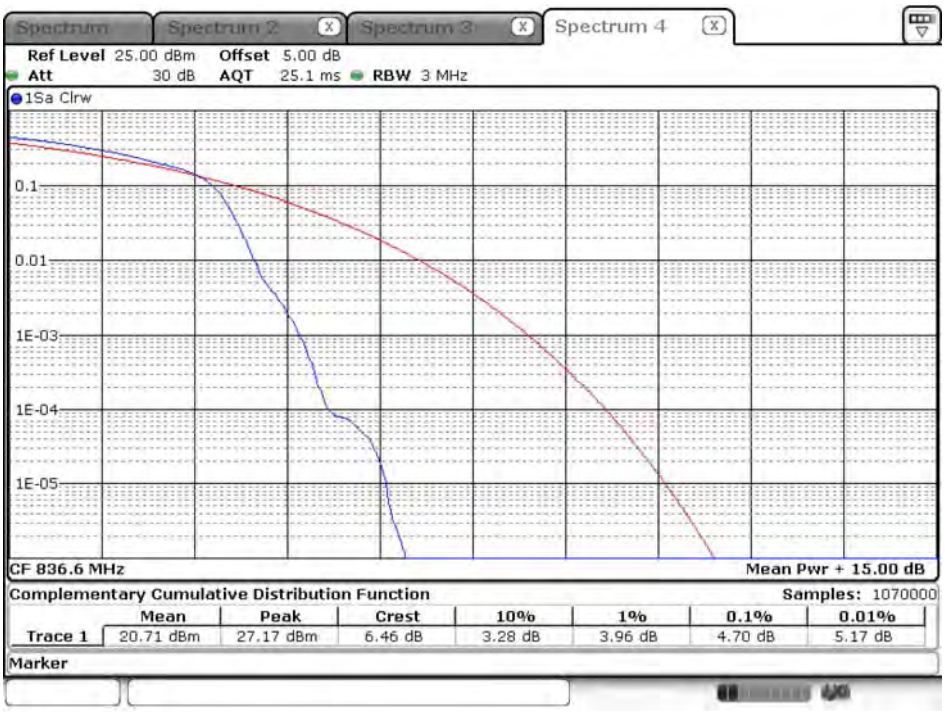
Date: 7.AUG.2018 11:29:43

WCDMA_Band 5_HSDPA_826.4MHz



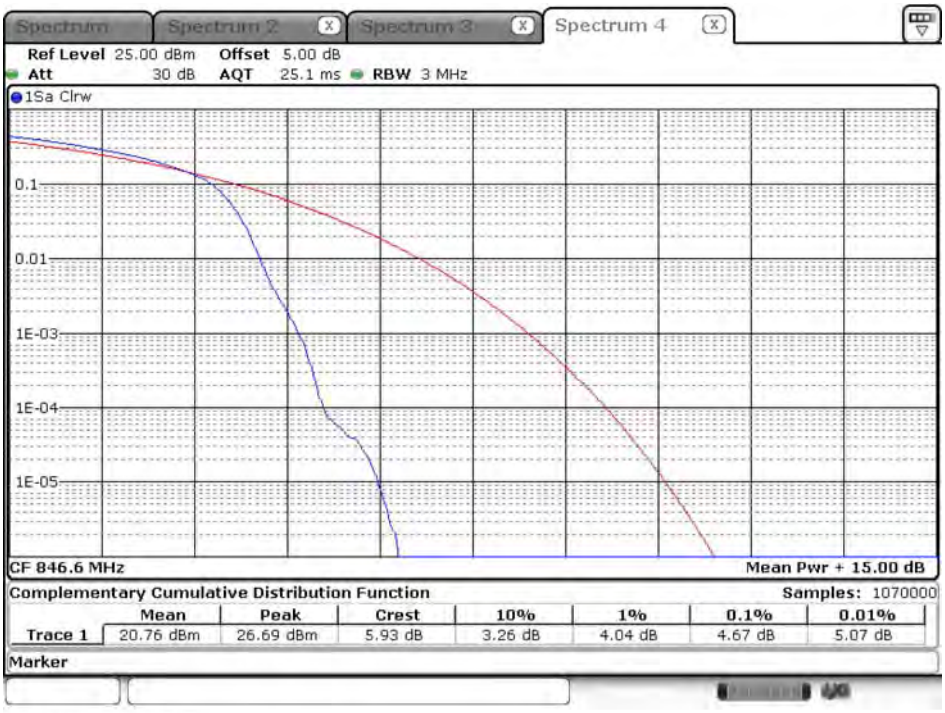
Date: 7.AUG.2018 11:32:35

WCDMA_Band 5_HSDPA_836.6MHz



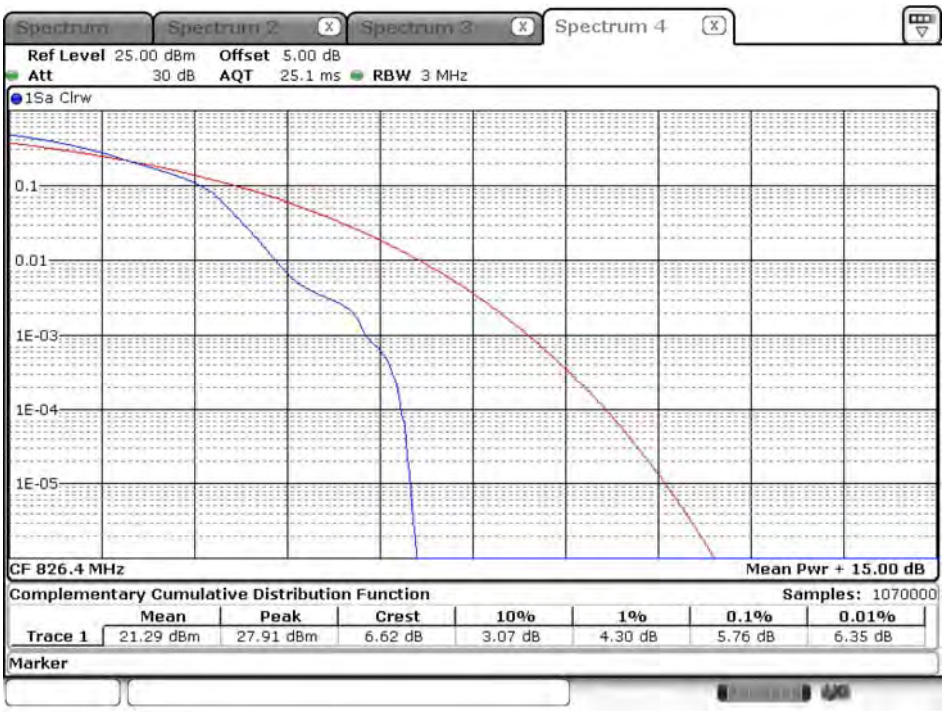
Date: 7.AUG.2018 11:33:26

WCDMA_Band 5_HSDPA_846.6MHz



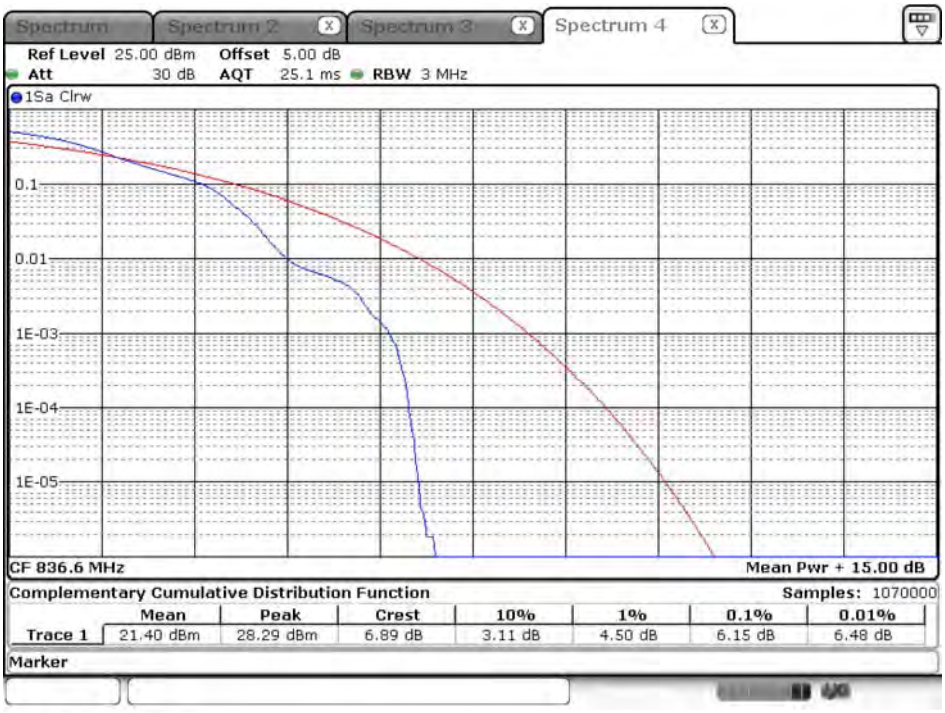
Date: 7.AUG.2018 11:33:46

WCDMA_Band 5_HSUPA_826.4MHz



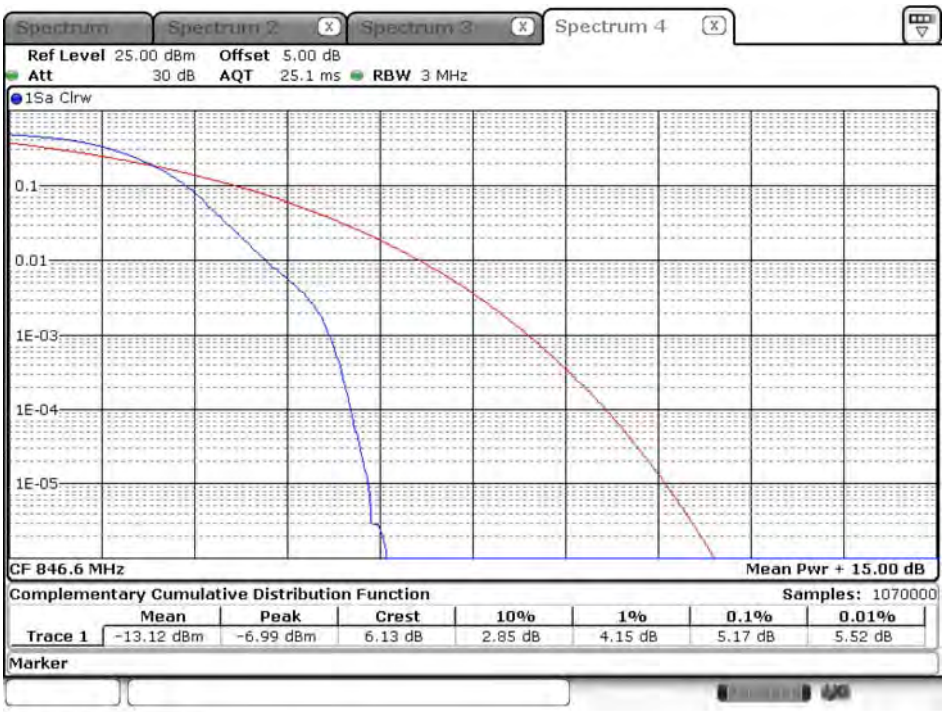
Date: 7.AUG.2018 11:31:52

WCDMA_Band 5_HSUPA_836.6MHz



Date: 7.AUG.2018 11:31:01

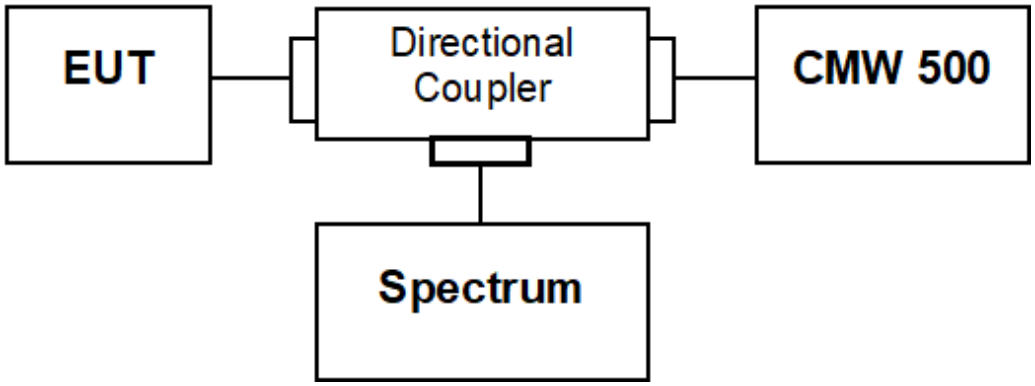
WCDMA_Band 5_HSUPA_846.6MHz



Date: 7.AUG.2018 11:30:18

6. Conducted Band Edge

6.1. Test Setup



6.2. Test Procedure

1. The EUT was connected to spectrum analyzer and System Simulator via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The conducted spurious emission for the whole frequency range was taken.
4. In the 1MHz 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 to measure the out of band Emissions.

6.3. Test Method

Conducted Spurious Measurement:

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 6.1

ANSI C63.26: 2015 Sub-clause 5.7

Radiated Spurious Measurement:

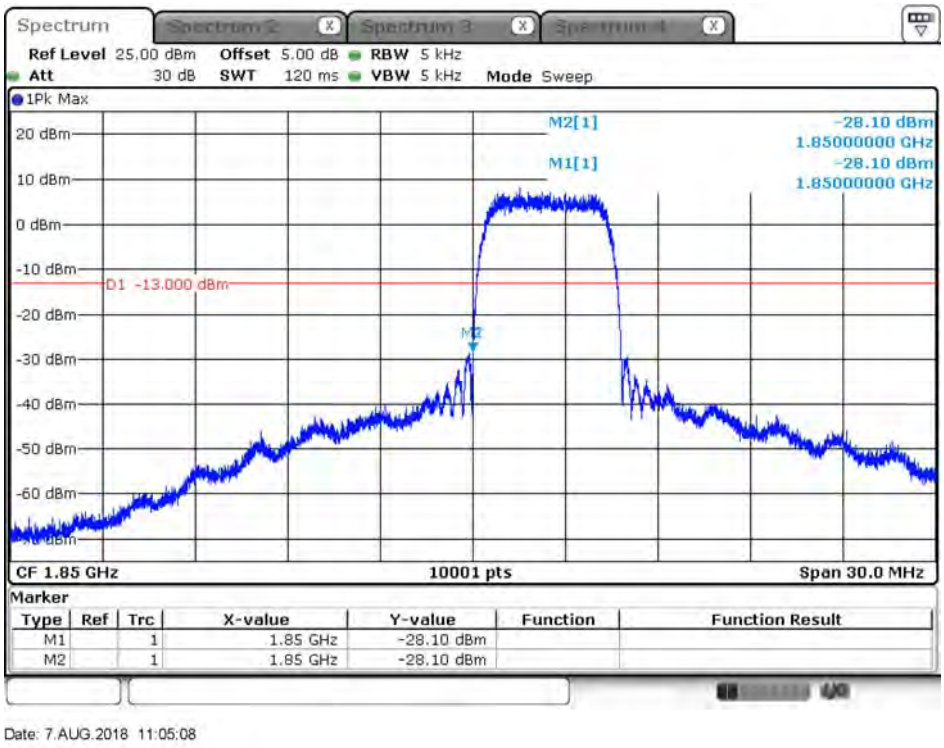
KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.8

ANSI C63.26: 2015 Sub-clause 5.5.3.2

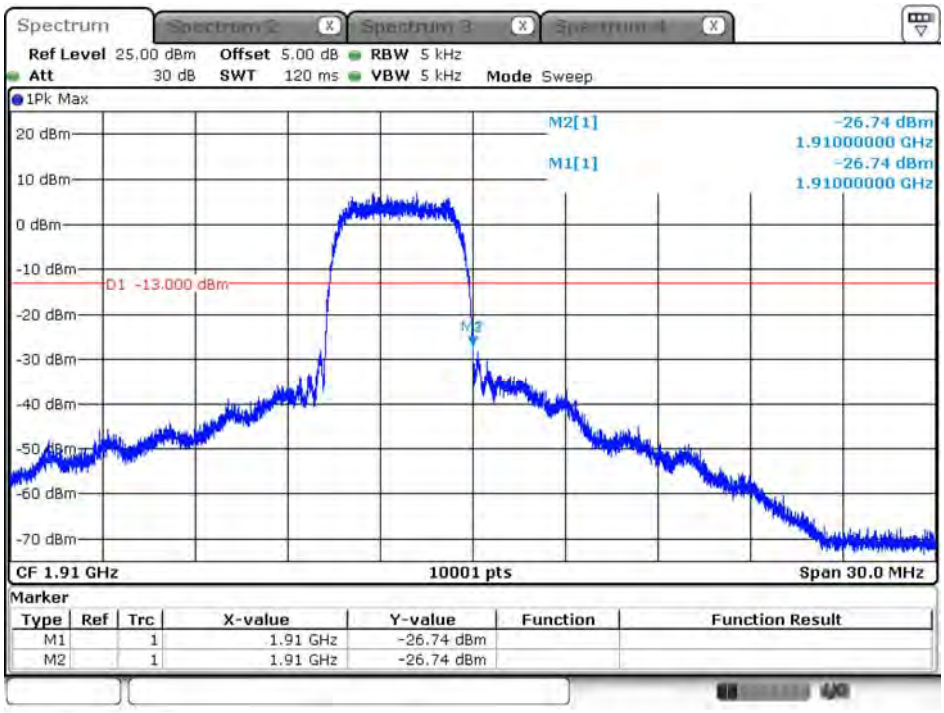
6.4. Test Result

Product	LE910C4-NF		
Test Item	Conducted Band Edge		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/07	Test Site	SR10-H

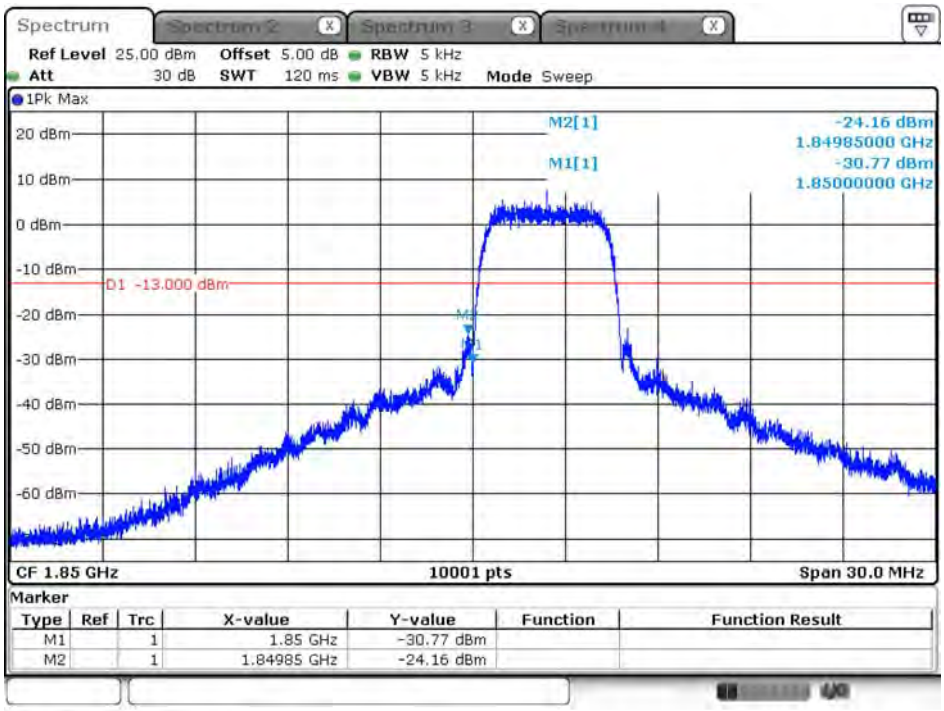
WCDMA_Band 2_RMC_1852.4MHz



WCDMA_Band 2_RMC_1907.6MHz

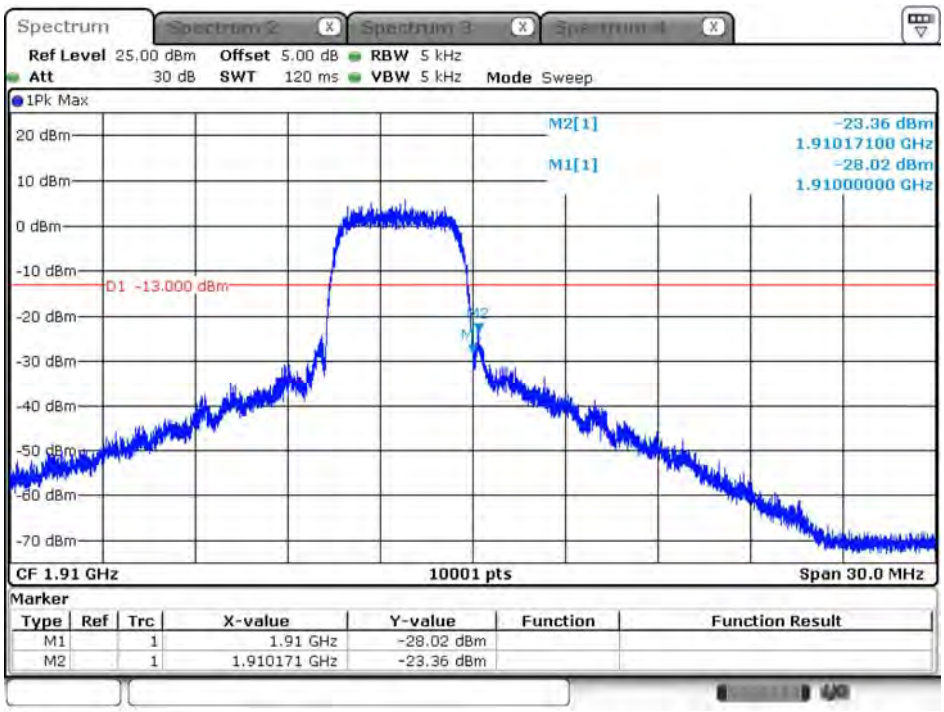


WCDMA_Band 2_HSDPA_1852.4MHz



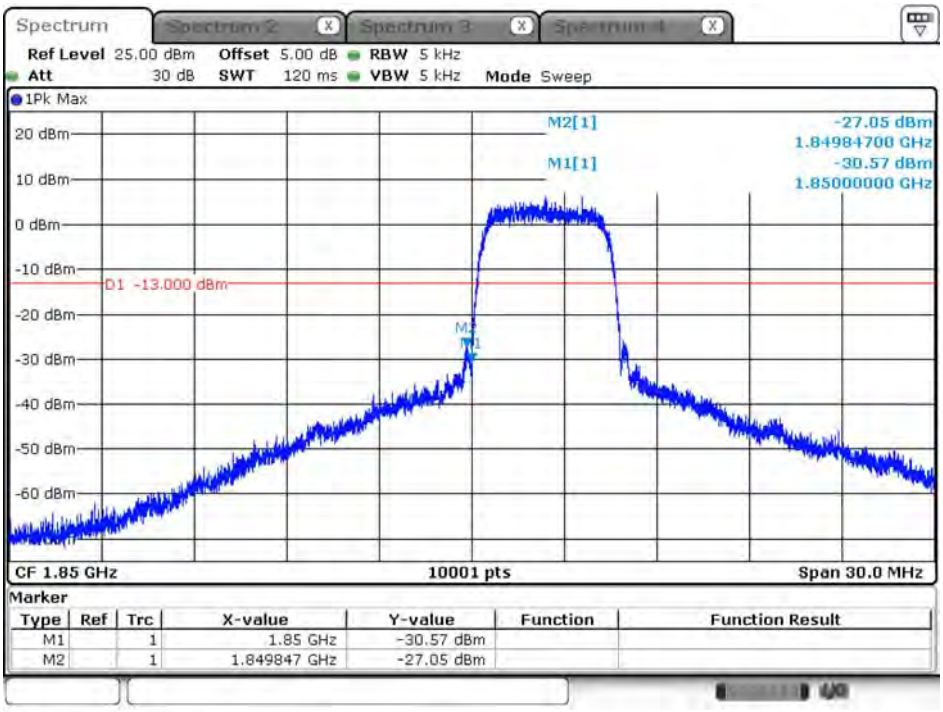
Date: 7.AUG.2018 11:06:12

WCDMA_Band 2_HSDPA_1907.6MHz



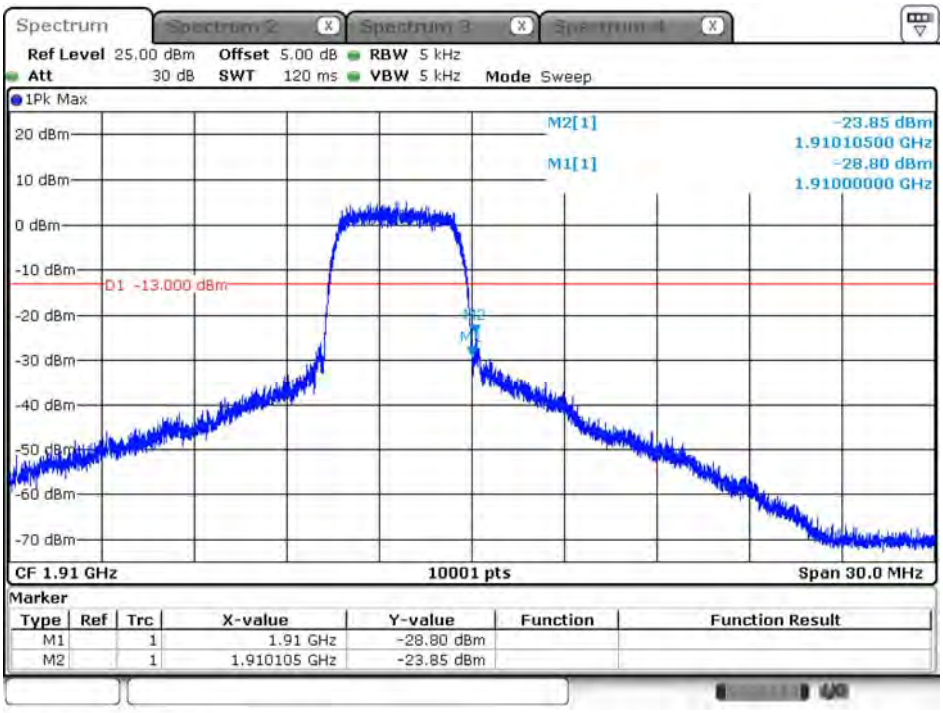
Date: 7.AUG.2018 11:09:13

WCDMA_Band 2_HSUPA_1852.4MHz



Date: 7.AUG.2018 11:07:07

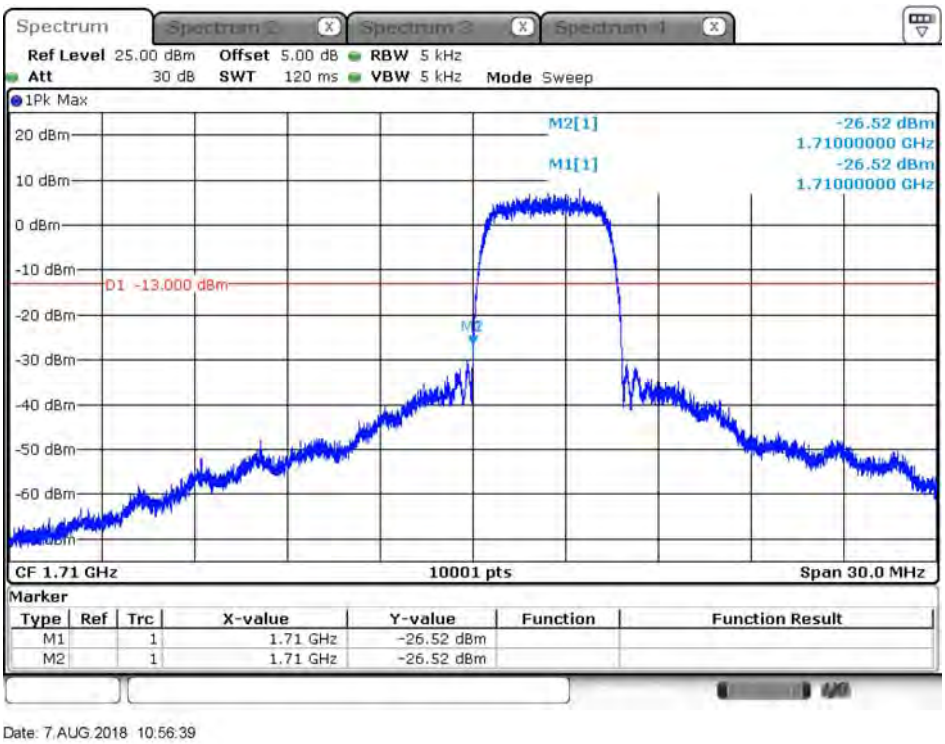
WCDMA_Band 2_HSUPA_1907.6MHz



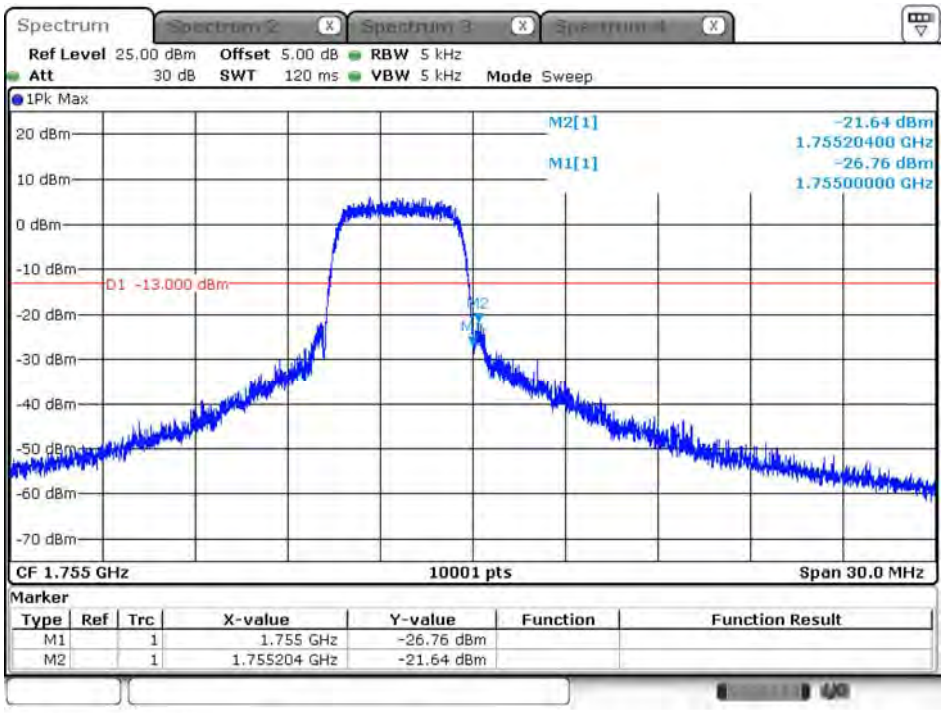
Date: 7.AUG.2018 11:08:31

Product	LE910C4-NF		
Test Item	Conducted Band Edge		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/07	Test Site	SR10-H

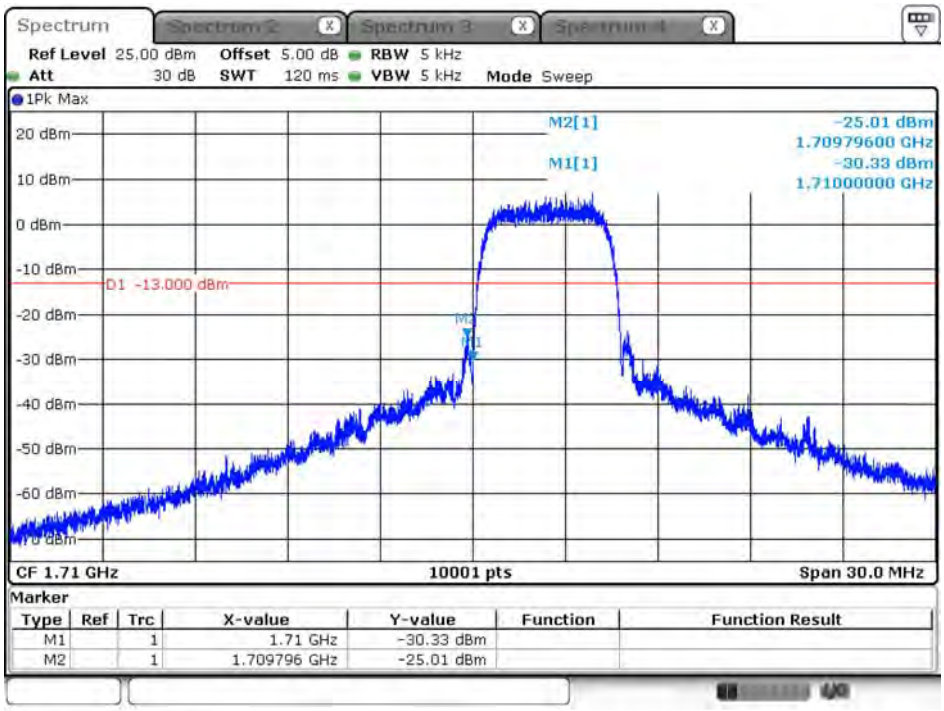
WCDMA_Band 4_RMC_1712.4MHz



WCDMA_Band 4_RMC_1752.6MHz

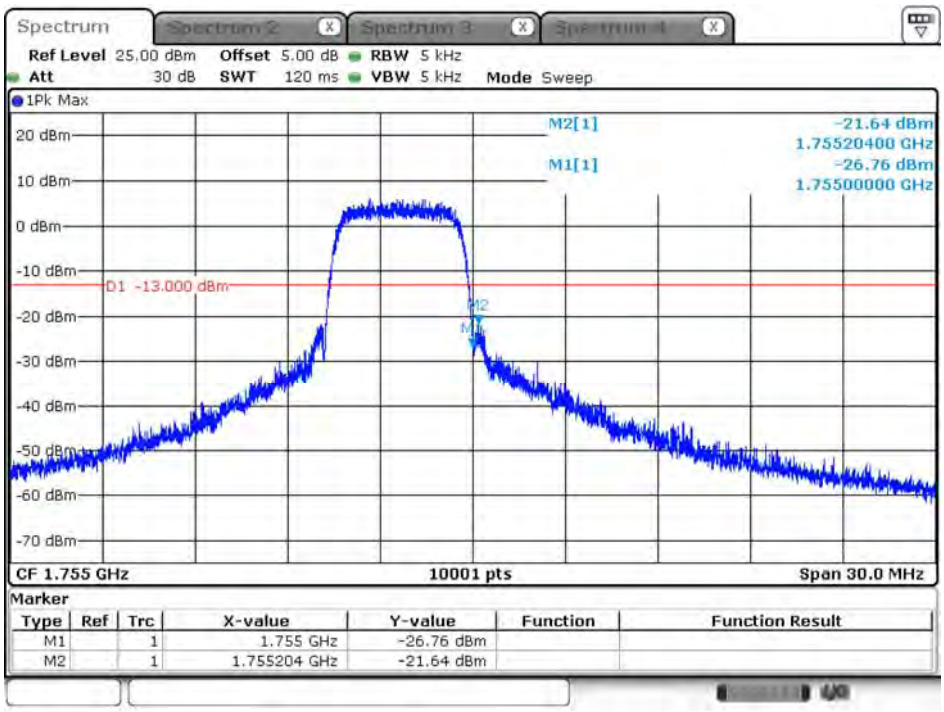


WCDMA_Band 4_HSDPA_1712.6MHz



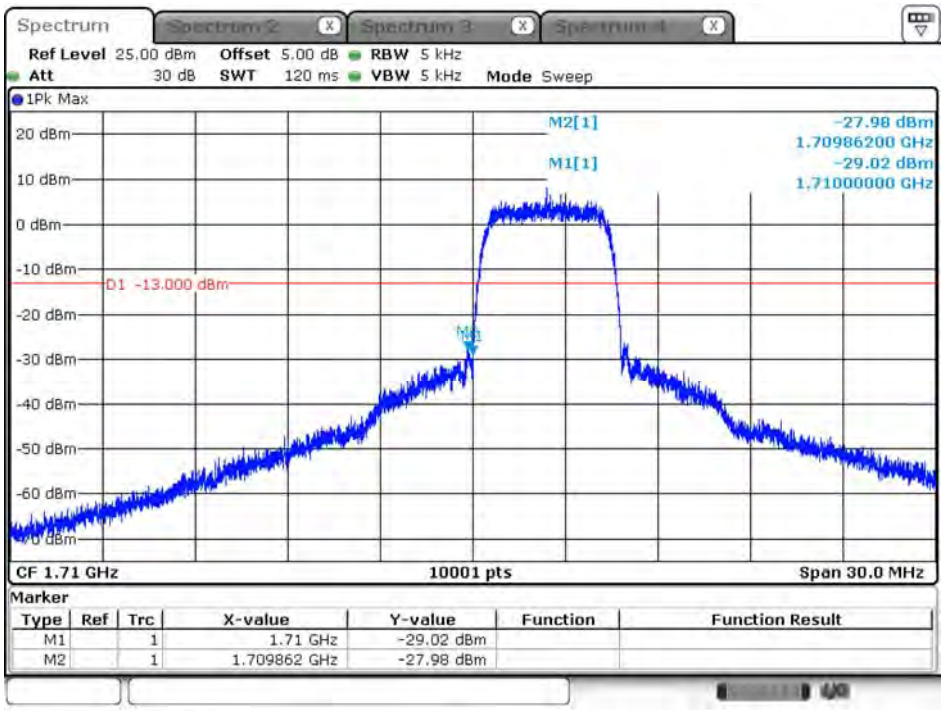
Date: 7.AUG.2018 10:58:40

WCDMA_Band 4_HSDPA_1752.6MHz



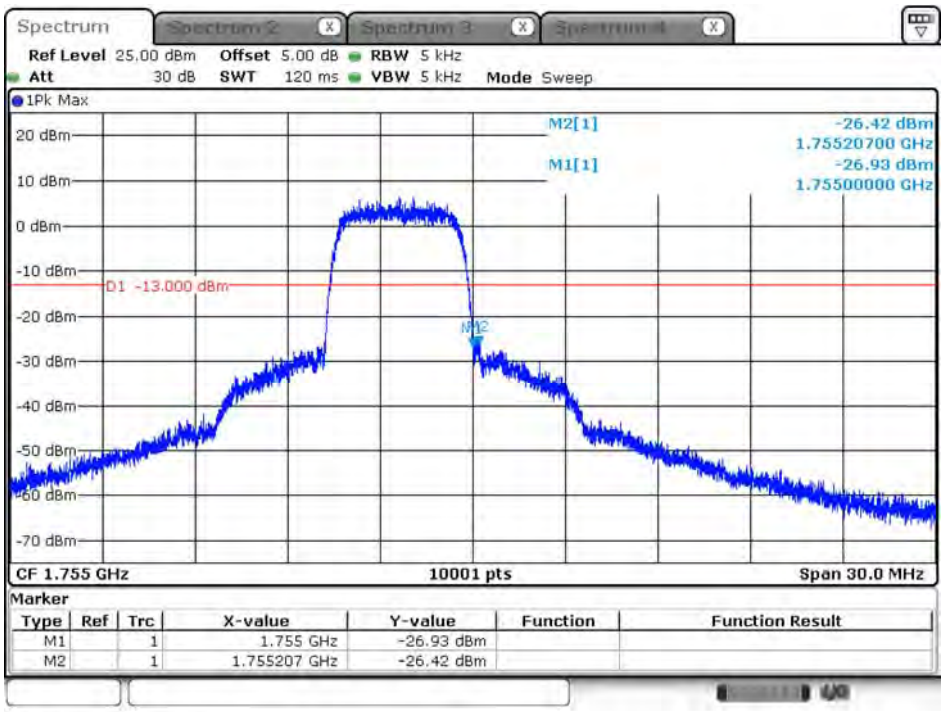
Date: 7.AUG.2018 10:53:49

WCDMA_Band 4_HSUPA_1712.4MHz



Date: 7.AUG.2018 10:57:45

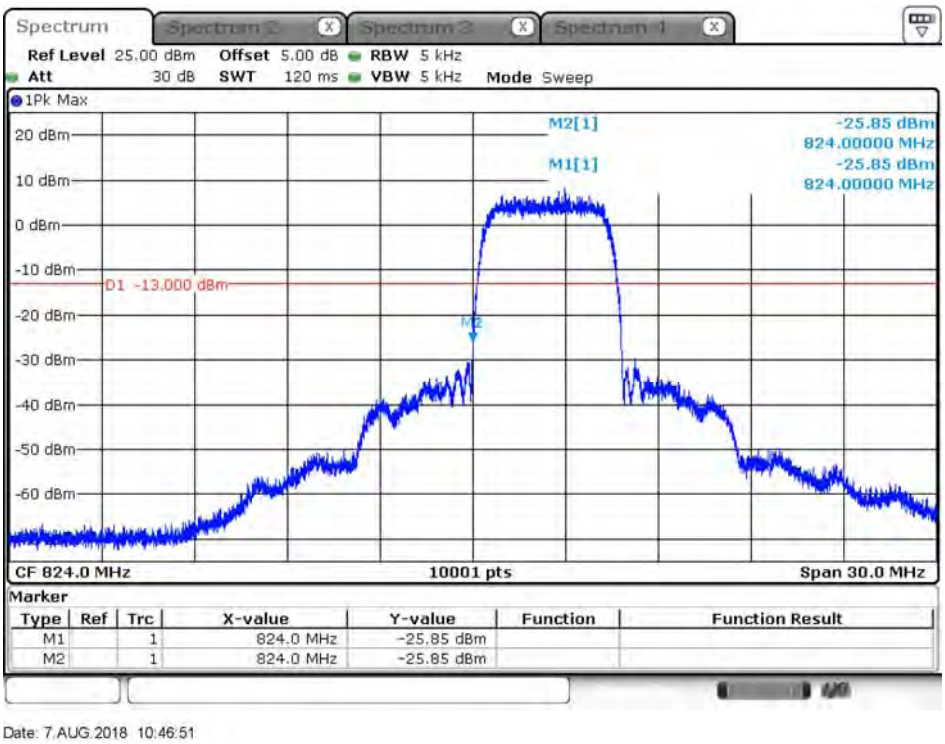
WCDMA_Band 4_HSUPA_1752.6MHz



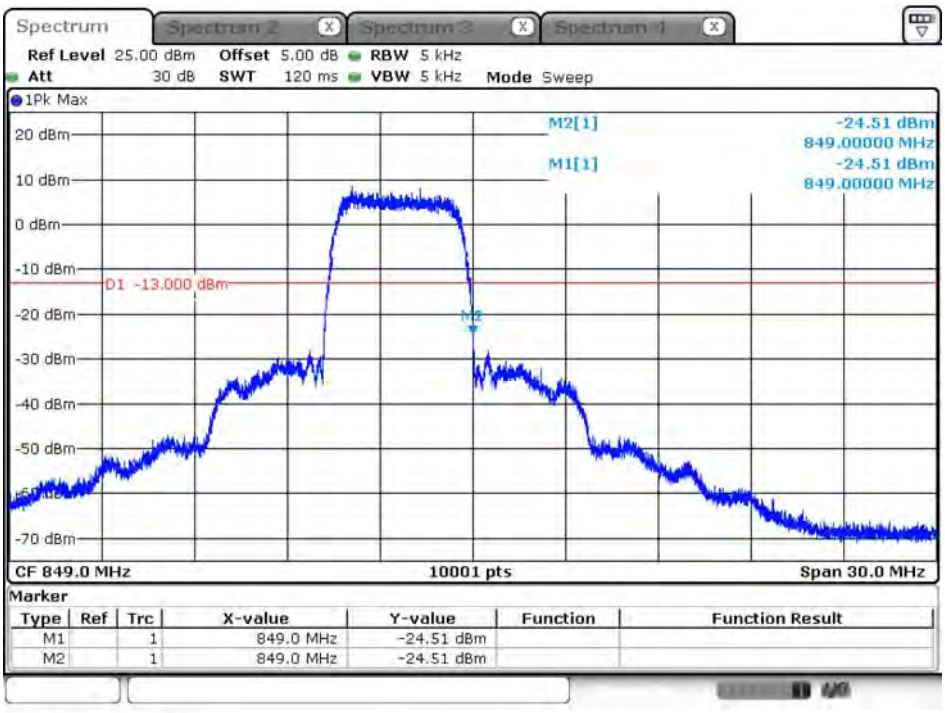
Date: 7.AUG.2018 10:54:54

Product	LE910C4-NF		
Test Item	Conducted Band Edge		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/07	Test Site	SR10-H

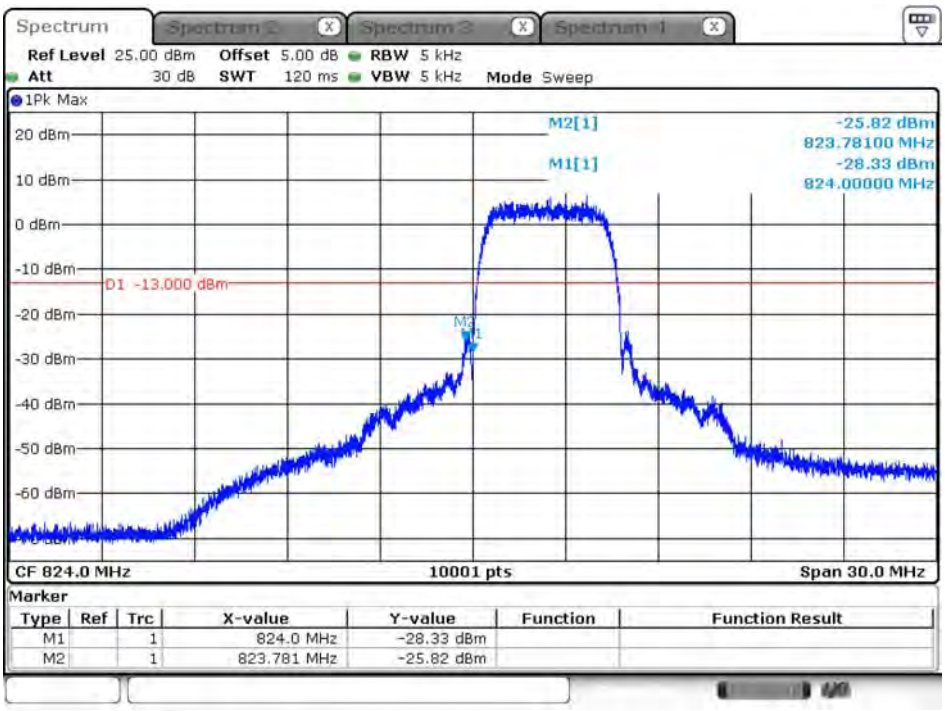
WCDMA_Band 5_RMC_826.4MHz



WCDMA_Band 5_RMC_846.6MHz

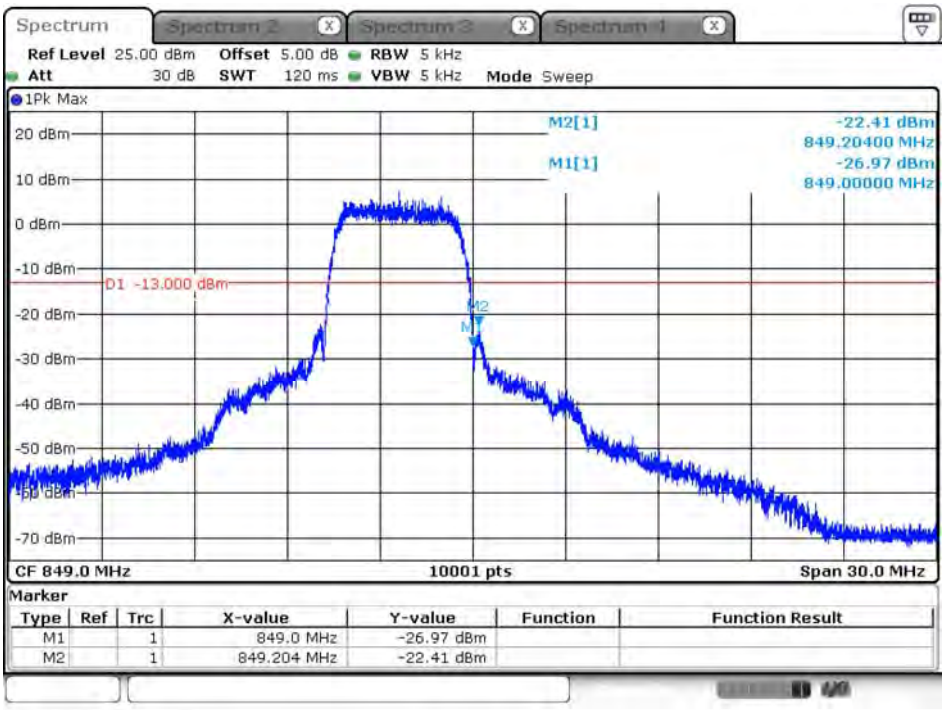


WCDMA_Band 5_HSDPA_826.4MHz



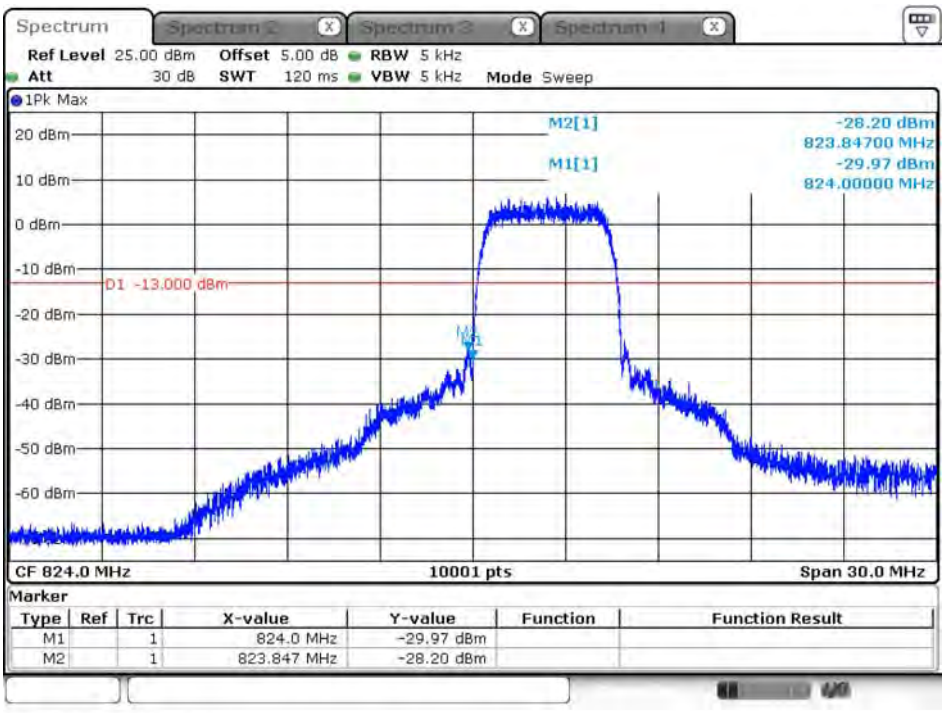
Date: 7.AUG.2018 10:45:06

WCDMA_Band 5_HSDPA_846.6MHz



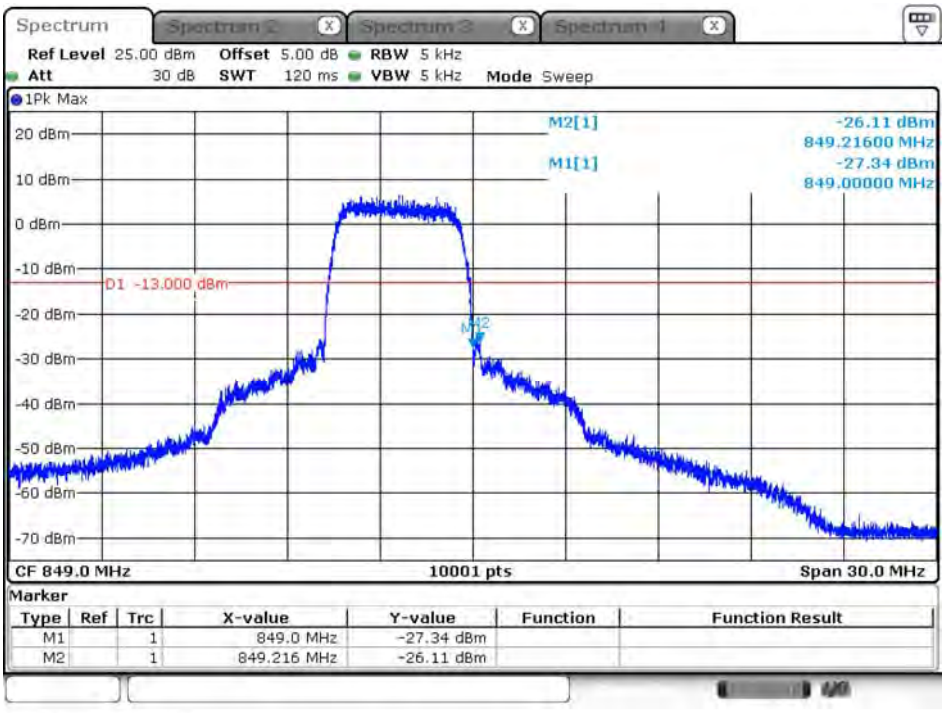
Date: 7.AUG.2018 10:43:23

WCDMA_Band 5_HSUPA_826.4MHz



Date: 7.AUG.2018 10:46:07

WCDMA_Band 5_HSUPA_846.6MHz

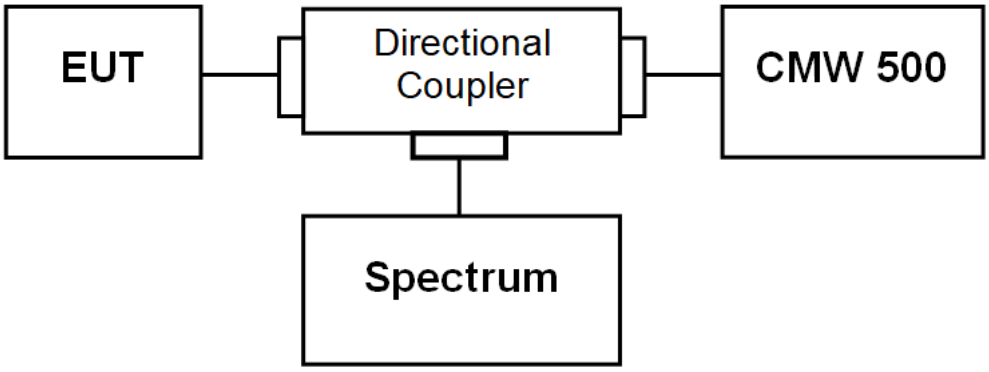


Date: 7.AUG.2018 10:42:22

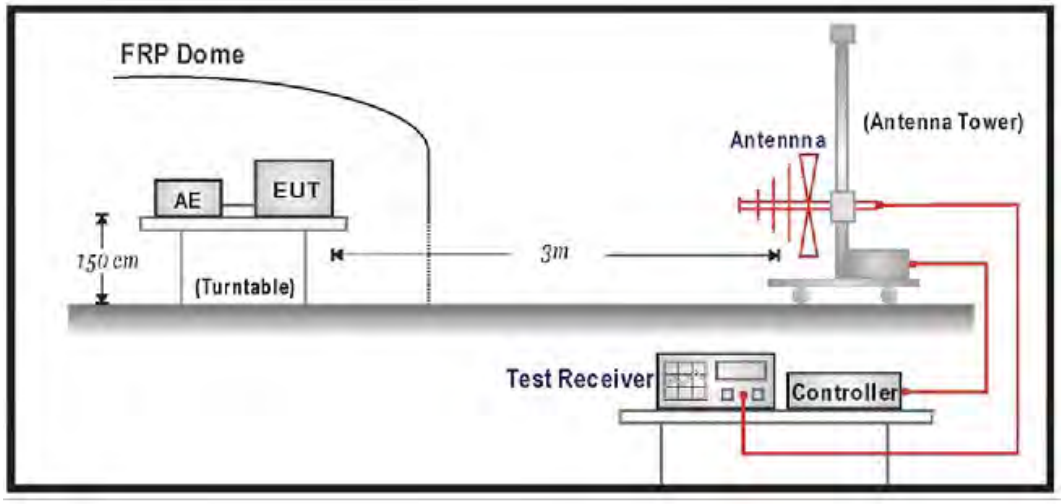
7. Spurious Emission

7.1. Test Setup

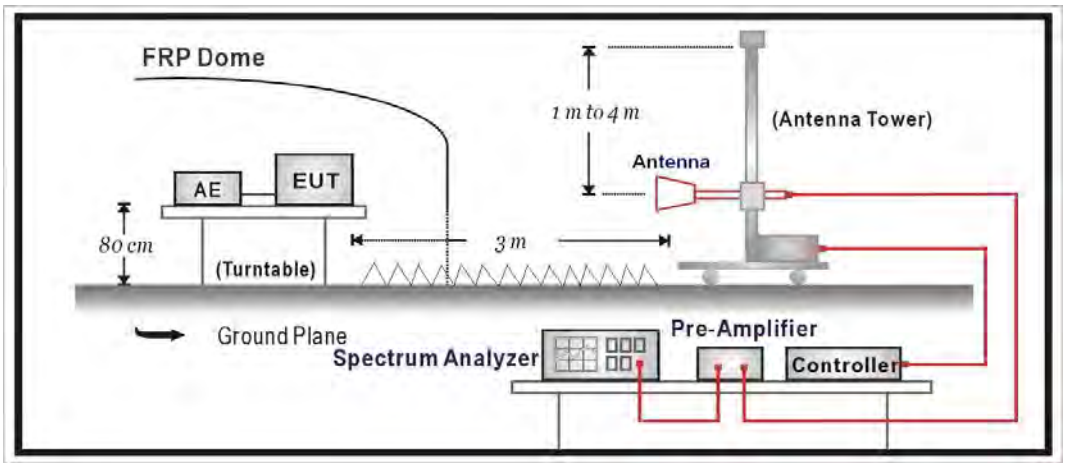
Conducted Spurious Measurement (below 1GHz)



Radiated Spurious Measurement (below 1GHz)



Radiated Spurious Measurement (above 1GHz)



7.2. Test Procedure

Conducted Spurious Measurement:

a) Place the EUT on a bench and set it in transmitting mode.
b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMU200 by a Directional Couple.
c) EUT Communicate with CMU200, then select a channel for testing.
d) Add a correction factor to the display of spectrum, and then test.
e) The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10^{th} harmonic.

Radiated Spurious Measurement:

a) The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
b) The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
c) The table was rotated 360 degrees to determine the position of the highest spurious emission.
d) The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
e) Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 1MHz, Sweep 500ms, Taking the record of maximum spurious emission.
f) A horn antenna was substituted in place of the EUT and was driven by a signal generator.
g) Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
h) Taking the record of output power at antenna port
i) Repeat step 7 to step 8 for another polarization.
j) EIRP = SG - Cable loss + Antenna Gain

7.3. Test Method

Conducted Spurious Measurement:

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 6.1
ANSI C63.26-2015 Sub-clause 5.7

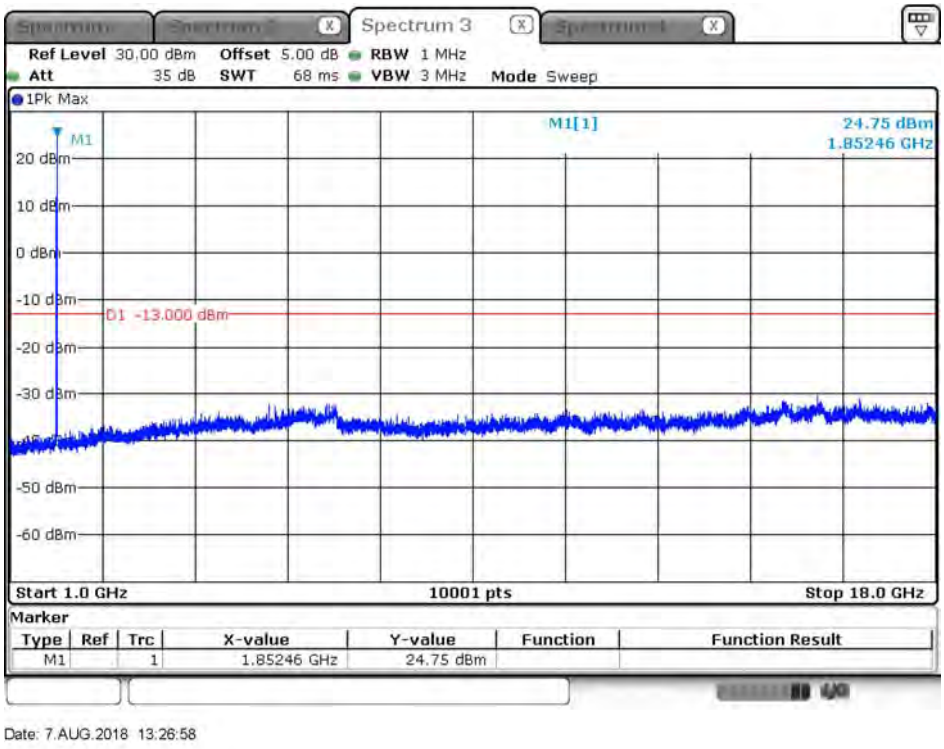
Radiated Spurious Measurement:

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.8
ANSI C63.26-2015 Sub-clause 5.5.3.2

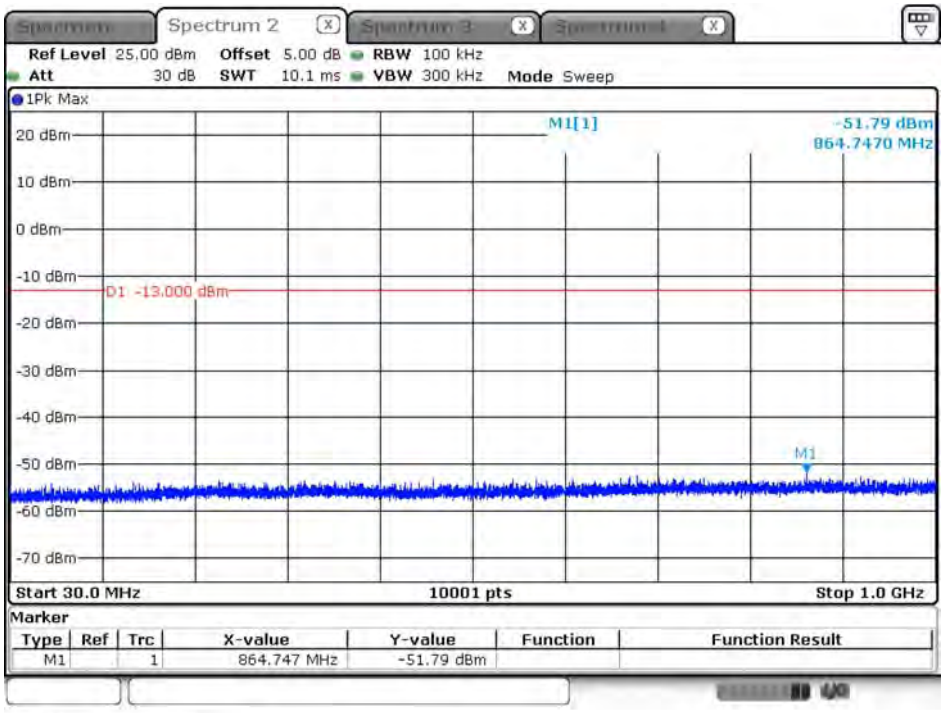
7.4. Test Result

Product	LE910C4-NF		
Test Item	Conducted Spurious Emission		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/07	Test Site	SR10-H

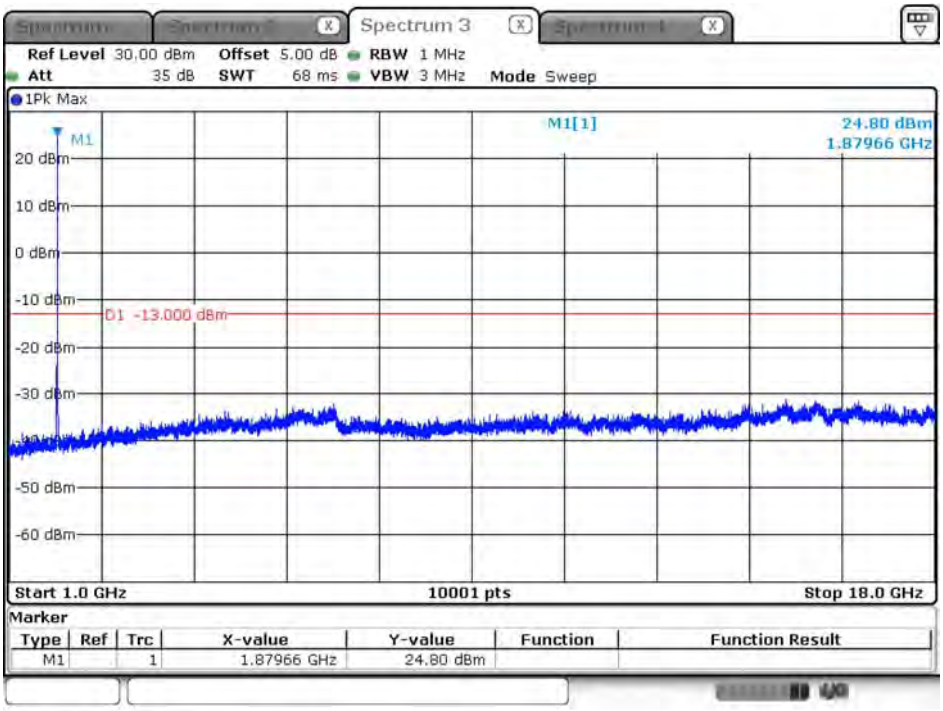
WCDMA_Band 2_RMC_1852.4MHz_above 1G



WCDMA_Band 2_RMC_1852.4MHz_under 1G

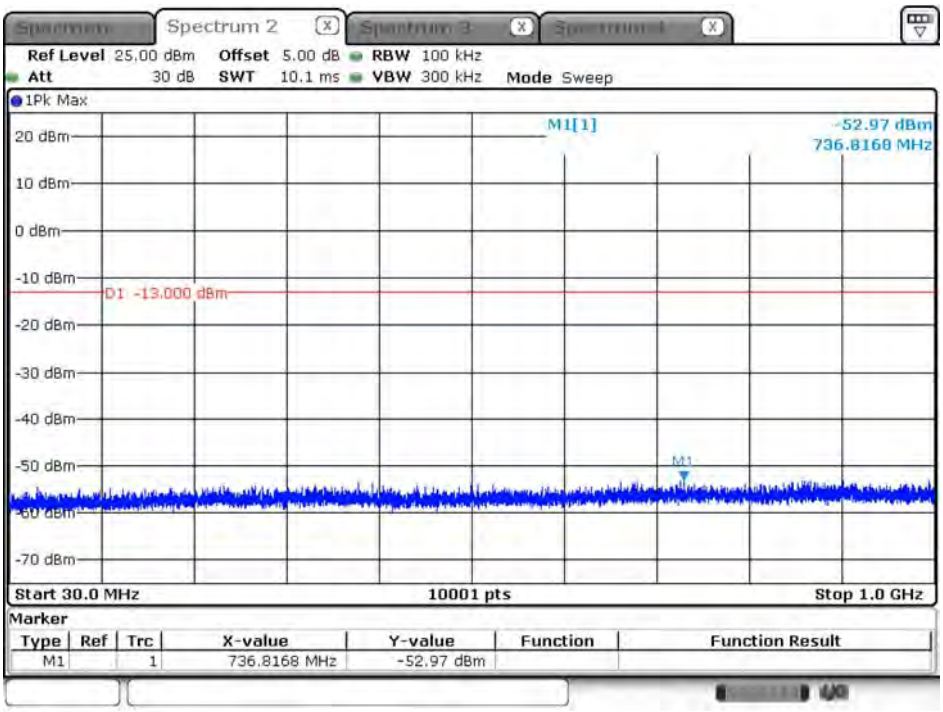


WCDMA_Band 2_RMC_1880.0MHz_above 1G



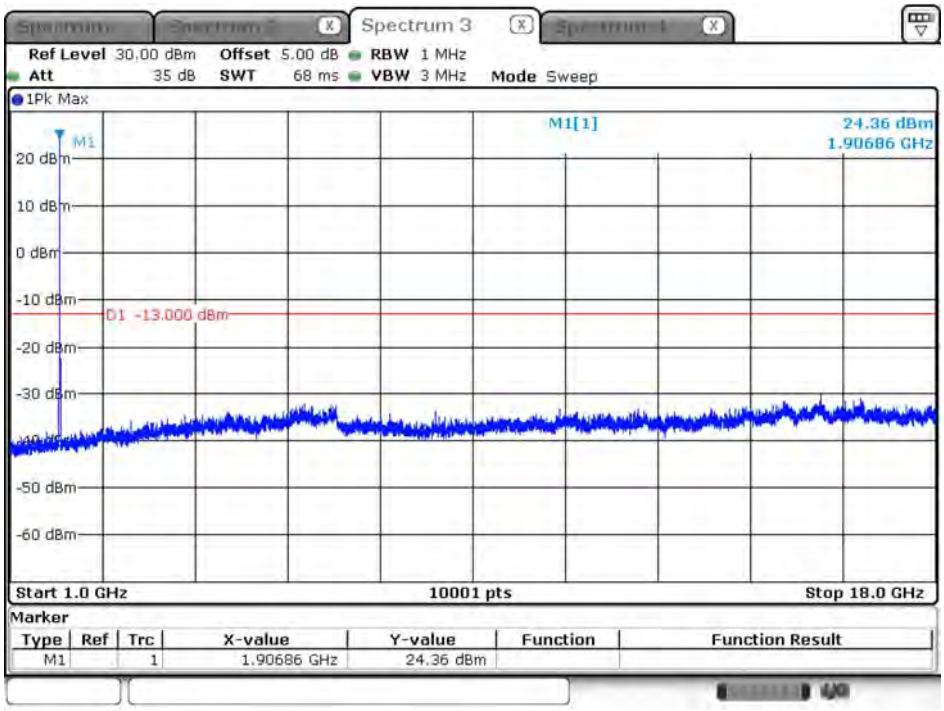
Date: 7.AUG.2018 13:28:26

WCDMA_Band 2_RMC_1880.0MHz_under 1G



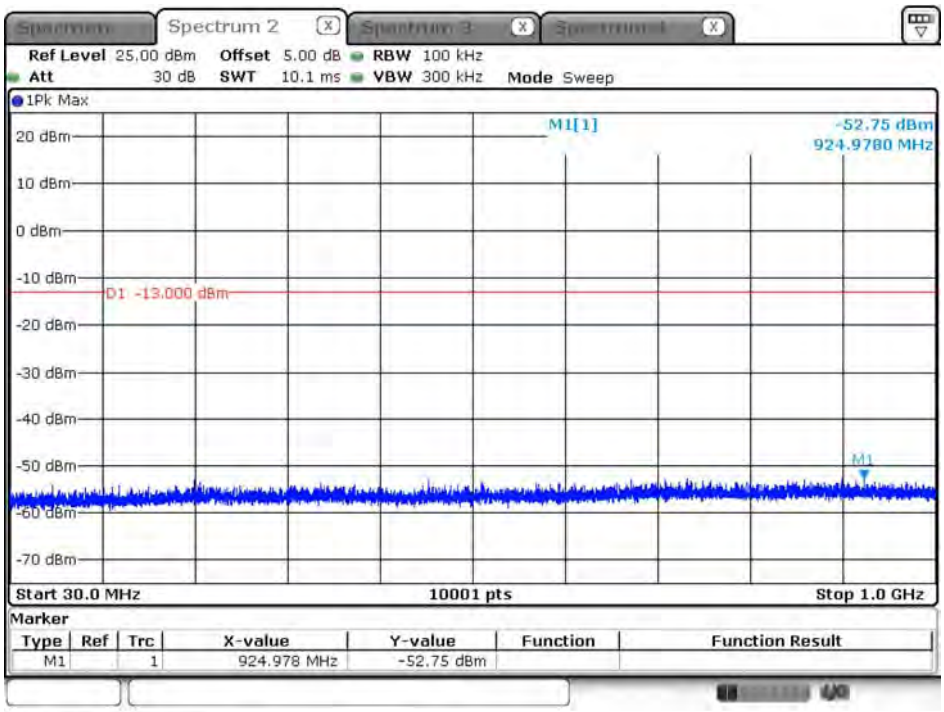
Date: 7.AUG.2018 13:27:47

WCDMA_Band 2_RMC_1907.6MHz_above 1G



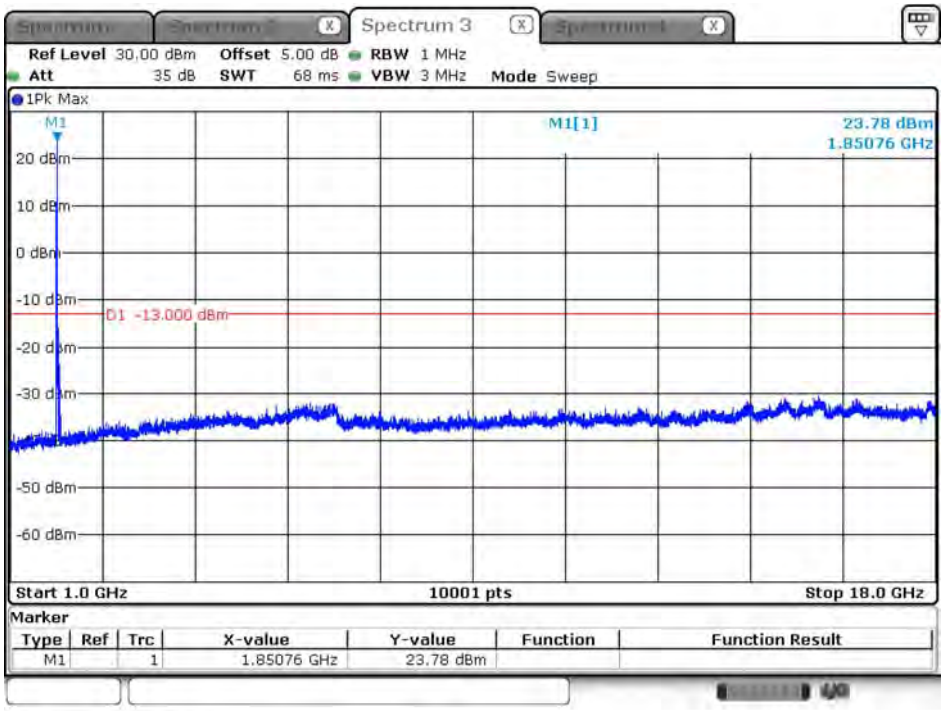
Date: 7.AUG.2018 13:31:32

WCDMA_Band 2_RMC_1907.6MHz_under 1G



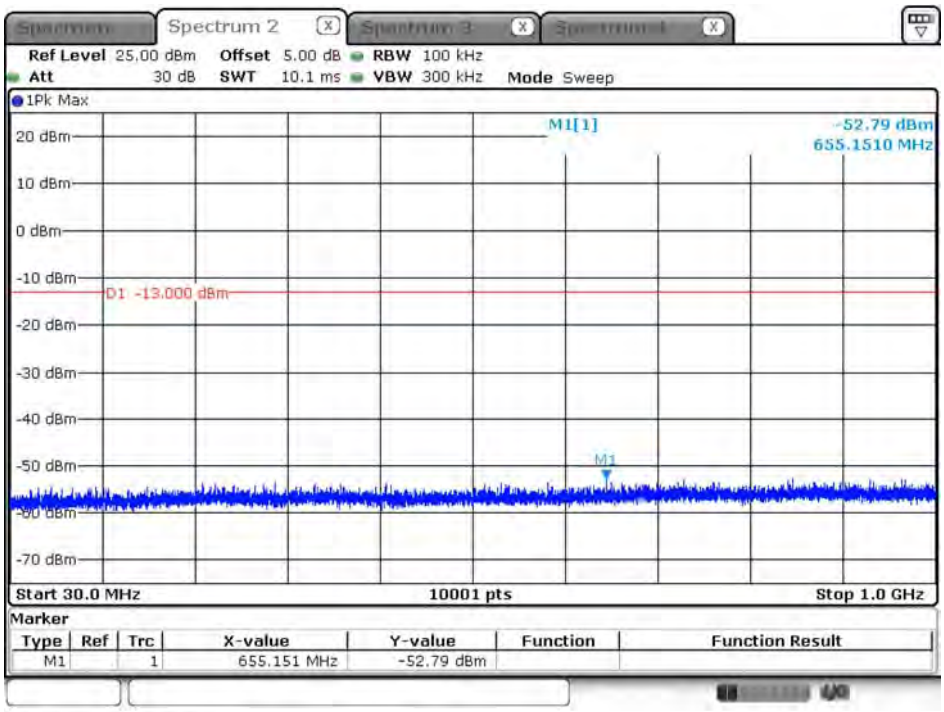
Date: 7.AUG.2018 13:30:51

WCDMA_Band 2_HSDPA_1852.4MHz_above 1G



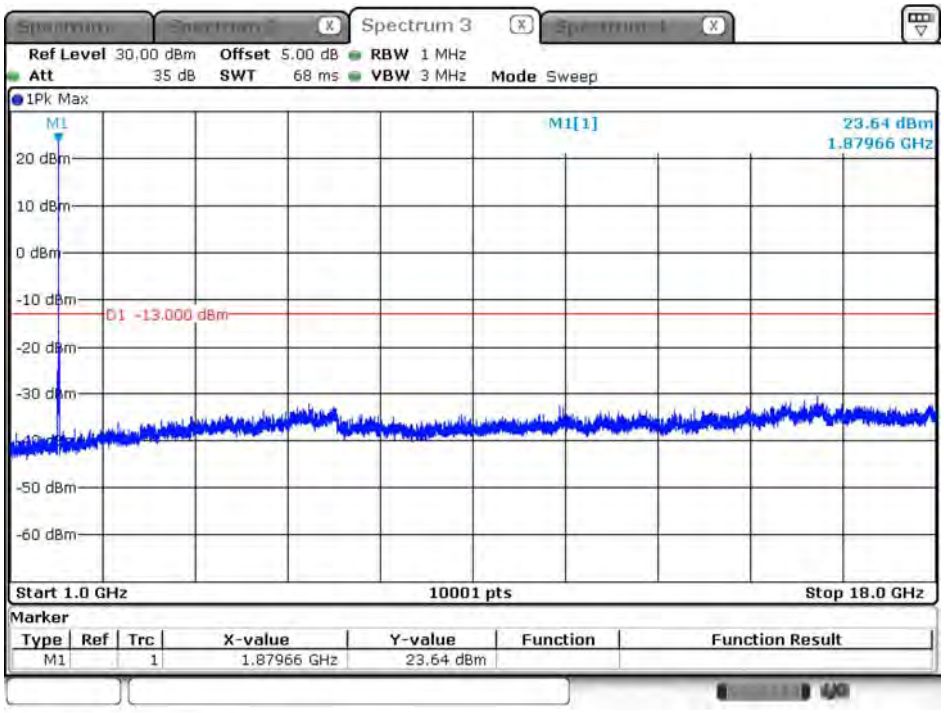
Date: 7.AUG.2018 13:48:18

WCDMA_Band 2_HSDPA_1852.4MHz_under 1G



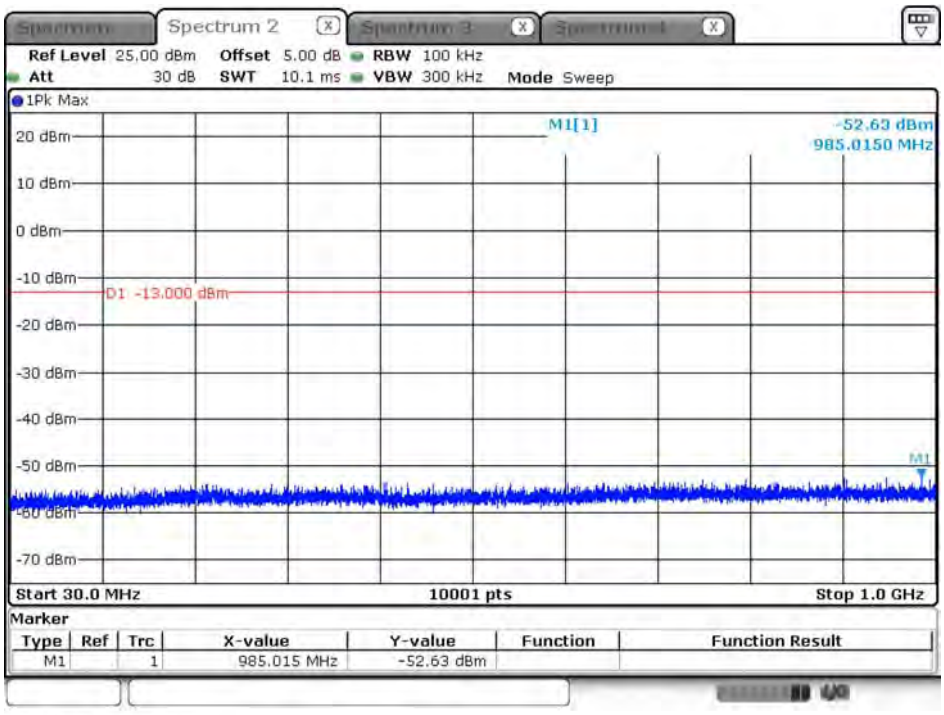
Date: 7.AUG.2018 13:47:01

WCDMA_Band 2_HSDPA_1880.0MHz_above 1G



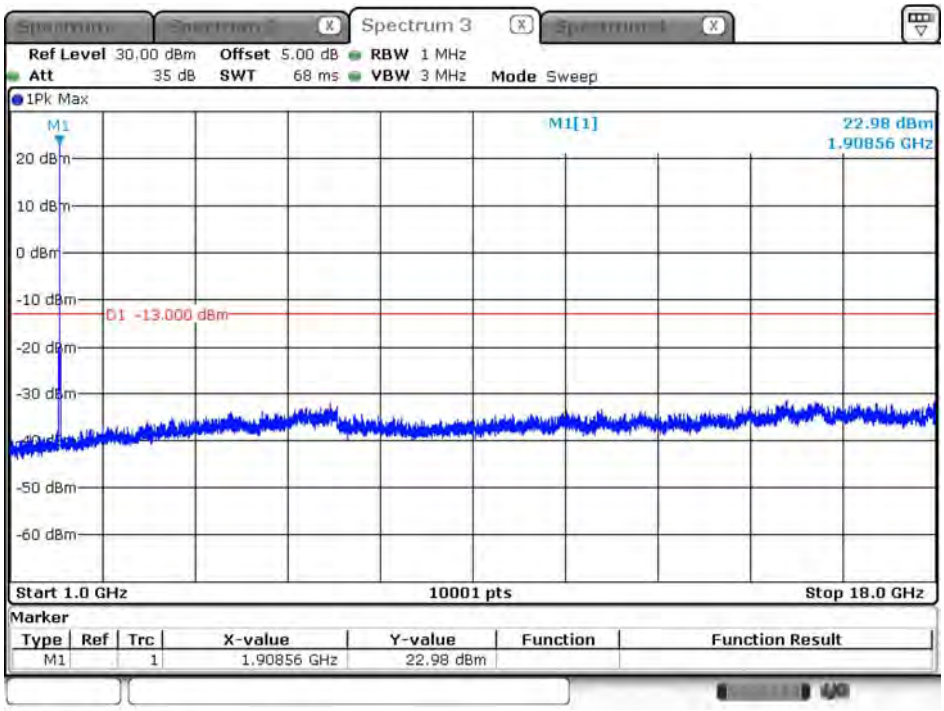
Date: 7.AUG.2018 13:49:50

WCDMA_Band 2_HSDPA_1880.0MHz_under 1G



Date: 7.AUG.2018 13:49:21

WCDMA_Band 2_HSDPA_1907.6MHz_above 1G



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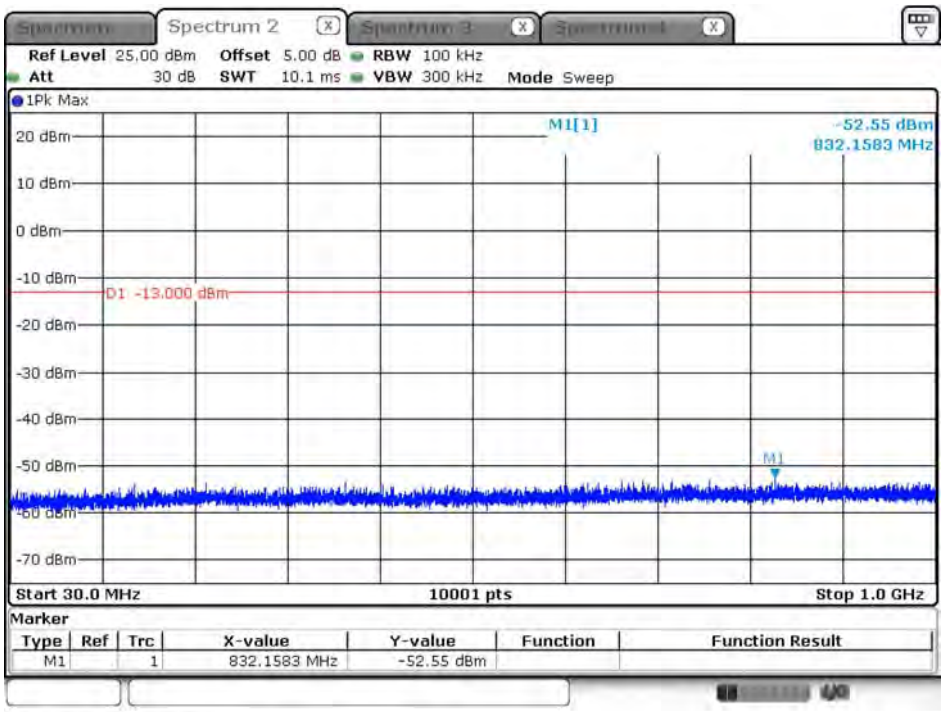
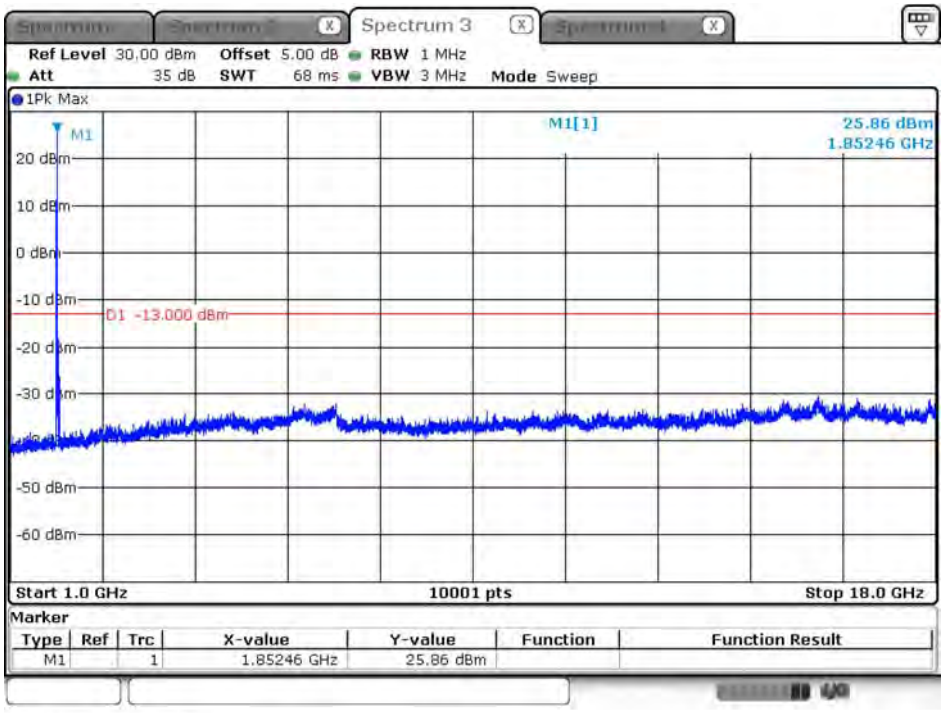
WCDMA_Band 2_HSDPA_1907.6MHz_under 1G



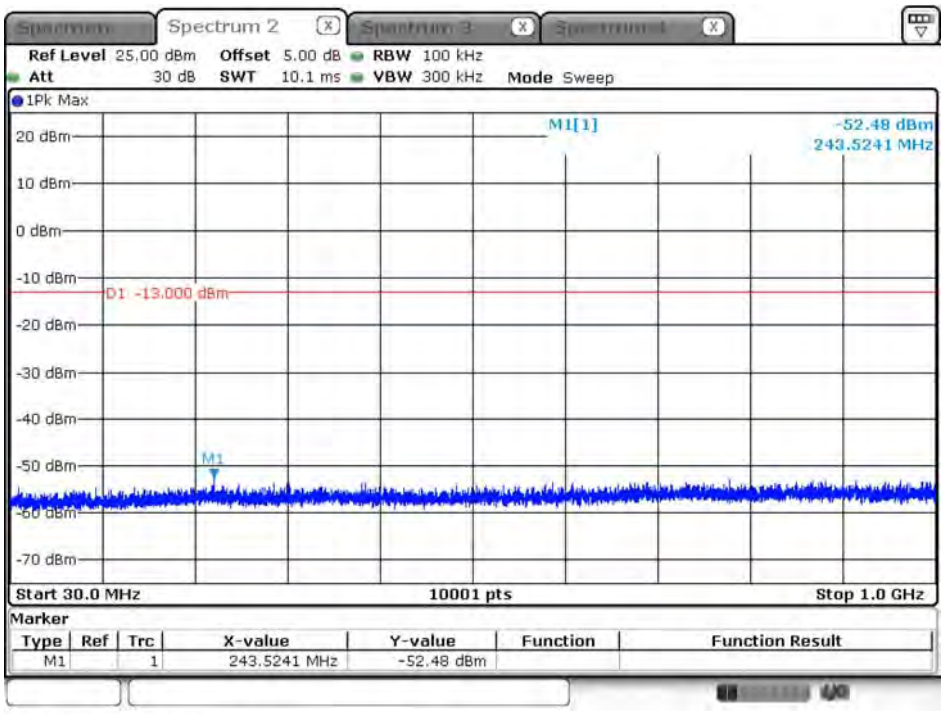
Date: 7.AUG.2018 13:51:01

WCDMA_Band 2_HSUPA_1852.4MHz_above 1G



Date: 7.AUG.2018 13:38:31

WCDMA_Band 2_HSUPA_1852.4MHz_under 1G



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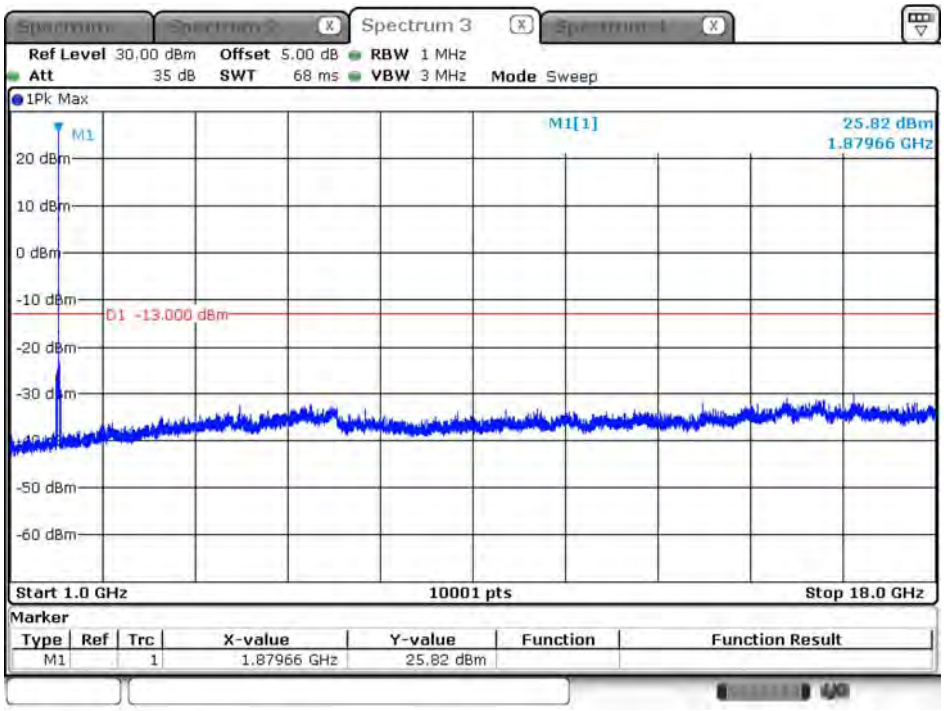
WCDMA_Band 2_HSUPA_1880.0MHz_above 1G



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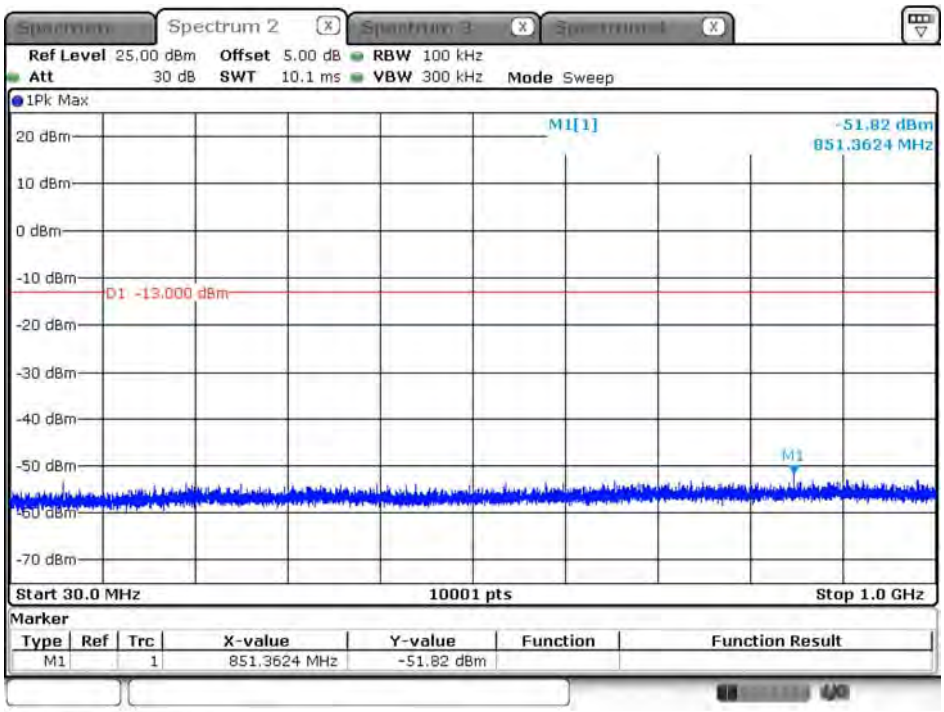
WCDMA_Band 2_HSUPA_1880.0MHz_under 1G



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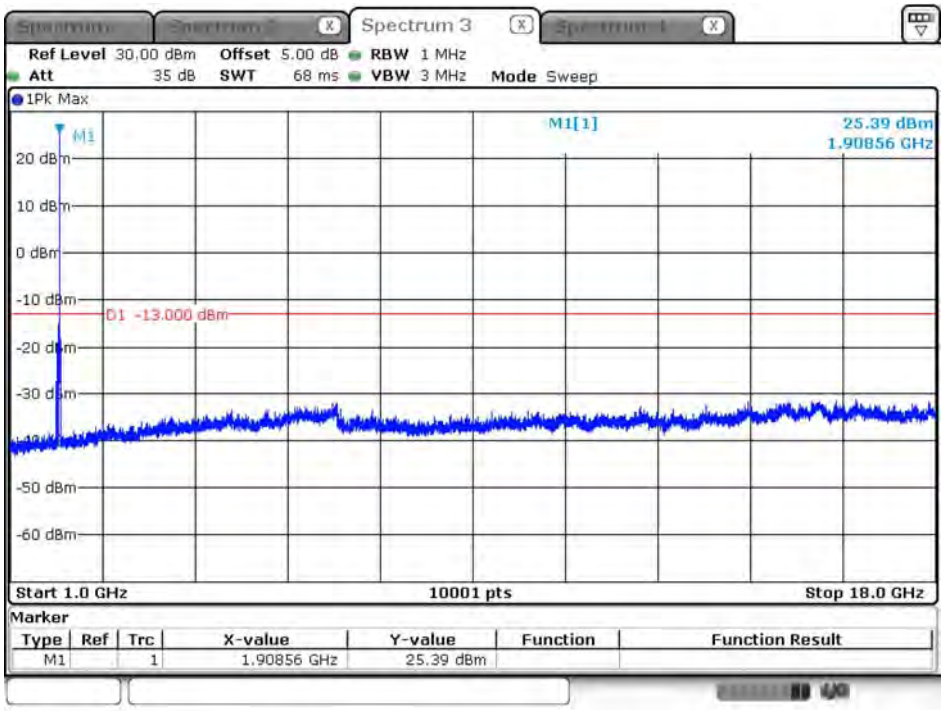
WCDMA_Band 2_HSUPA_1907.6MHz_above 1G



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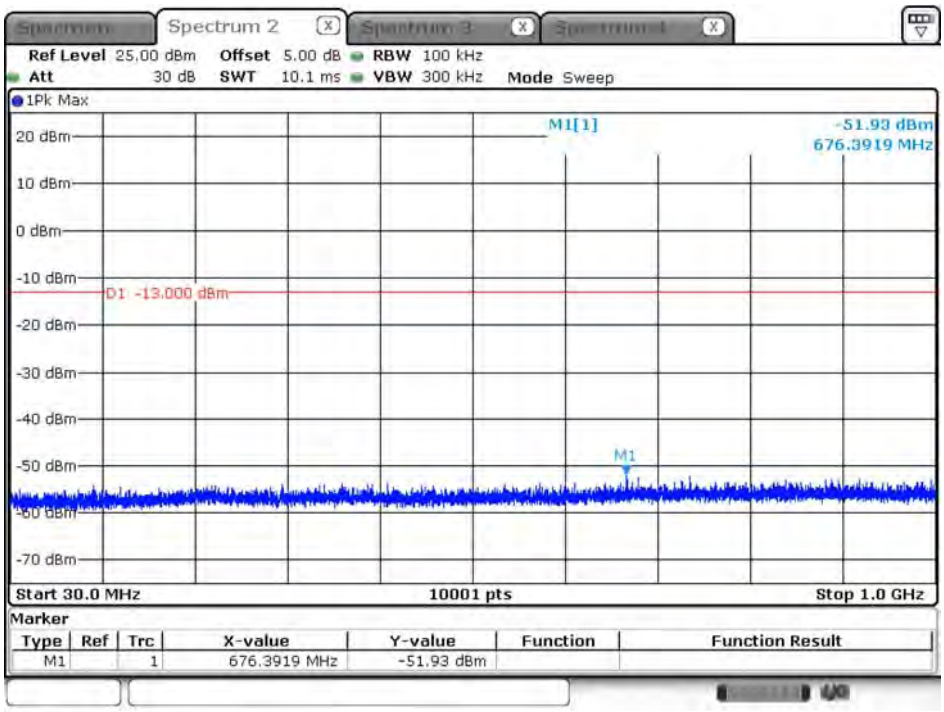
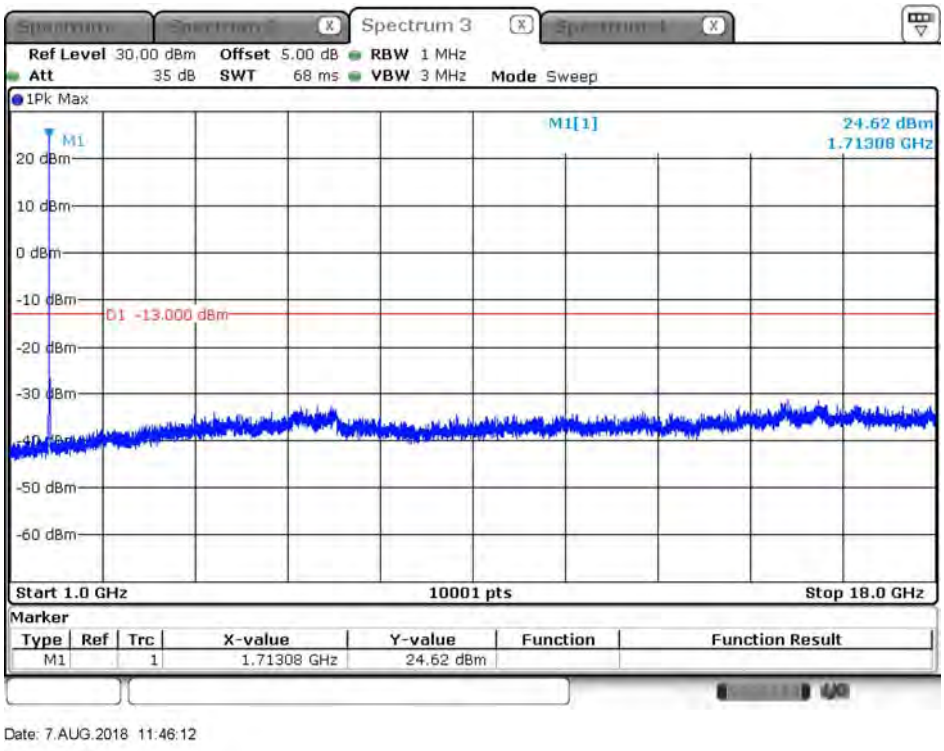
WCDMA_Band 2_HSUPA_1907.6MHz_under 1G



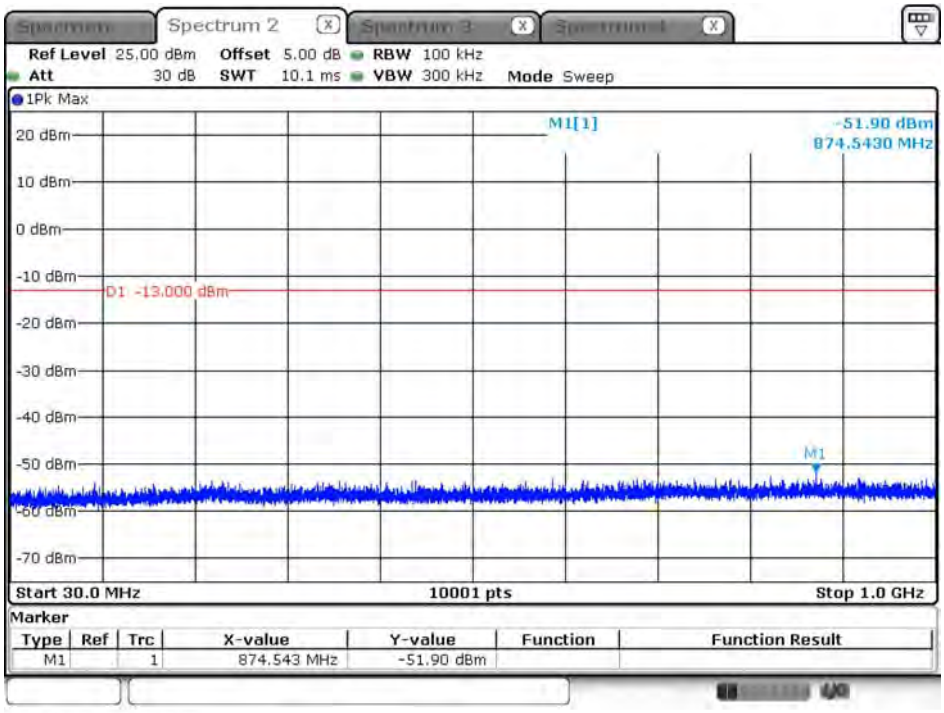
Date: 7.AUG.2018 13:33:18

Product	LE910C4-NF		
Test Item	Conducted Spurious Emission		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/07	Test Site	SR10-H

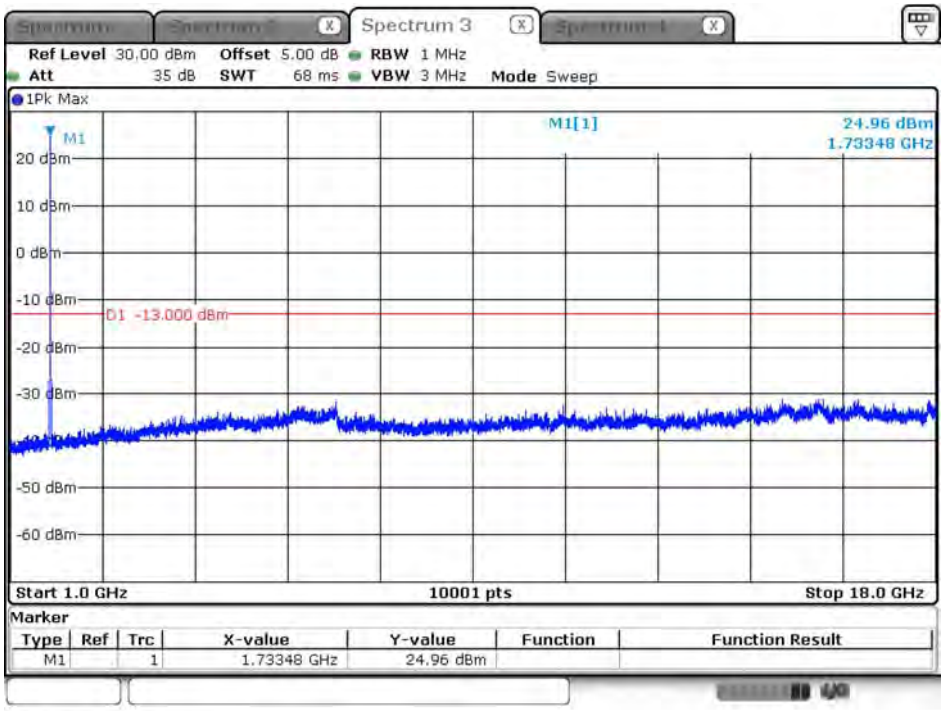
WCDMA_Band 4_RMC_1712.4MHz_above 1G



WCDMA_Band 4_RMC_1712.4MHz_under 1G

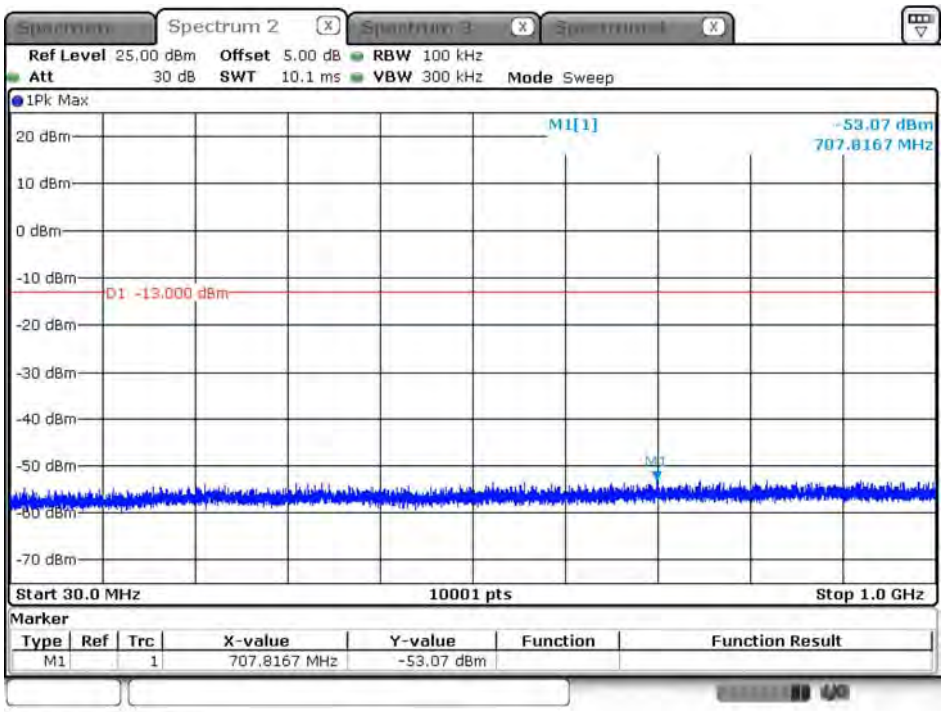


WCDMA_Band 4_RMC_1732.6MHz_above 1G



Date: 7.AUG.2018 11:47:08

WCDMA_Band 4_RMC_1732.6MHz_under 1G



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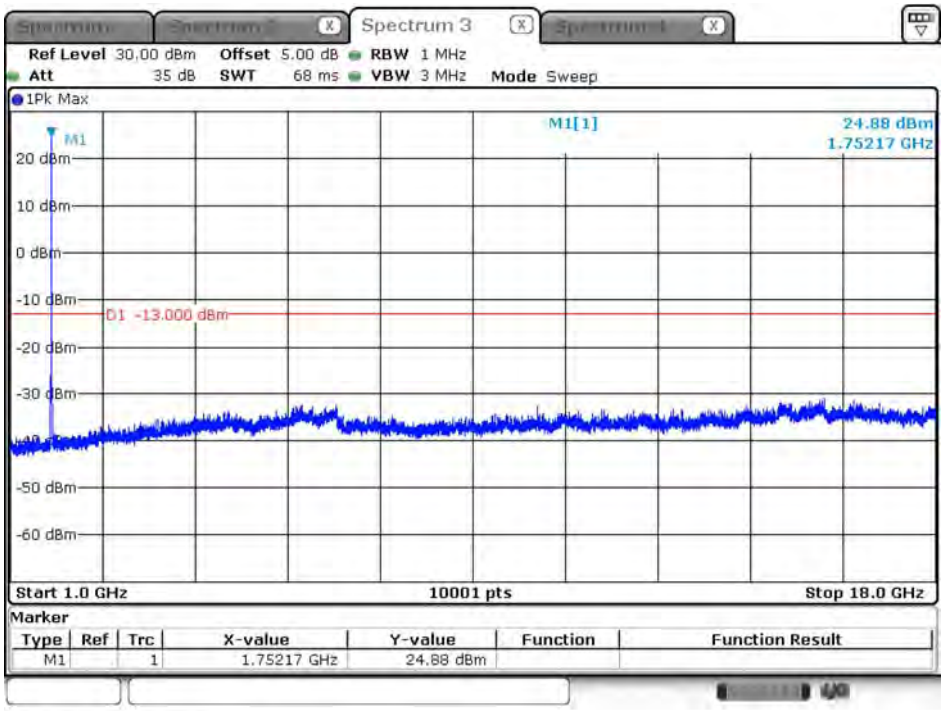
WCDMA_Band 4_RMC_1752.6MHz_above 1G



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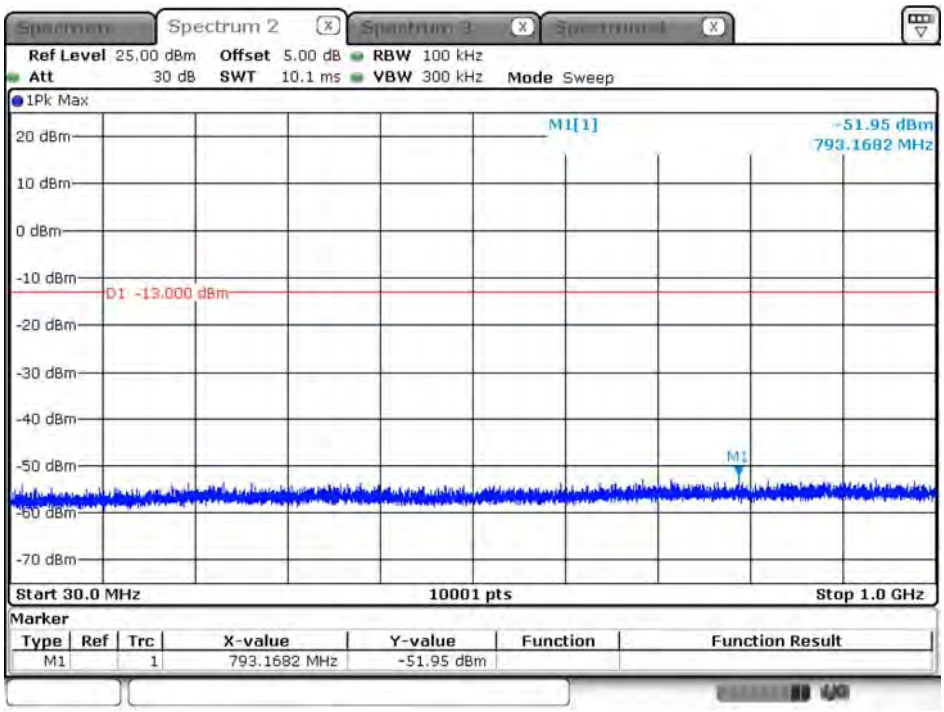
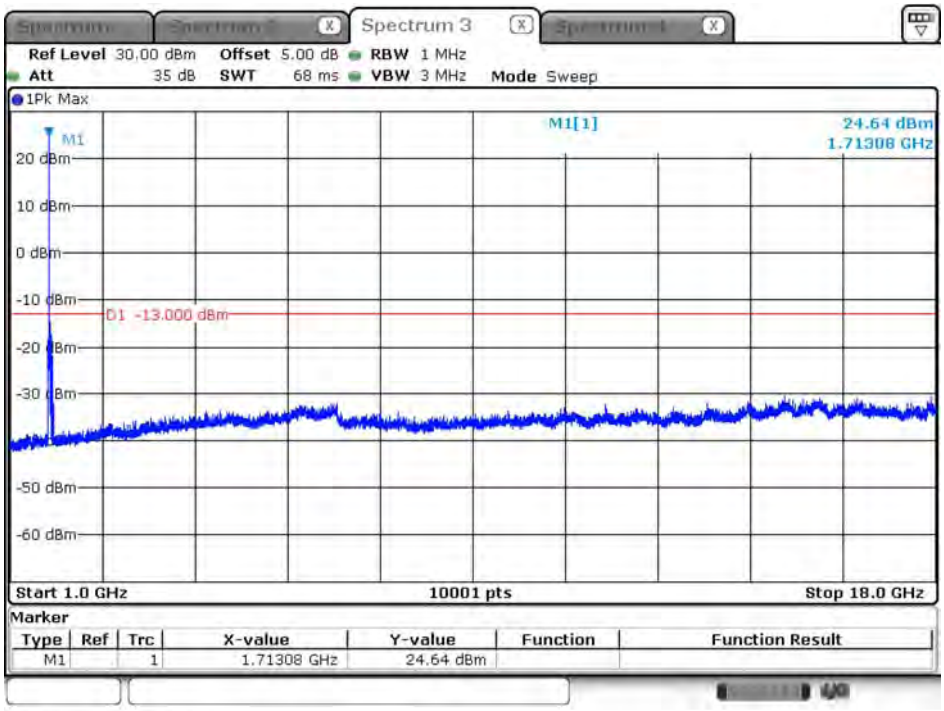
WCDMA_Band 4_RMC_1752.6MHz_under 1G



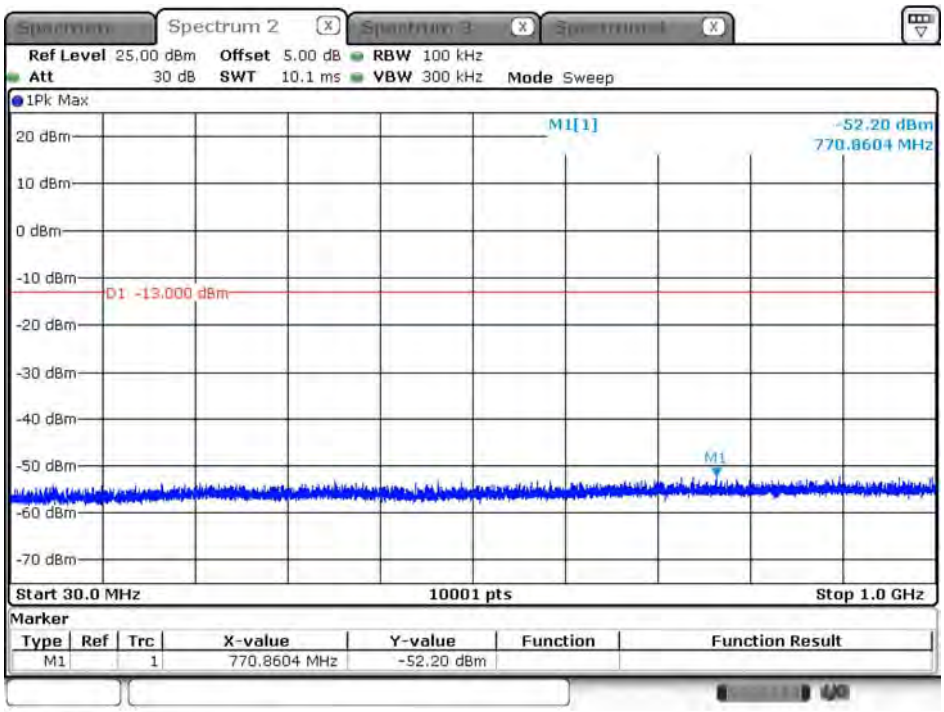
Date: 7.AUG.2018 11:47:39

WCDMA_Band 4_HSDPA_1712.4MHz_above 1G



Date: 7.AUG.2018 11:52:57

WCDMA_Band 4_HSDPA_1712.4MHz_under 1G



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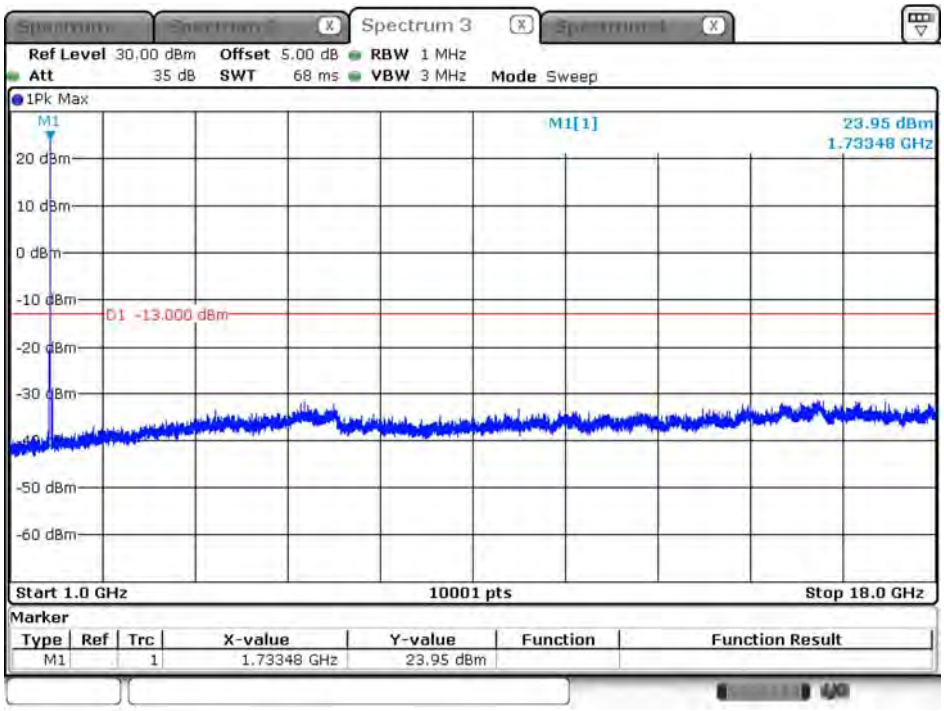
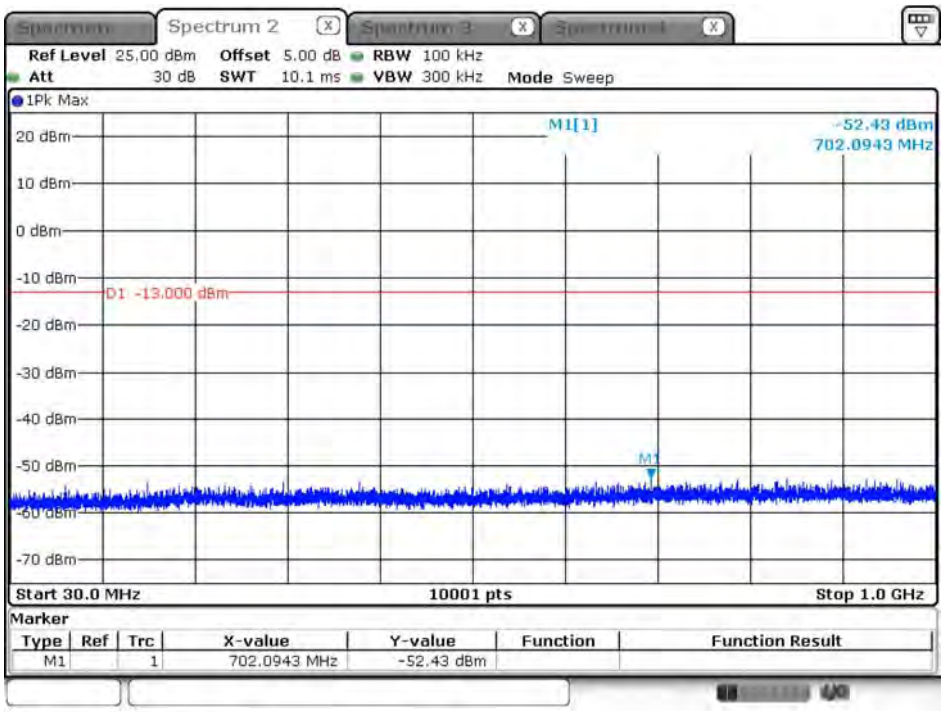
WCDMA_Band 4_HSDPA_1732.6MHz_above 1G



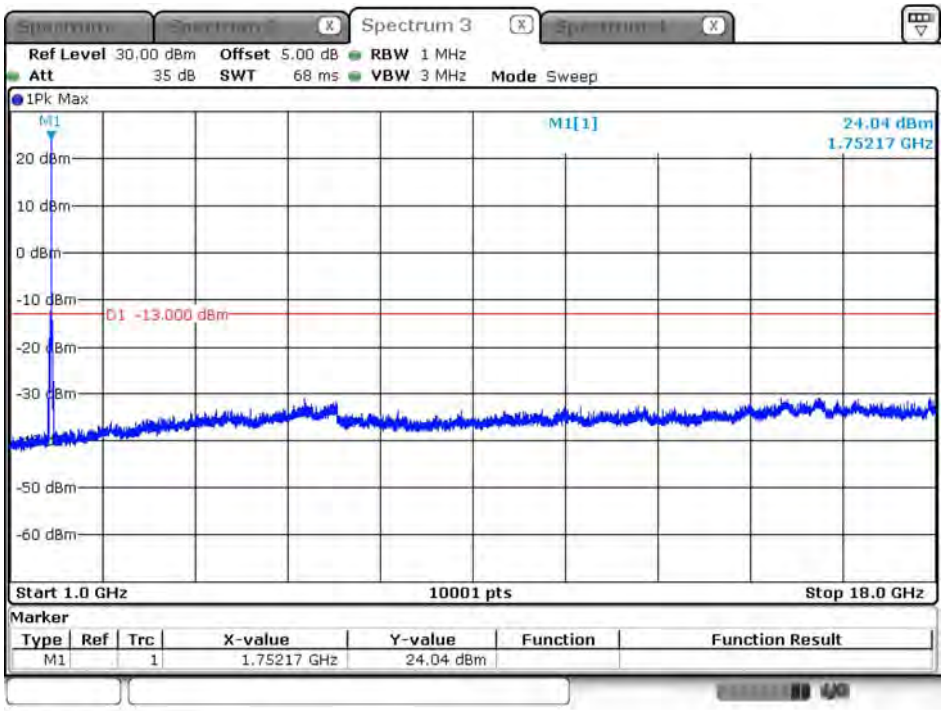
Date: 7.AUG.2018 11:53:50

WCDMA_Band 4_HSDPA_1732.6MHz_under 1G



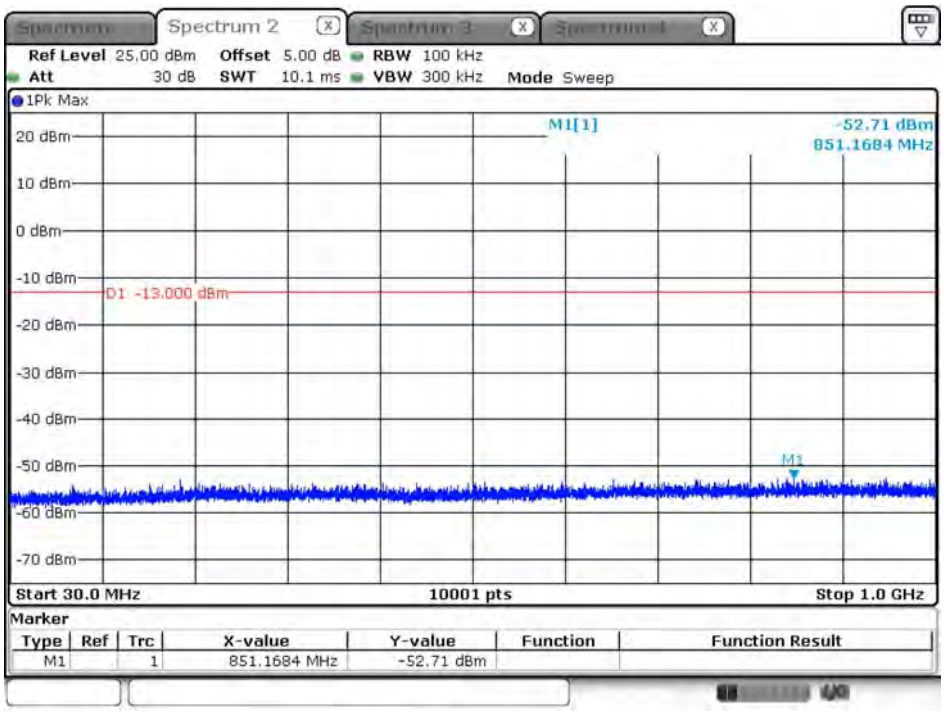
Date: 7.AUG.2018 11:53:36

WCDMA_Band 4_HSDPA_1752.6MHz_above 1G



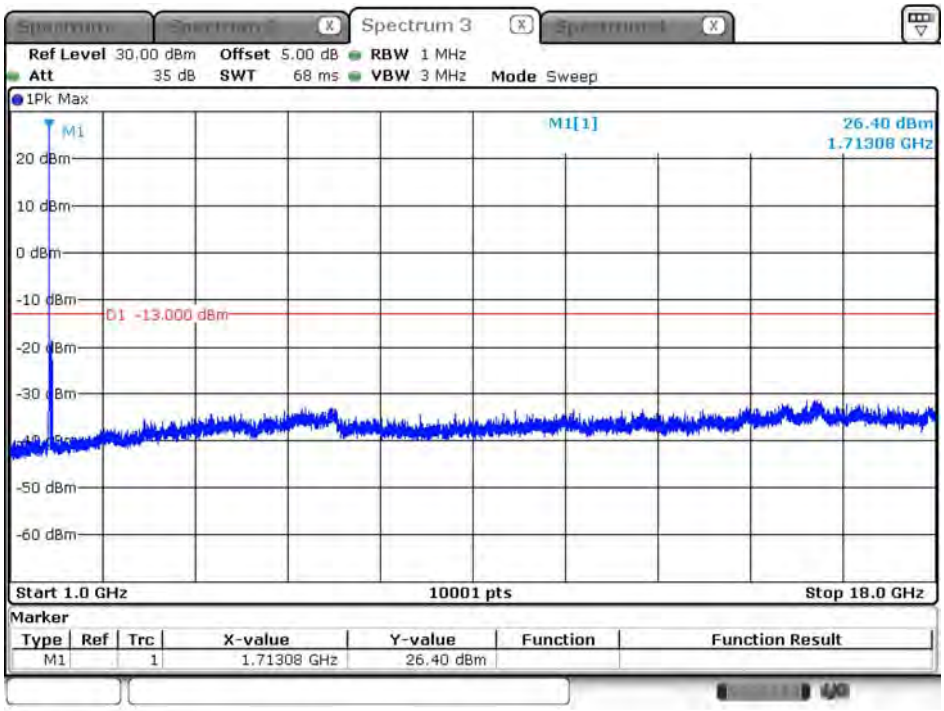
Date: 7.AUG.2018 11:56:00

WCDMA_Band 4_HSDPA_1752.6MHz_under 1G



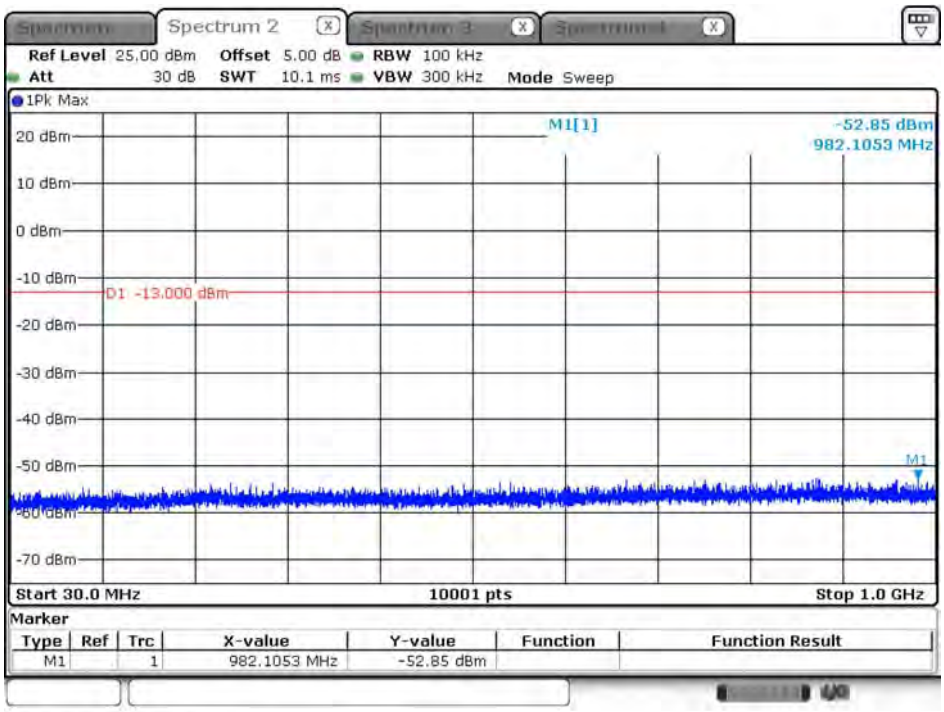
Date: 7.AUG.2018 11:54:34

WCDMA_Band 4_HSUPA_1712.4MHz_above 1G



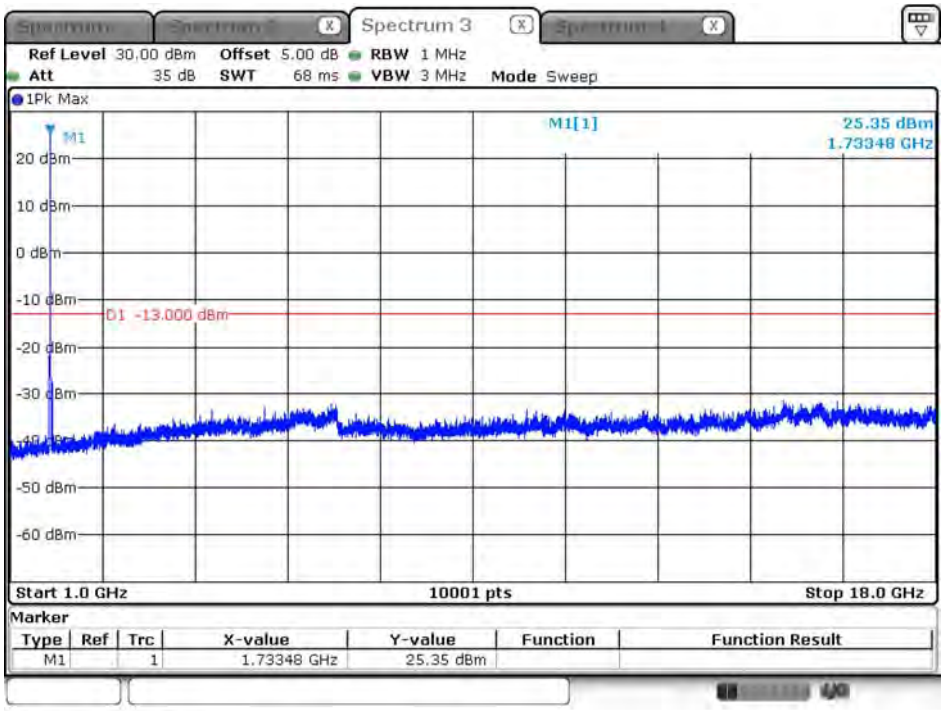
Date: 7.AUG.2018 11:50:56

WCDMA_Band 4_HSUPA_1712.4MHz_under 1G



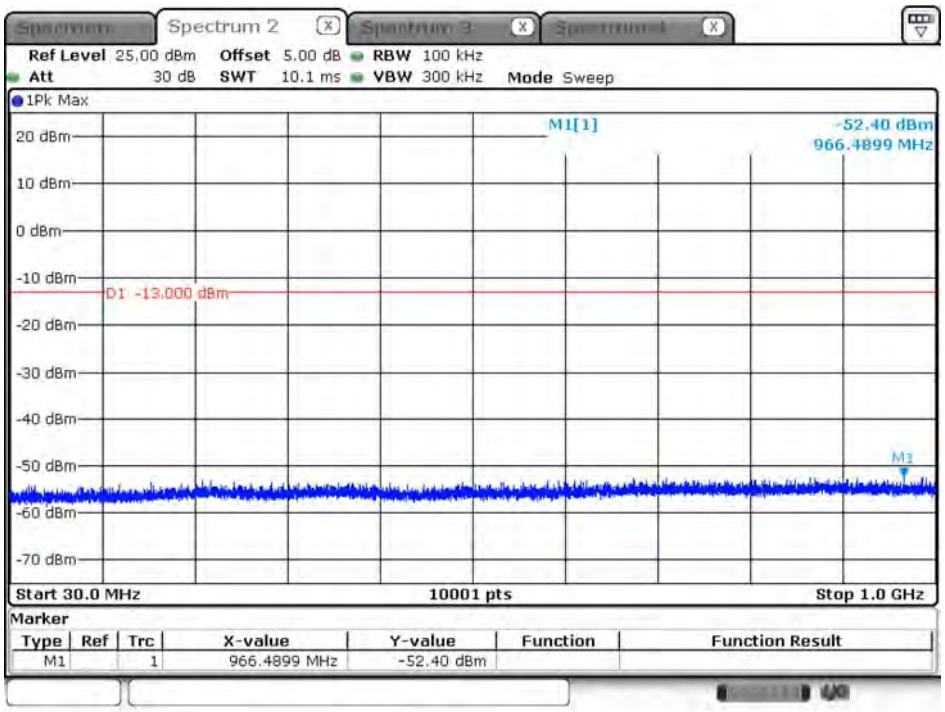
Date: 7.AUG.2018 11:50:41

WCDMA_Band 4_HSUPA_1732.6MHz_above 1G



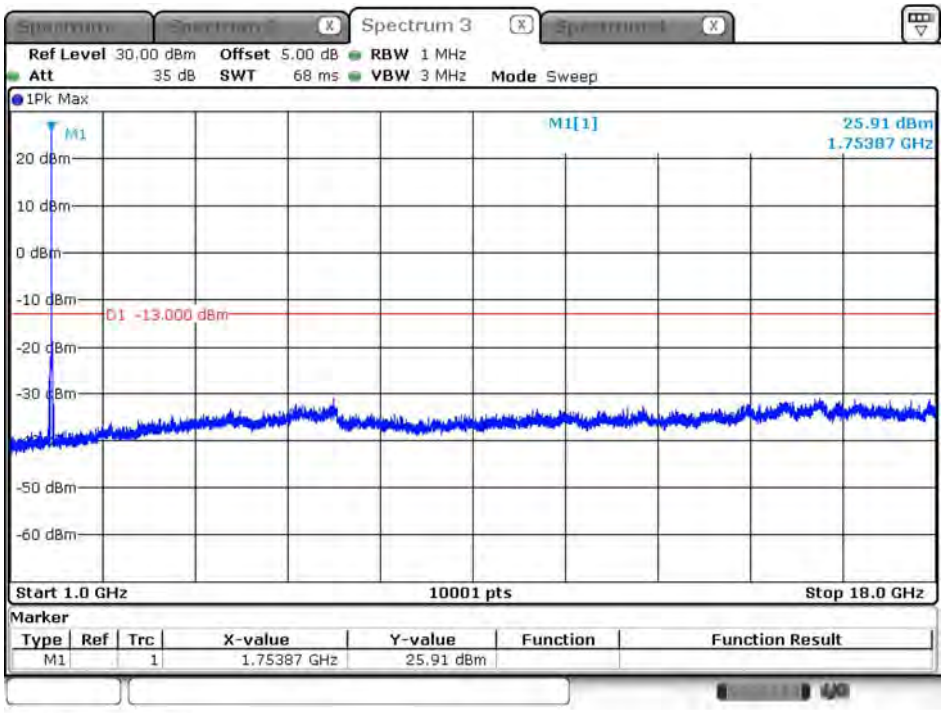
Date: 7.AUG.2018 11:50:22

WCDMA_Band 4_HSUPA_1732.6MHz_under 1G



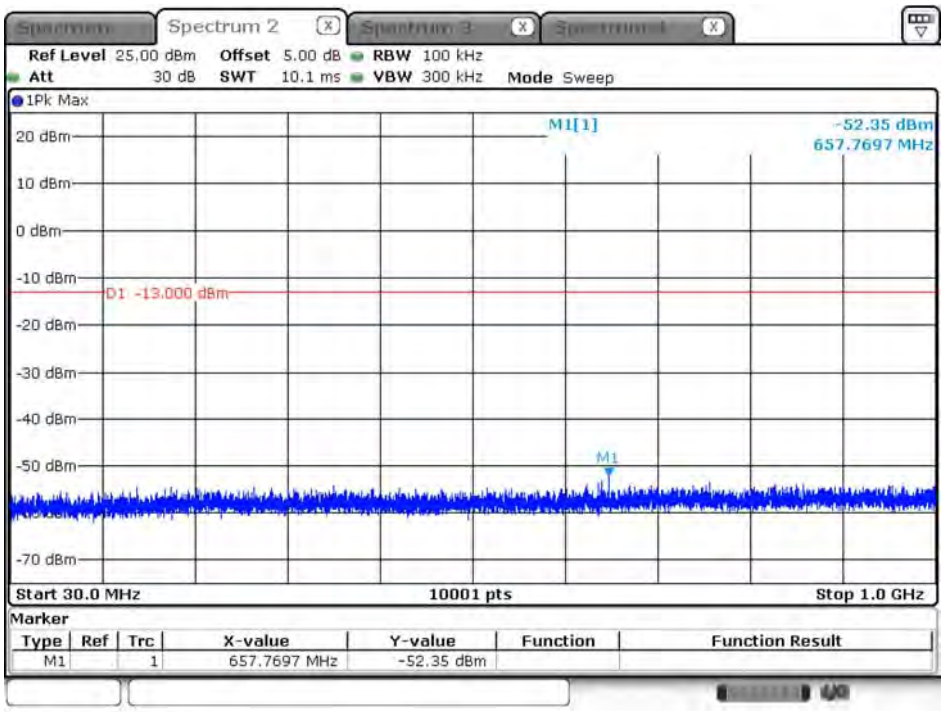
Date: 7.AUG.2018 11:50:01

WCDMA_Band 4_HSUPA_1752.6MHz_above 1G



Date: 7.AUG.2018 11:48:57

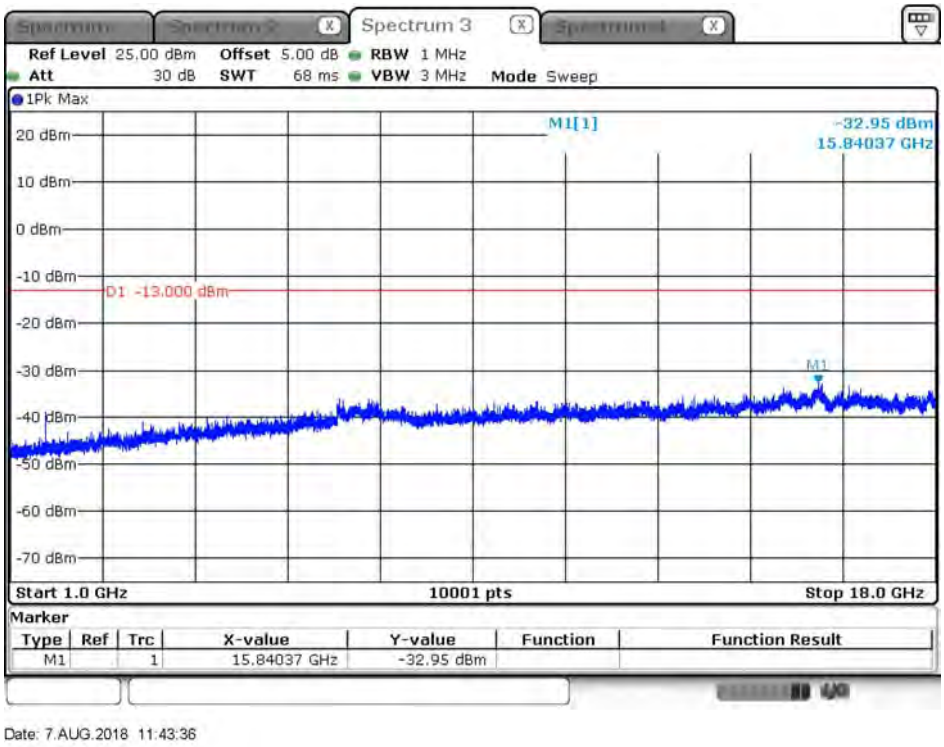
WCDMA_Band 4_HSUPA_1752.6MHz_under 1G



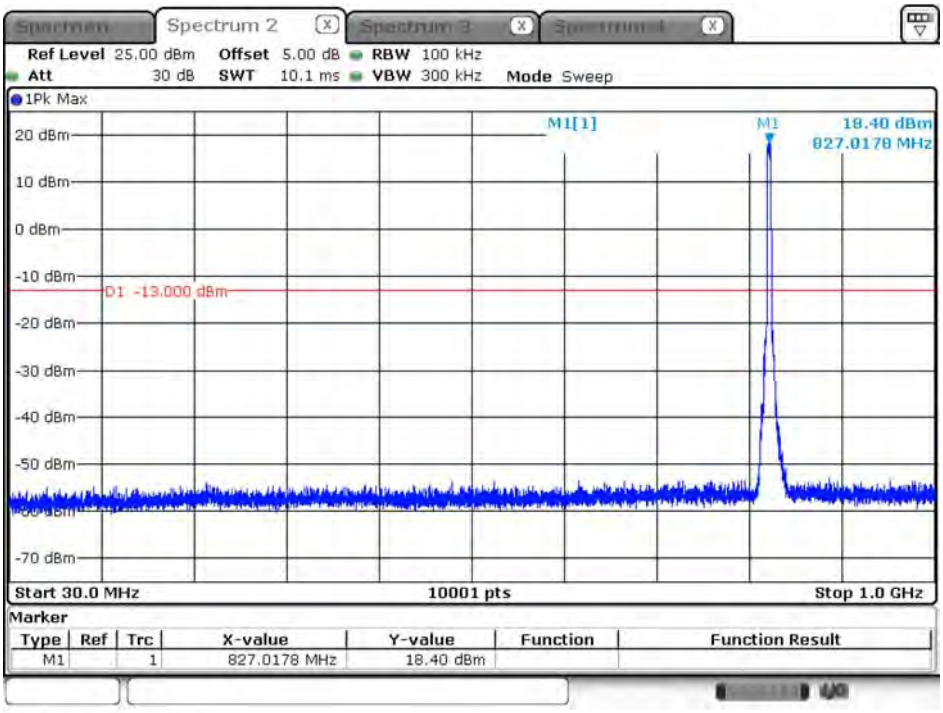
Date: 7.AUG.2018 11:48:19

Product	LE910C4-NF		
Test Item	Conducted Spurious Emission		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/07	Test Site	SR10-H

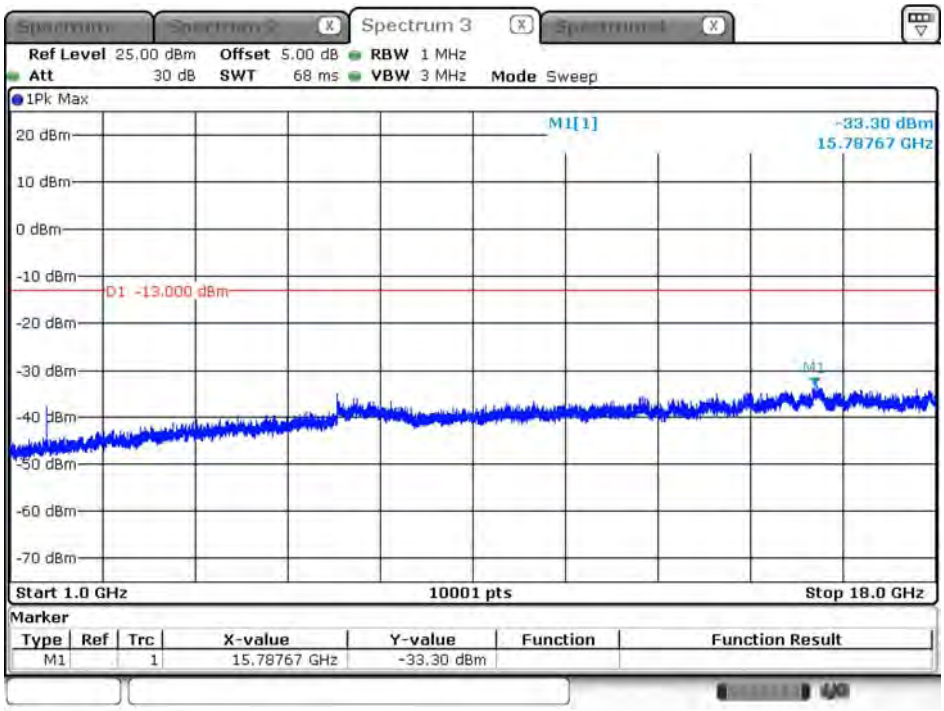
WCDMA_Band 5_RMC_826.4MHz_above 1G



WCDMA_Band 5_RMC_826.4MHz_under 1G

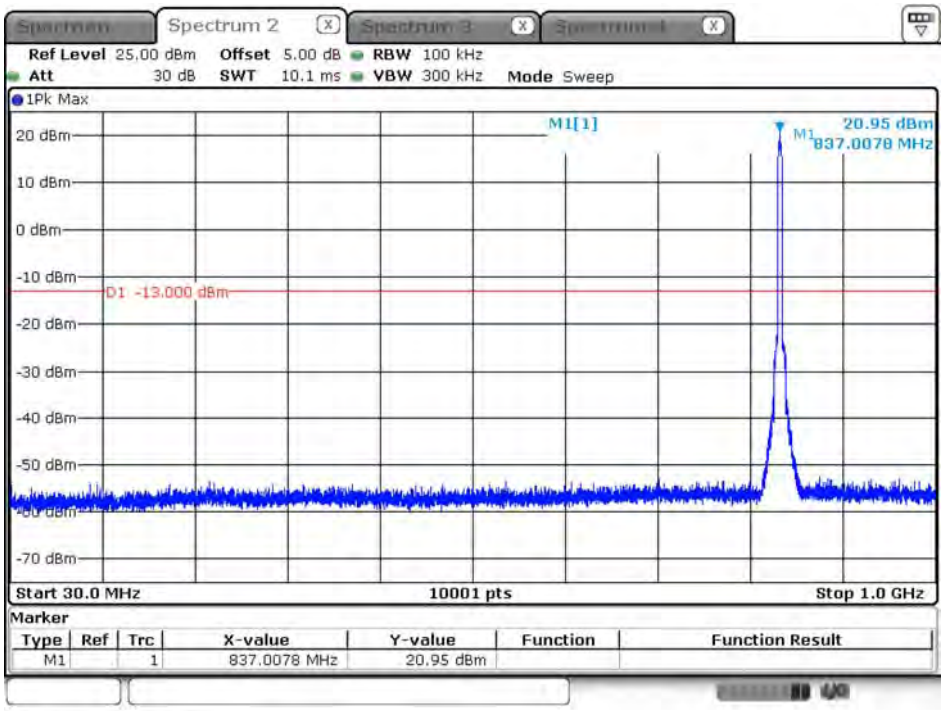


WCDMA_Band 5_RMC_836.6MHz_above 1G



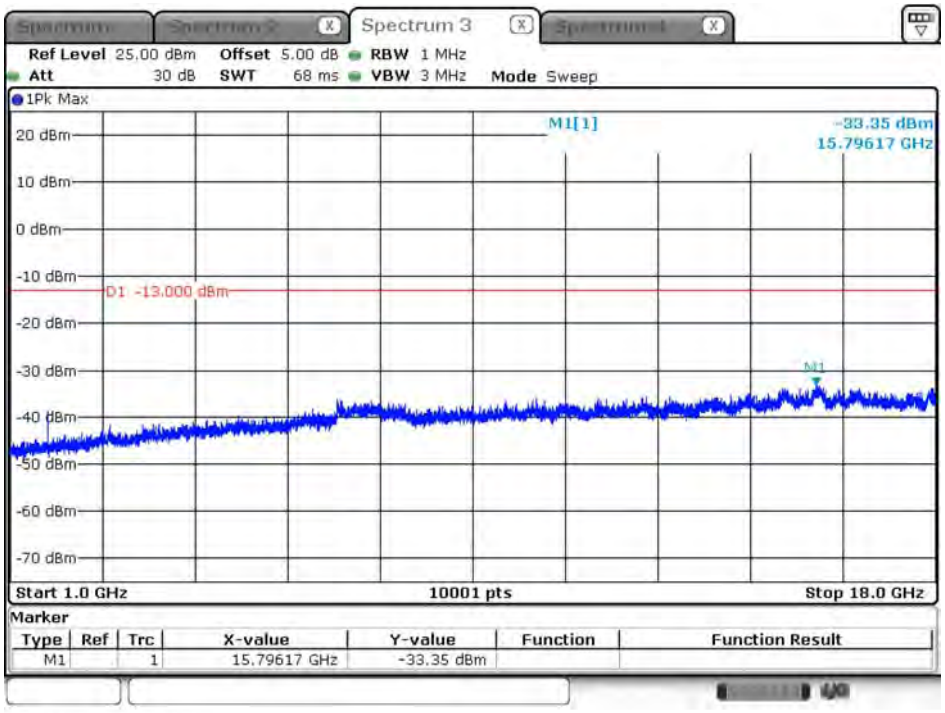
Date: 7.AUG.2018 11:43:01

WCDMA_Band 5_RMC_836.6MHz_under 1G



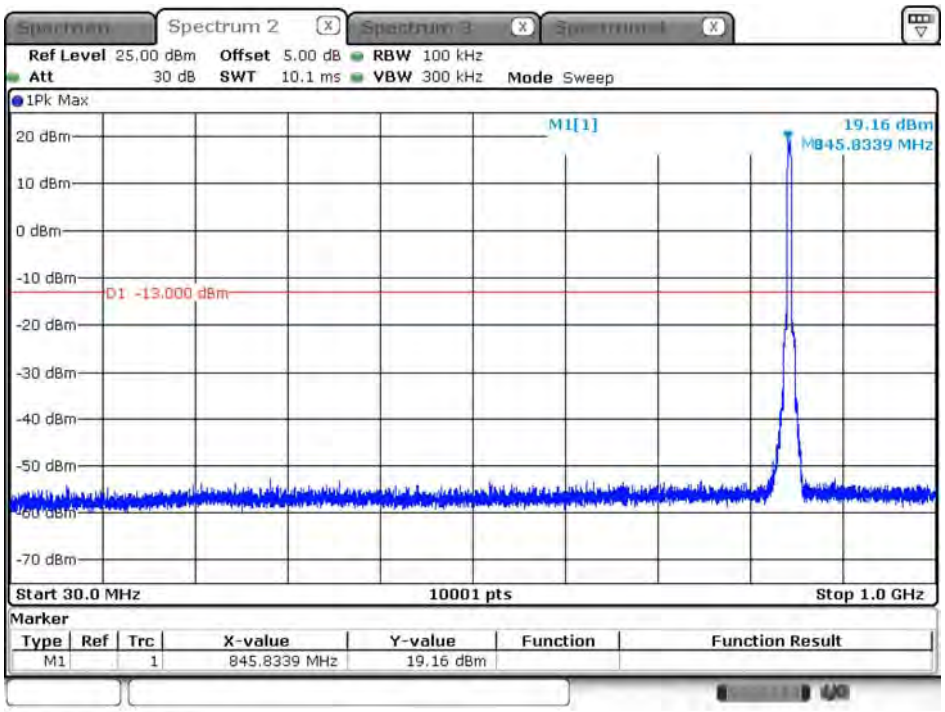
Date: 7.AUG.2018 11:42:45

WCDMA_Band 5_RMC_846.6MHz_above 1G



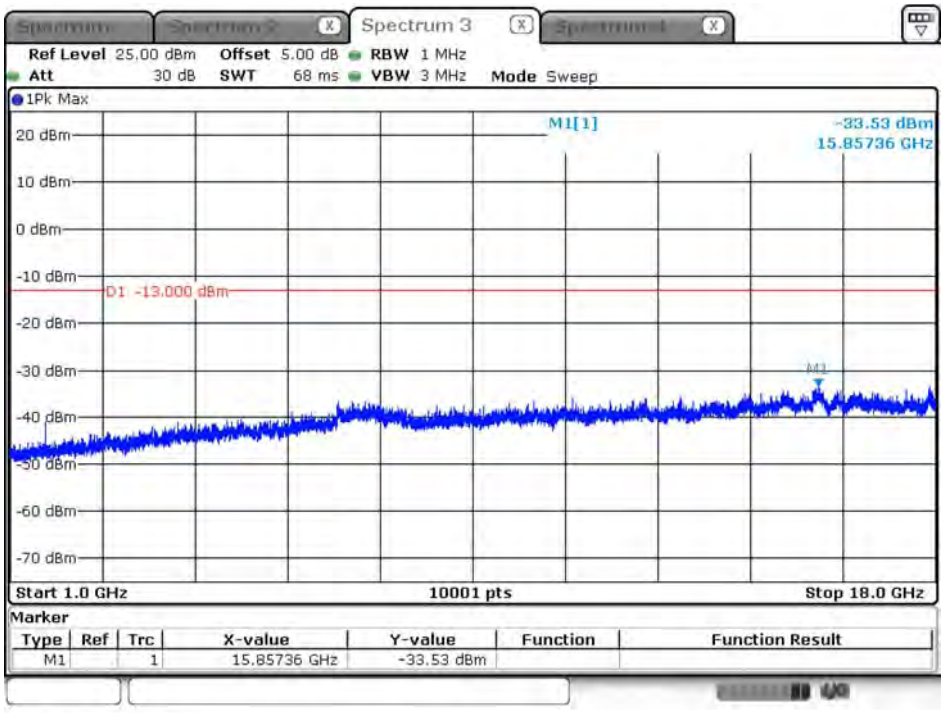
Date: 7.AUG.2018 11:42:08

WCDMA_Band 5_RMC_846.6MHz_under 1G



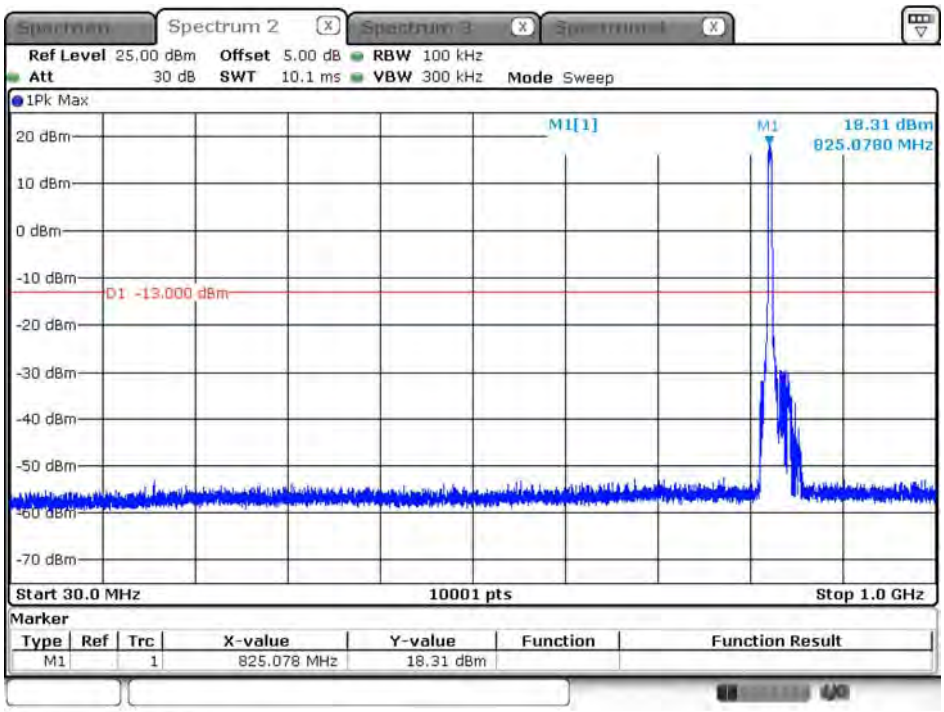
Date: 7.AUG.2018 11:41:48

WCDMA_Band 5_HSDPA_826.4MHz_above 1G



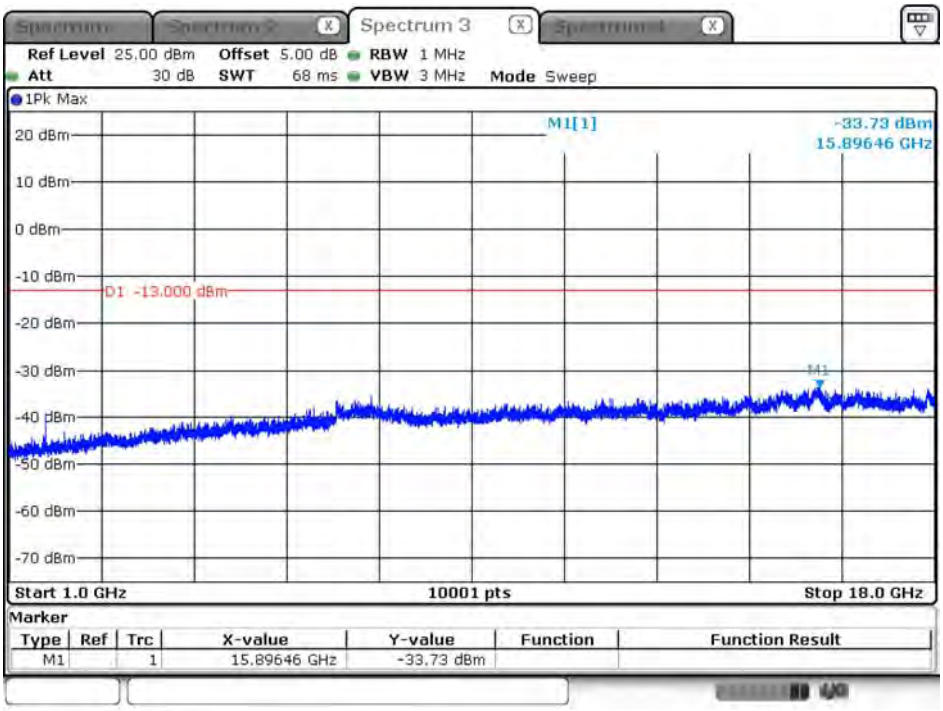
Date: 7.AUG.2018 11:38:07

WCDMA_Band 5_HSDPA_826.4MHz_under 1G



Date: 7.AUG.2018 11:37:57

WCDMA_Band 5_HSDPA_836.6MHz_above 1G



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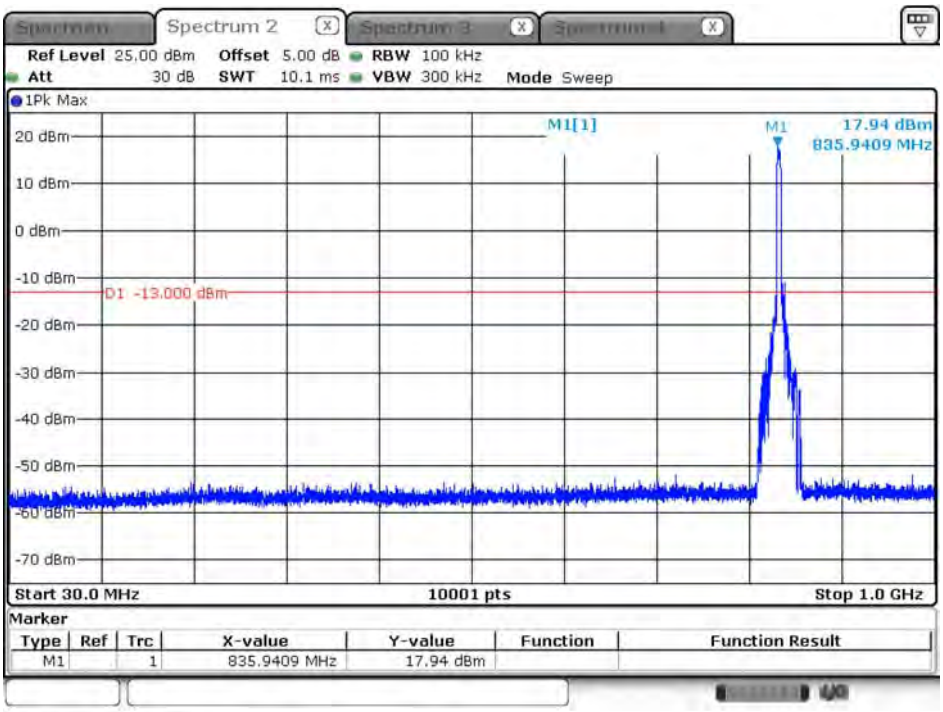

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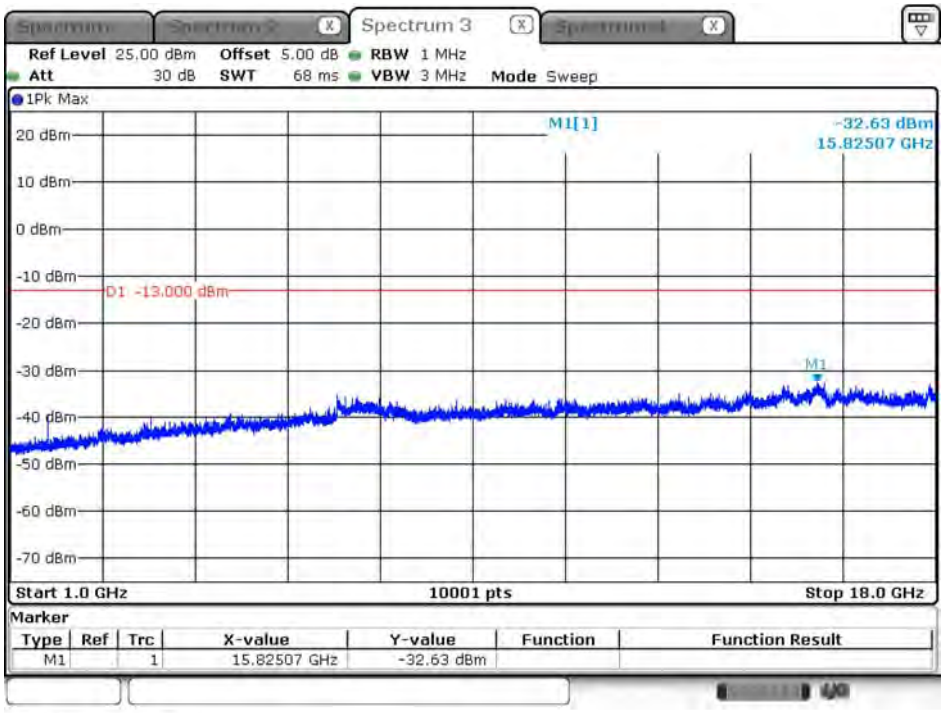

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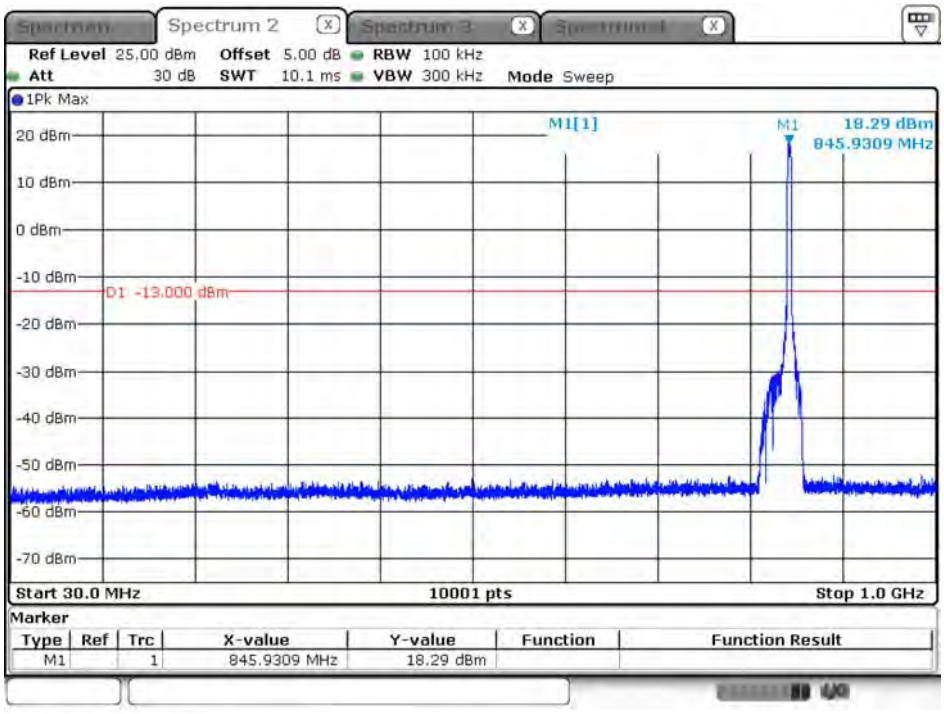

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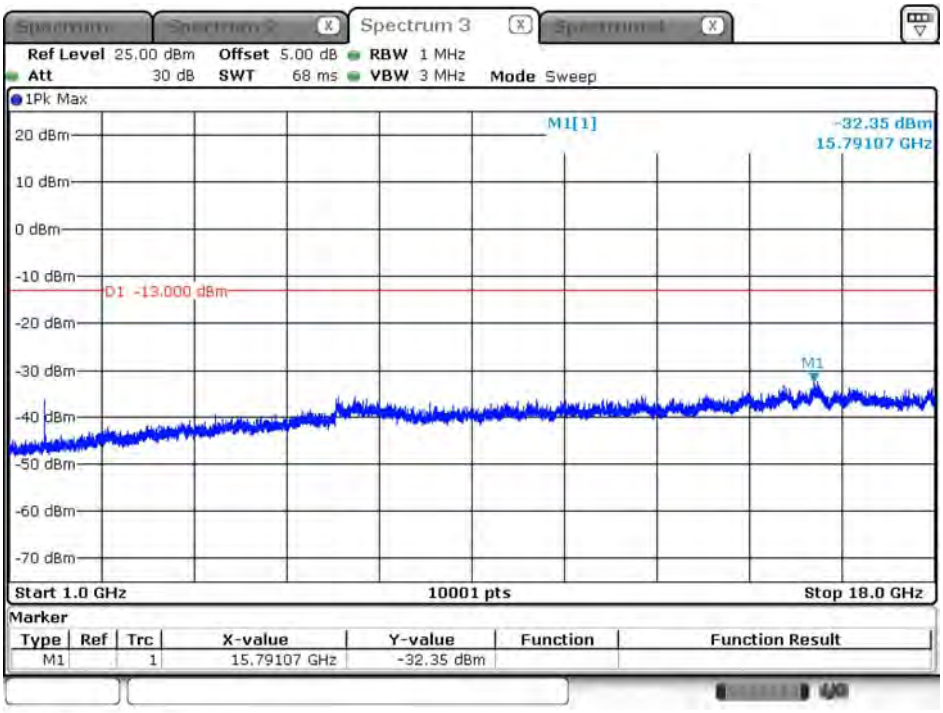
WCDMA_Band 5_HSUPA_826.4MHz_above 1G



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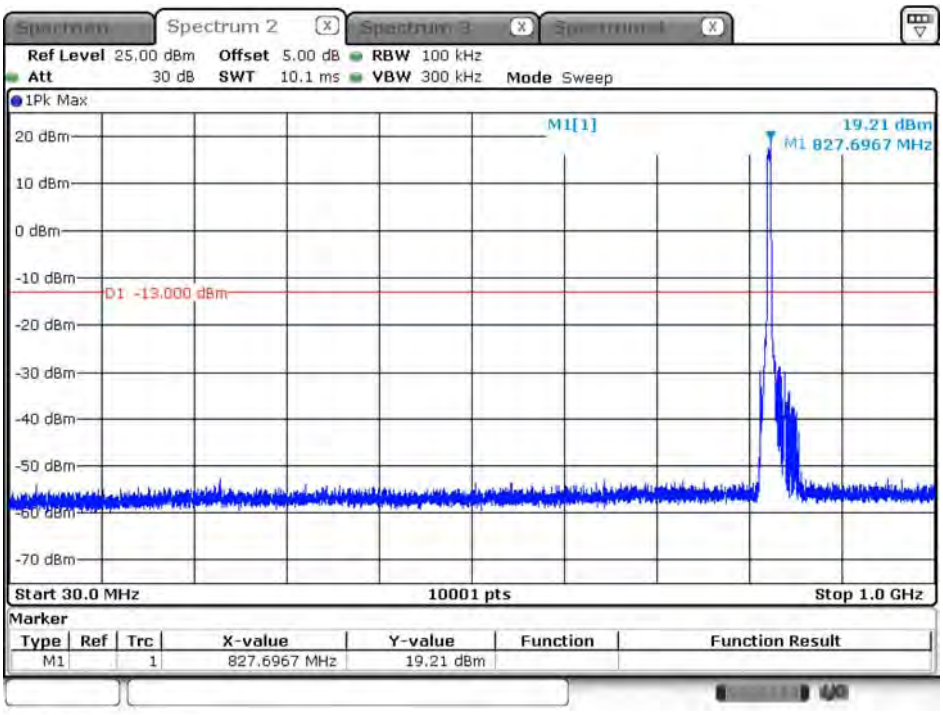

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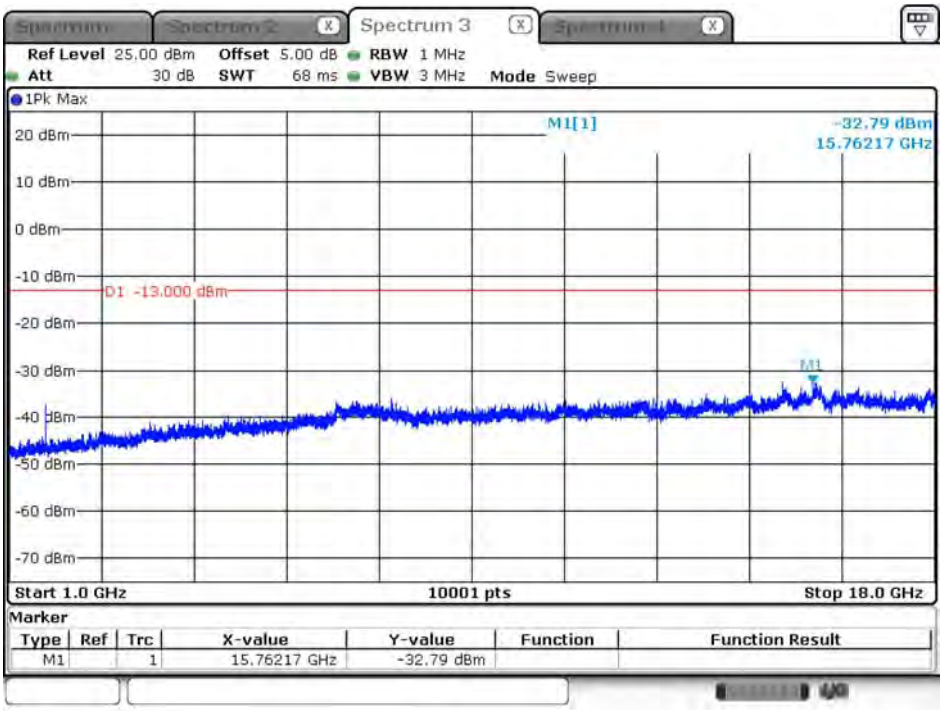
WCDMA_Band 5_HSUPA_836.6MHz_above 1G



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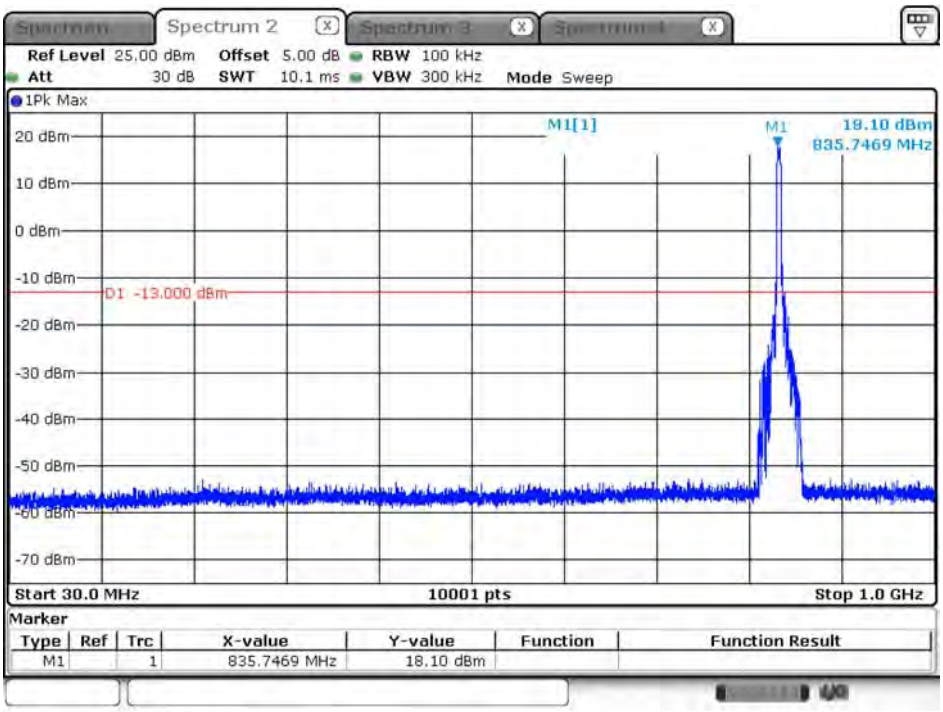

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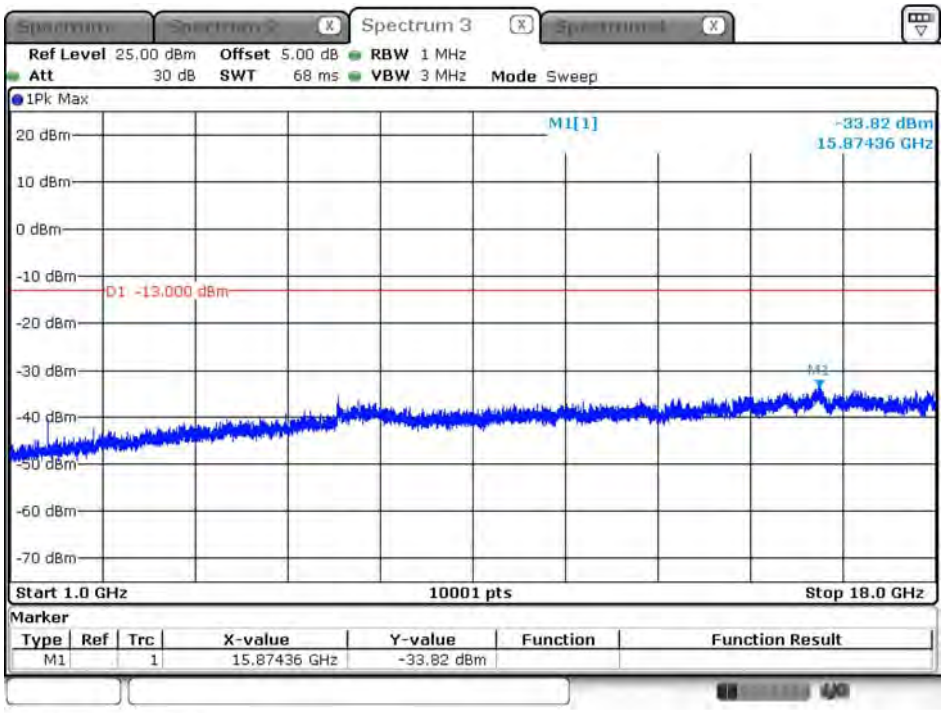
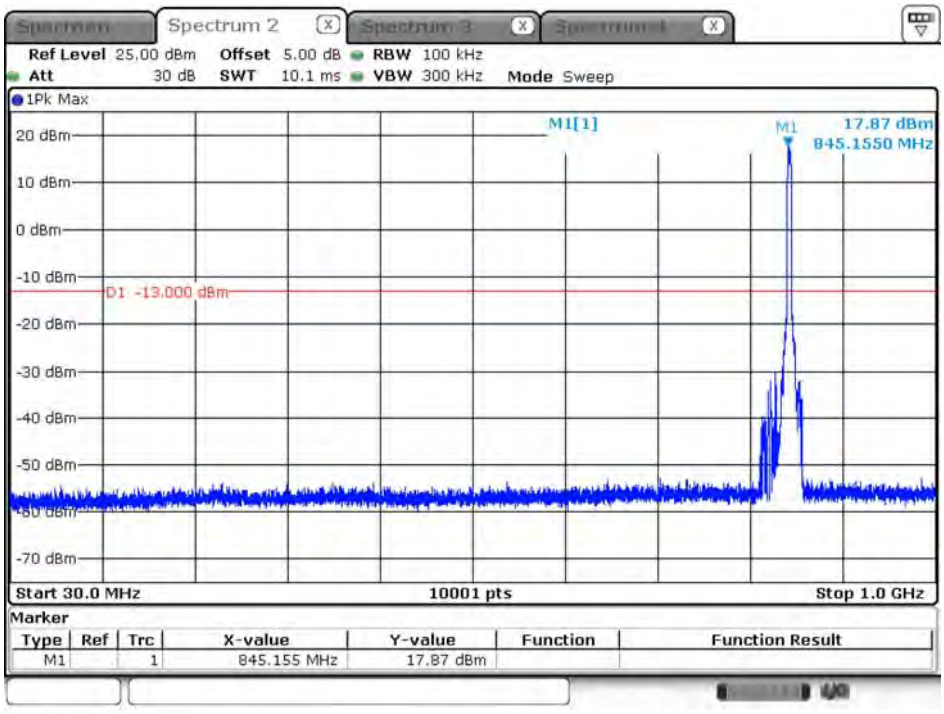


Date: 7.AUG.2018 11:41:24

WCDMA_Band 5_HSUPA_846.6MHz_under 1G



Date: 7.AUG.2018 11:41:12

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 2_RMC_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 9262 (1852.4MHz)								
3704.80	-63.250	H	-51.575	4.287	11.931	-43.931	-13	-30.931
5557.20	-67.750	H	-52.644	5.203	12.900	-44.947	-13	-31.947
3704.80	-63.880	V	-51.404	4.287	11.931	-43.760	-13	-30.760
5557.20	-65.510	V	-50.558	5.203	12.900	-42.861	-13	-29.861
Middle Channel 9400 (1880MHz)								
3760.00	-62.600	H	-50.621	4.335	11.832	-43.124	-13	-30.124
5640.00	-62.750	H	-47.698	5.235	12.900	-40.033	-13	-27.033
3760.00	-63.150	V	-50.379	4.335	11.832	-42.882	-13	-29.882
5640.00	-60.900	V	-46.007	5.235	12.900	-38.342	-13	-25.342
High Channel 9538 (1907.6MHz)								
3815.20	-62.860	H	-50.625	4.382	11.733	-43.274	-13	-30.274
5722.80	-60.060	H	-44.690	5.267	12.900	-37.057	-13	-24.057
3815.20	-62.160	V	-49.153	4.382	11.733	-41.802	-13	-28.802
5722.80	-58.300	V	-43.094	5.267	12.900	-35.461	-13	-22.461

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 2_HSUPA_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 9262 (1852.4MHz)								
3704.80	-63.330	H	-51.655	4.287	11.931	-44.011	-13	-31.011
5557.20	-63.260	H	-48.154	5.203	12.900	-40.457	-13	-27.457
3704.80	-62.290	V	-49.814	4.287	11.931	-42.170	-13	-29.170
5557.20	-62.460	V	-47.508	5.203	12.900	-39.811	-13	-26.811
Middle Channel 9400 (1880MHz)								
3760.00	-63.420	H	-51.441	4.335	11.832	-43.944	-13	-30.944
5460.00	-61.940	H	-47.431	5.169	12.828	-39.772	-13	-26.772
3760.00	-63.110	V	-50.339	4.335	11.832	-42.842	-13	-29.842
5640.00	-60.310	V	-45.417	5.235	12.900	-37.752	-13	-24.752
High Channel 9538 (1907.6MHz)								
3815.20	-62.950	H	-50.715	4.382	11.733	-43.364	-13	-30.364
5722.80	-60.070	H	-44.700	5.267	12.900	-37.067	-13	-24.067
3815.20	-68.770	V	-55.763	4.382	11.733	-48.412	-13	-35.412
5722.80	-58.440	V	-43.234	5.267	12.900	-35.601	-13	-22.601

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 2_HSDPA_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 9262 (1852.4MHz)								
3704.80	-64.710	H	-53.035	4.287	11.931	-45.391	-13	-32.391
5557.20	-62.990	H	-47.884	5.203	12.900	-40.187	-13	-27.187
3704.80	-63.220	V	-50.744	4.287	11.931	-43.100	-13	-30.100
5557.20	-60.250	V	-45.298	5.203	12.900	-37.601	-13	-24.601
Middle Channel 9400 (1880MHz)								
3760.00	-63.600	H	-51.621	4.335	11.832	-44.124	-13	-31.124
5640.00	-61.914	H	-46.862	5.235	12.900	-39.197	-13	-26.197
3760.00	-63.690	V	-50.919	4.335	11.832	-43.422	-13	-30.422
5640.00	-61.710	V	-46.817	5.235	12.900	-39.152	-13	-26.152
High Channel 9538 (1907.6MHz)								
3815.20	-63.240	H	-51.005	4.382	11.733	-43.654	-13	-30.654
5722.80	-60.710	H	-45.340	5.267	12.900	-37.707	-13	-24.707
3815.20	-62.390	V	-49.383	4.382	11.733	-42.032	-13	-29.032
5722.80	-59.520	V	-44.314	5.267	12.900	-36.681	-13	-23.681

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 4_RMC_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1312 (1712.4MHz)								
3424.80	-69.470	H	-58.790	4.066	12.104	-50.752	-13	-37.752
5137.20	-69.110	H	-54.437	5.077	12.247	-47.267	-13	-34.267
3424.80	-66.450	V	-55.036	4.066	12.104	-46.998	-13	-33.998
5137.20	-64.200	V	-49.837	5.077	12.247	-42.667	-13	-29.667
Middle Channel 1413 (1732.6MHz)								
3465.20	-69.470	H	-58.943	4.090	12.210	-50.824	-13	-37.824
5197.80	-70.732	H	-56.226	5.094	12.356	-48.964	-13	-35.964
3465.20	-68.690	V	-57.381	4.090	12.210	-49.262	-13	-36.262
5197.80	-64.790	V	-50.567	5.094	12.356	-43.305	-13	-30.305
High Channel 1513 (1752.6MHz)								
3505.20	-69.740	H	-59.017	4.115	12.291	-50.842	-13	-37.842
5257.80	-70.550	H	-56.314	5.111	12.464	-48.961	-13	-35.961
3505.20	-69.300	V	-57.755	4.115	12.291	-49.580	-13	-36.580
5257.80	-61.820	V	-47.840	5.111	12.464	-40.487	-13	-27.487

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 4_HSUPA_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1312 (1712.4MHz)								
3424.80	-70.270	H	-59.590	4.066	12.104	-51.552	-13	-38.552
5137.20	-71.560	H	-56.887	5.077	12.247	-49.717	-13	-36.717
3424.80	-66.180	V	-54.766	4.066	12.104	-46.728	-13	-33.728
5137.20	-62.610	V	-48.247	5.077	12.247	-41.077	-13	-28.077
Middle Channel 1413 (1732.6MHz)								
3465.20	-69.180	H	-58.653	4.090	12.210	-50.534	-13	-37.534
5197.80	-71.310	H	-56.804	5.094	12.356	-49.542	-13	-36.542
3465.20	-68.810	V	-57.501	4.090	12.210	-49.382	-13	-36.382
5197.80	-63.440	V	-49.217	5.094	12.356	-41.955	-13	-28.955
High Channel 1513 (1752.6MHz)								
3505.20	-70.420	H	-59.697	4.115	12.291	-51.522	-13	-38.522
5257.80	-68.960	H	-54.724	5.111	12.464	-47.371	-13	-34.371
3505.20	-69.270	V	-57.725	4.115	12.291	-49.550	-13	-36.550
5257.80	-60.560	V	-46.580	5.111	12.464	-39.227	-13	-26.227

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 4_HSDPA_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 1312 (1712.4MHz)								
3424.80	-70.030	H	-59.350	4.066	12.104	-51.312	-13	-38.312
5137.20	-71.200	H	-56.527	5.077	12.247	-49.357	-13	-36.357
3424.80	-62.230	V	-50.816	4.066	12.104	-42.778	-13	-29.778
5137.20	-64.470	V	-50.107	5.077	12.247	-42.937	-13	-29.937
Middle Channel 1413 (1732.6MHz)								
3465.20	-71.340	H	-60.813	4.090	12.210	-52.694	-13	-39.694
5197.80	-71.920	H	-57.414	5.094	12.356	-50.152	-13	-37.152
3465.20	-69.580	V	-58.271	4.090	12.210	-50.152	-13	-37.152
5197.80	-65.380	V	-51.157	5.094	12.356	-43.895	-13	-30.895
High Channel 1513 (1752.6MHz)								
3505.20	-70.900	H	-60.177	4.115	12.291	-52.002	-13	-39.002
5257.80	-70.970	H	-56.734	5.111	12.464	-49.381	-13	-36.381
3505.20	-69.470	V	-57.925	4.115	12.291	-49.750	-13	-36.750
5257.80	-63.110	V	-49.130	5.111	12.464	-41.777	-13	-28.777

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 5_RMC_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 4132 (826.4MHz)								
1652.80	-64.220	H	-59.629	2.794	8.758	-53.665	-13	-40.665
2479.20	-68.280	H	-59.651	3.442	10.567	-52.526	-13	-39.526
1652.80	-61.260	V	-56.141	2.794	8.758	-50.177	-13	-37.177
2479.20	-68.100	V	-59.121	3.442	10.567	-51.996	-13	-38.996
Middle Channel 4183 (836.6MHz)								
1673.20	-65.400	H	-60.896	2.813	8.820	-54.889	-13	-41.889
2509.80	-68.640	H	-60.221	3.463	10.608	-53.076	-13	-40.076
1673.20	-61.630	V	-56.561	2.813	8.820	-50.554	-13	-37.554
2509.80	-65.390	V	-56.582	3.463	10.608	-49.437	-13	-36.437
High Channel 4233 (846.6MHz)								
1693.20	-67.430	H	-63.020	2.831	8.880	-56.971	-13	-43.971
2539.80	-62.870	H	-54.339	3.484	10.632	-47.192	-13	-34.192
1693.20	-64.110	V	-59.098	2.831	8.880	-53.049	-13	-40.049
2539.80	-60.100	V	-51.191	3.484	10.632	-44.044	-13	-31.044

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/09	Test Site	CB4-H

WCDMA_Band 5_HSUPA_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 4132 (826.4MHz)								
1652.80	-62.400	H	-57.809	2.794	8.758	-51.845	-13	-38.845
2479.20	-69.200	H	-60.571	3.442	10.567	-53.446	-13	-40.446
1652.80	-60.650	V	-55.531	2.794	8.758	-49.567	-13	-36.567
2479.20	-69.350	V	-60.371	3.442	10.567	-53.246	-13	-40.246
Middle Channel 4183 (836.6MHz)								
1673.20	-63.820	H	-59.316	2.813	8.820	-53.309	-13	-40.309
2509.80	-68.030	H	-59.611	3.463	10.608	-52.466	-13	-39.466
1673.20	-59.770	V	-54.701	2.813	8.820	-48.694	-13	-35.694
2509.80	-64.660	V	-55.852	3.463	10.608	-48.707	-13	-35.707
High Channel 4233 (846.6MHz)								
1693.20	-67.700	H	-63.290	2.831	8.880	-57.241	-13	-44.241
2539.80	-62.470	H	-53.939	3.484	10.632	-46.792	-13	-33.792
1693.20	-61.250	V	-56.238	2.831	8.880	-50.189	-13	-37.189
2539.80	-58.880	V	-49.971	3.484	10.632	-42.824	-13	-29.824

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

Product	LE910C4-NF		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/09	Test Site	CB4-H

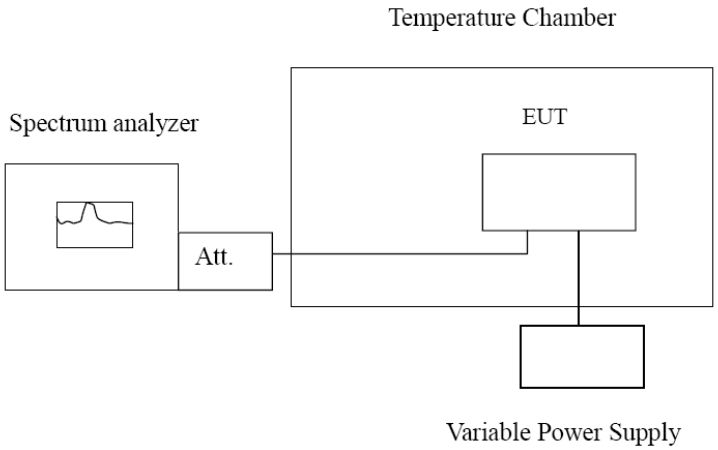
WCDMA_Band 5_HSDPA_Link

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 4132 (826.4MHz)								
1652.80	-64.310	H	-59.719	2.794	8.758	-53.755	-13	-40.755
2479.20	-68.820	H	-60.191	3.442	10.567	-53.066	-13	-40.066
1652.80	-62.500	V	-57.381	2.794	8.758	-51.417	-13	-38.417
2479.20	-68.890	V	-59.911	3.442	10.567	-52.786	-13	-39.786
Middle Channel 4183 (836.6MHz)								
1673.20	-67.920	H	-63.416	2.813	8.820	-57.409	-13	-44.409
2509.80	-69.730	H	-61.311	3.463	10.608	-54.166	-13	-41.166
1673.20	-62.320	V	-57.251	2.813	8.820	-51.244	-13	-38.244
2509.80	-65.900	V	-57.092	3.463	10.608	-49.947	-13	-36.947
High Channel 4233 (846.6MHz)								
1693.20	-61.110	H	-56.700	2.831	8.880	-50.651	-13	-37.651
2539.80	-65.550	H	-57.019	3.484	10.632	-49.872	-13	-36.872
1693.20	-62.260	V	-57.248	2.831	8.880	-51.199	-13	-38.199
2539.80	-60.540	V	-51.631	3.484	10.632	-44.484	-13	-31.484

Test Result (EIRP) = SG Level - Cable Loss + Antenna Gain

8. Frequency Stability

8.1. Test Setup



8.2. Test Procedure

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

8.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 9
ANSI C63.26-2015 Sub-clause 5.6

8.4. Test Result

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA Band 2 – 1852.4MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	10	-0.0118
3.8	9	-0.0108
4.2	11	-0.0130

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	10	-0.0123
-20	9	-0.0114
-10	10	-0.0123
0	9	-0.0113
+10	11	-0.0138
+20	9	-0.0108
+30	14	-0.0166
+40	12	-0.0150
+50	10	-0.0119

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA Band 2 – 1880MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	16	-0.0192
3.8	11	-0.0127
4.2	11	-0.0128

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	16	-0.0188
-20	13	-0.0160
-10	-12	0.0143
0	-14	0.0169
+10	15	-0.0180
+20	-11	0.0131
+30	-13	0.0155
+40	10	-0.0123
+50	11	-0.0128

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 1: WCDMA Band 2		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA Band 2 – 1907.6MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	5	-0.0072
3.8	7	-0.0101
4.2	7	-0.0101

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-30	0.0431
-20	-10	0.0144
-10	3	-0.0043
0	-30	0.0431
+10	-15	0.0216
+20	23	-0.0331
+30	25	-0.0359
+40	-24	0.0345
+50	18	-0.0259

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA Band 4 – 1712.4MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	11	-0.0158
3.8	-29	0.0417
4.2	-31	0.0446

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	13	-0.0187
-20	-11	0.0158
-10	11	-0.0158
0	-2	0.0029
+10	-6	0.0086
+20	-33	0.0474
+30	-31	0.0446
+40	-4	0.0058
+50	-15	0.0216

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA Band 4 – 1732.6MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	5	-0.0073
3.8	-40	0.0588
4.2	18	-0.0265

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-15	0.0220
-20	-31	0.0456
-10	-36	0.0529
0	-32	0.0470
+10	-1	0.0015
+20	-18	0.0265
+30	-29	0.0426
+40	21	-0.0309
+50	8	-0.0118

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 2: WCDMA Band 4		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA_Band 4_1752.6MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	-2	0.0029
3.8	-6	0.0088
4.2	1	-0.0015

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	21	-0.0309
-20	-6	0.0088
-10	-21	0.0309
0	-23	0.0338
+10	-39	0.0573
+20	-33	0.0485
+30	-25	0.0367
+40	-28	0.0411
+50	16	-0.0235

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA_Band 5_826.4MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	11	-0.0130
3.8	24	-0.0293
4.2	35	-0.0424

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	16	-0.0188
-20	20	-0.0239
-10	26	-0.0312
0	26	-0.0317
+10	13	-0.0160
+20	24	-0.0293
+30	24	-0.0286
+40	26	-0.0314
+50	18	-0.0220

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA_Band 5_836.6MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	24	-0.0286
3.8	-21	0.0250
4.2	-31	0.0367

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-15	0.0178
-20	-27	0.0317
-10	-13	0.0161
0	-19	0.0230
+10	-23	0.0272
+20	-21	0.0250
+30	-27	0.0317
+40	-27	0.0319
+50	-7	0.0088

Product	LE910C4-NF		
Test Item	Frequency Stability		
Test Mode	Mode 3: WCDMA Band 5		
Date of Test	2018/08/12	Test Site	SR10-H

WCDMA_Band 5_846.6MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
3.4	16	-0.0194
3.8	-19	0.0230
4.2	-27	0.0321

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-28	0.0331
-20	-28	0.0329
-10	-27	0.0320
0	-26	0.0312
+10	-27	0.0319
+20	-19	0.0230
+30	-27	0.0322
+40	-27	0.0321
+50	-29	0.0346