



CTC20192260E02 Appendix for WCDMA BAND4-1 FCC ID: 2AC88-GLMU19A02

CTC Laboratories, Inc.

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AppendixA: Effective (Isotropic) Radiated Power Output Data

Test Result

WCDMA:

Band	Channel	Power(dBm)	Limit(dBm)	Verdict
Band IV	1312	22.57	30	PASS
Band IV	1413	22.96	30	PASS
Band IV	1513	22.92	30	PASS

HSDPA:

Band	Channel	SubTest	Power(dBm)	Limit(dBm)	Verdict
Band IV	1312	HSDPA_Sub1	21.66	30	PASS
Band IV	1312	HSDPA_Sub2	21.28	30	PASS
Band IV	1312	HSDPA_Sub3	21.17	30	PASS
Band IV	1312	HSDPA_Sub4	21.16	30	PASS
Band IV	1413	HSDPA_Sub1	21.69	30	PASS
Band IV	1413	HSDPA_Sub2	21.22	30	PASS
Band IV	1413	HSDPA_Sub3	21.25	30	PASS
Band IV	1413	HSDPA_Sub4	21.27	30	PASS
Band IV	1513	HSDPA_Sub1	21.84	30	PASS
Band IV	1513	HSDPA_Sub2	21.48	30	PASS
Band IV	1513	HSDPA_Sub3	21.39	30	PASS
Band IV	1513	HSDPA_Sub4	21.42	30	PASS

HSUPA:

Band	Channel	SubTest	Power(dBm)	Limit(dBm)	Verdict
Band IV	1312	HSUPA_Sub1	21.35	30	PASS
Band IV	1312	HSUPA_Sub2	20.02	30	PASS
Band IV	1312	HSUPA_Sub3	19.44	30	PASS
Band IV	1312	HSUPA_Sub4	20.72	30	PASS
Band IV	1312	HSUPA_Sub5	21.17	30	PASS
Band IV	1413	HSUPA_Sub1	20.82	30	PASS
Band IV	1413	HSUPA_Sub2	20.31	30	PASS
Band IV	1413	HSUPA_Sub3	19.84	30	PASS
Band IV	1413	HSUPA_Sub4	20.91	30	PASS
Band IV	1413	HSUPA_Sub5	21.36	30	PASS
Band IV	1513	HSUPA_Sub1	20.85	30	PASS

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Band IV	1513	HSUPA_Sub2	20.37	30	PASS
Band IV	1513	HSUPA_Sub3	20.46	30	PASS
Band IV	1513	HSUPA_Sub4	21.01	30	PASS
Band IV	1513	HSUPA_Sub5	21.32	30	PASS

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Appendix B: Peak-to-Average Ratio

Test Result

WCDMA:

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band IV	1312	3.19	13	PASS
Band IV	1413	3.19	13	PASS
Band IV	1513	3.19	13	PASS

HSDPA:

Band	Channel	SubTest	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band IV	1312	HSDPA_Sub1	3.51	13	PASS
Band IV	1312	HSDPA_Sub2	3.91	13	PASS
Band IV	1312	HSDPA_Sub3	3.33	13	PASS
Band IV	1312	HSDPA_Sub4	4.67	13	PASS
Band IV	1413	HSDPA_Sub1	3.57	13	PASS
Band IV	1413	HSDPA_Sub2	3.94	13	PASS
Band IV	1413	HSDPA_Sub3	4.20	13	PASS
Band IV	1413	HSDPA_Sub4	4.09	13	PASS
Band IV	1513	HSDPA_Sub1	3.45	13	PASS
Band IV	1513	HSDPA_Sub2	6.46	13	PASS
Band IV	1513	HSDPA_Sub3	3.88	13	PASS
Band IV	1513	HSDPA_Sub4	7.04	13	PASS

HSUPA:

Band	Channel	SubTest	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band IV	1312	HSUPA_Sub1	4.78	13	PASS
Band IV	1312	HSUPA_Sub2	5.22	13	PASS
Band IV	1312	HSUPA_Sub3	5.77	13	PASS
Band IV	1312	HSUPA_Sub4	5.19	13	PASS
Band IV	1312	HSUPA_Sub5	3.59	13	PASS
Band IV	1413	HSUPA_Sub1	4.84	13	PASS
Band IV	1413	HSUPA_Sub2	5.25	13	PASS
Band IV	1413	HSUPA_Sub3	5.68	13	PASS
Band IV	1413	HSUPA_Sub4	5.10	13	PASS
Band IV	1413	HSUPA_Sub5	3.65	13	PASS
Band IV	1513	HSUPA_Sub1	4.90	13	PASS

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Band IV	1513	HSUPA_Sub2	5.25	13	PASS
Band IV	1513	HSUPA_Sub3	5.62	13	PASS
Band IV	1513	HSUPA_Sub4	5.22	13	PASS
Band IV	1513	HSUPA_Sub5	3.59	13	PASS

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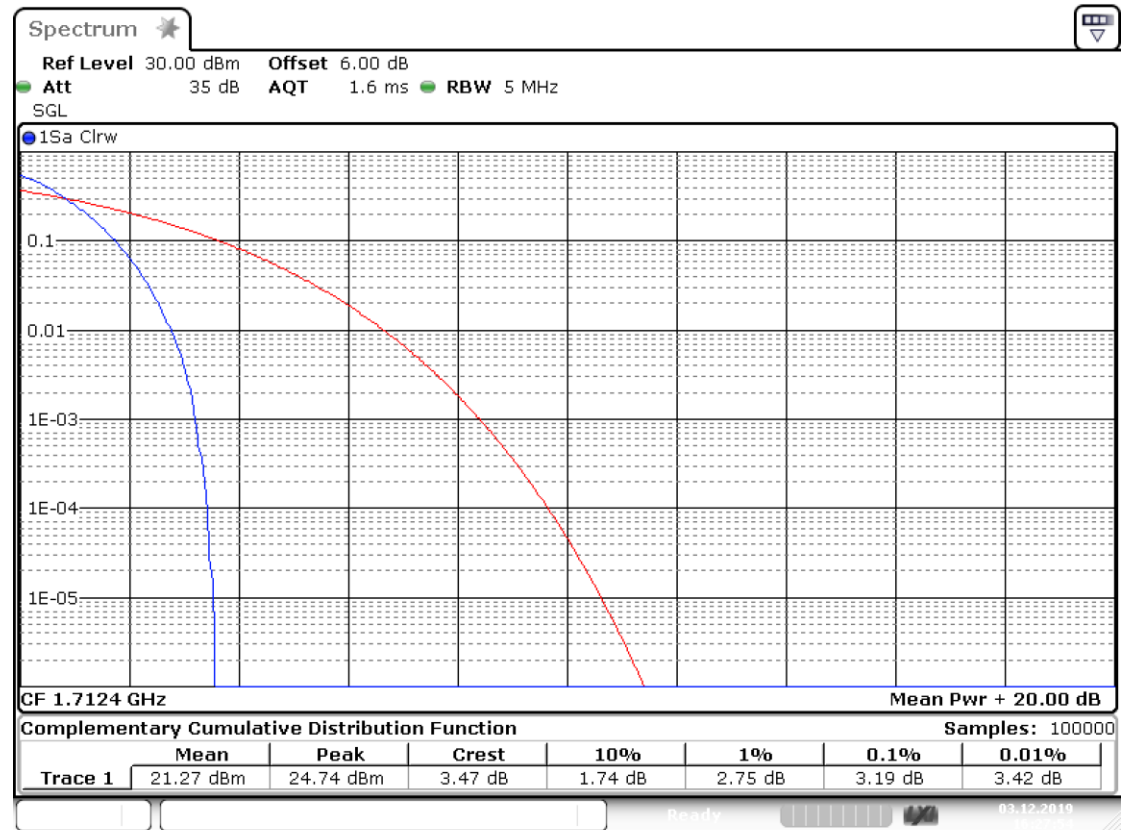
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Test Graphs

WCDMA:

Test Case: (WCDMA)Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: CCDF:3.19
Result: PASS	Voltage: VN	Temperature: TN



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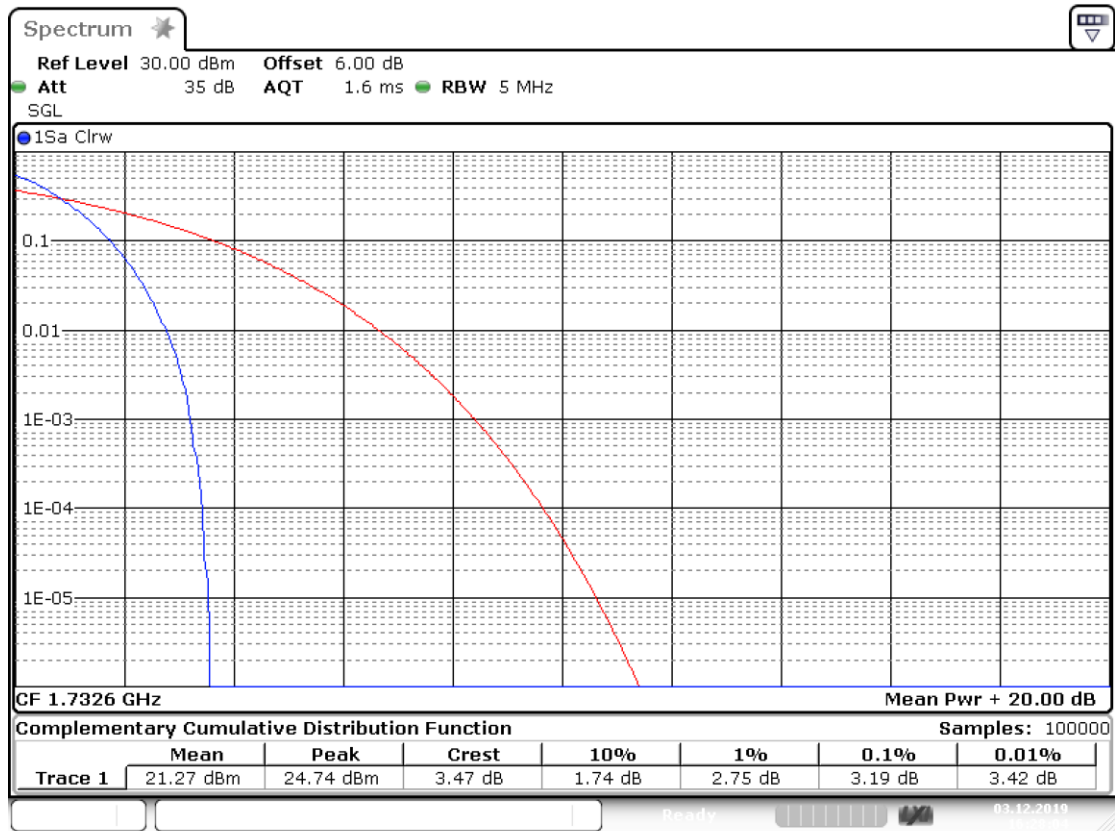
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Test Case: (WCDMA)Peak-to-Average Ratio

Band: IV	Channel: 1413	Value:CCDF:3.19
Result: PASS	Voltage: VN	Temperature: TN



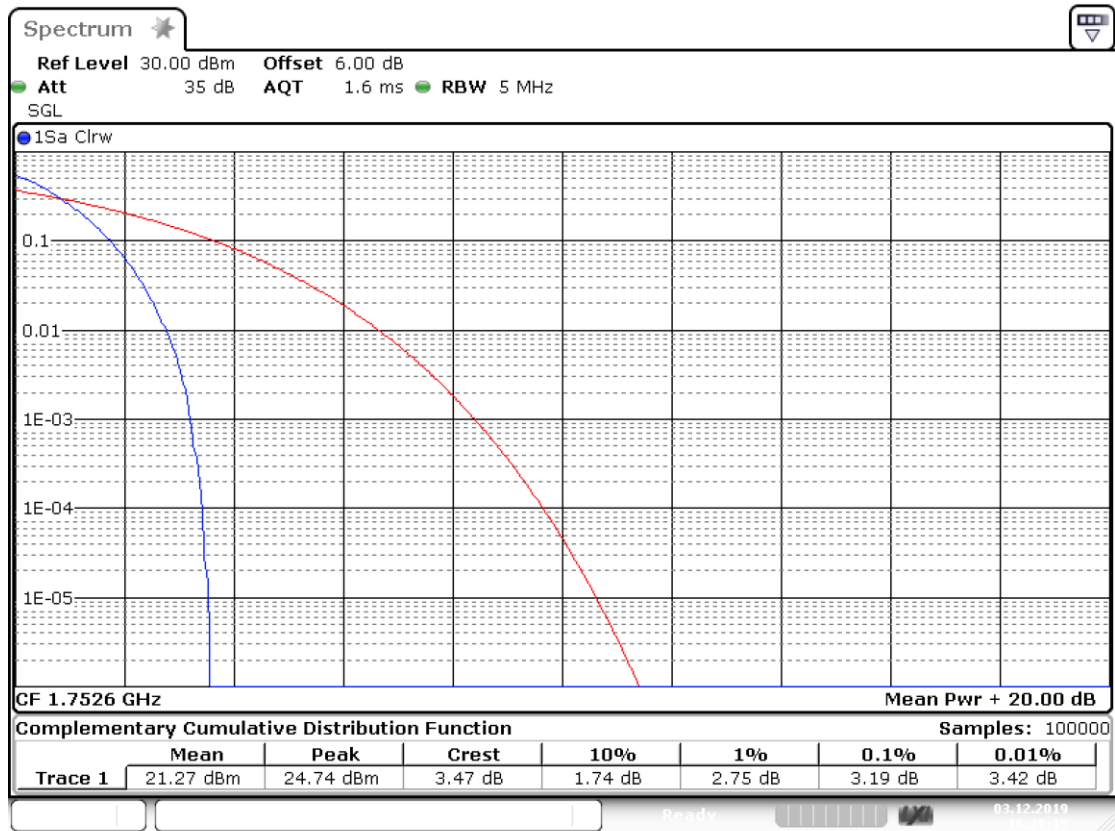
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Test Case: (WCDMA)Peak-to-Average Ratio

Band: IV	Channel: 1513	Value:CCDF:3.19
Result: PASS	Voltage: VN	Temperature: TN



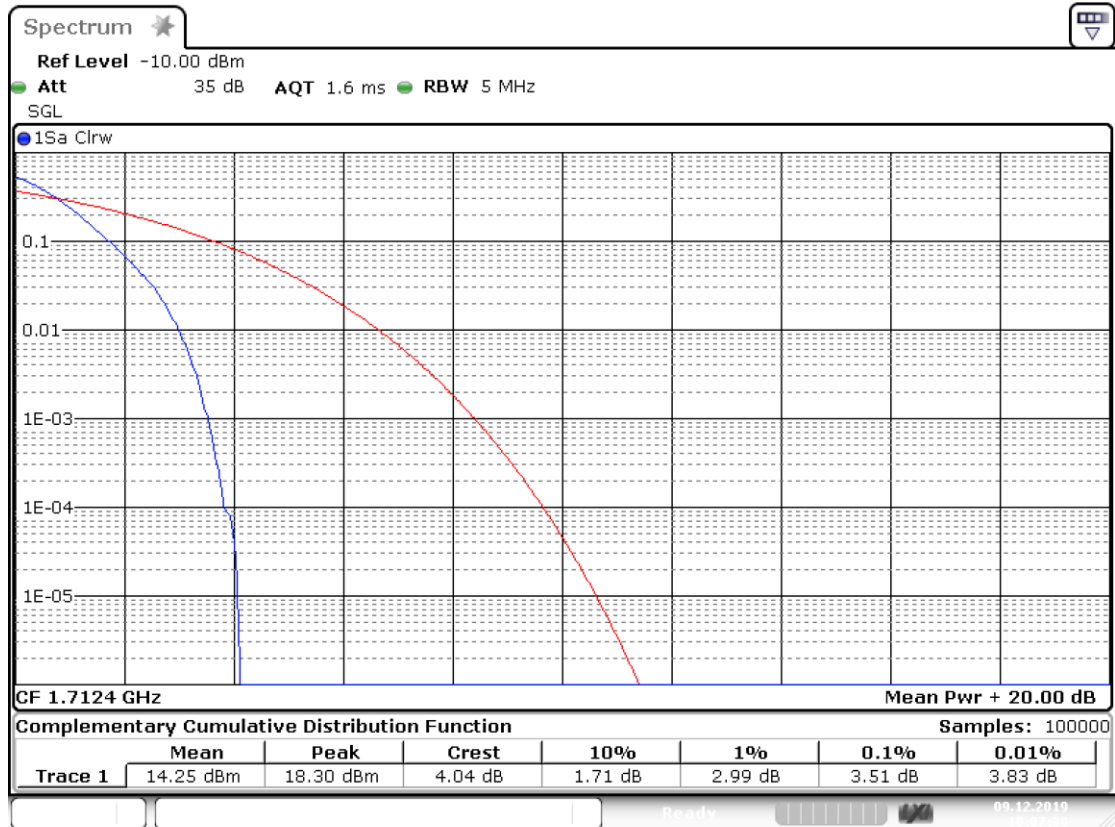
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HSDPA:
Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: Bc/Bd:2/15 CCDF:3.51
Result: PASS	Voltage: VN	Temperature: TN



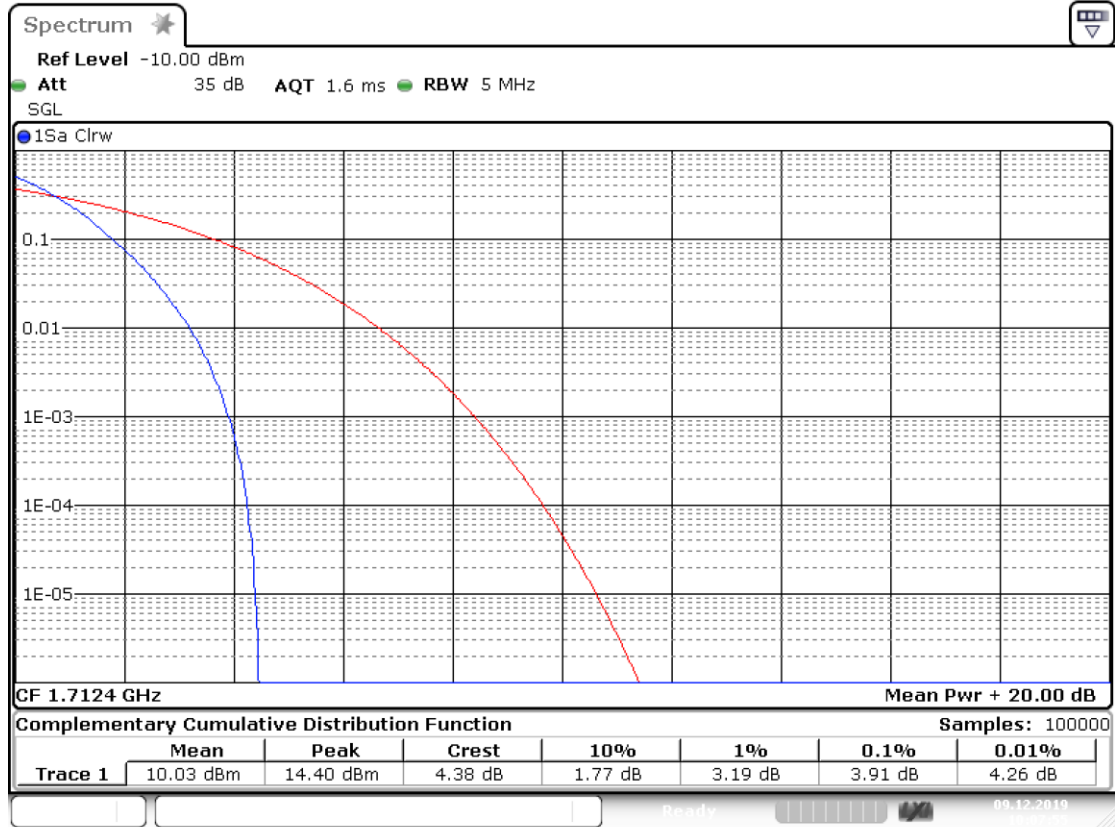
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: Bc/Bd:12/15 CCDF:3.91
Result: PASS	Voltage: VN	Temperature: TN



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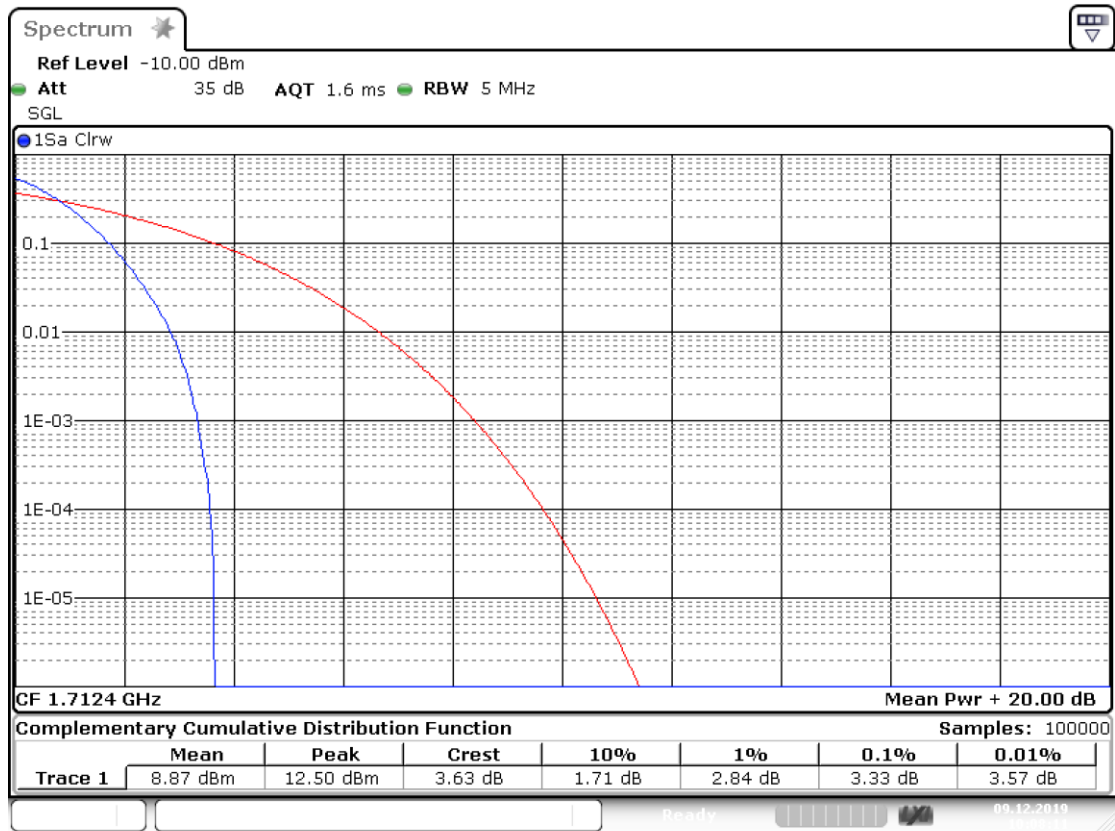
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: Bc/Bd:15/8 CCDF:3.33
Result: PASS	Voltage: VN	Temperature: TN



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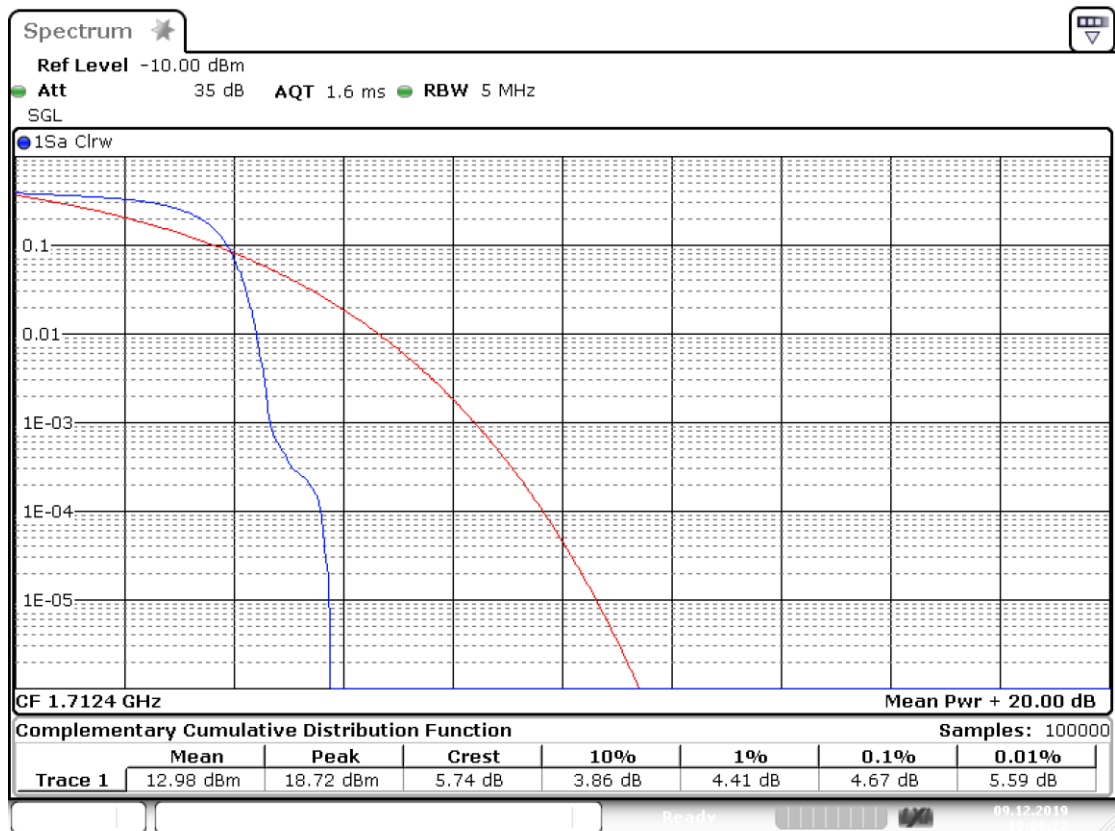
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: Bc/Bd:15/4 CCDF:4.67
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:08:28

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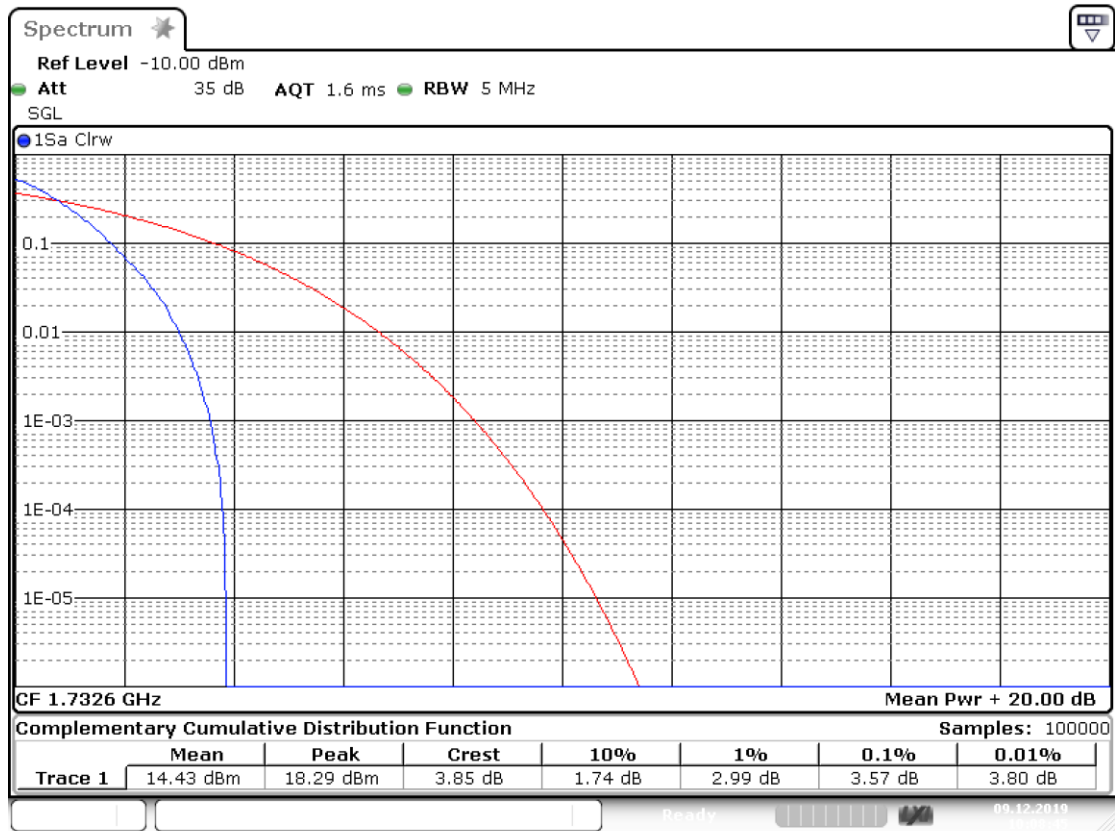
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: Bc/Bd:2/15 CCDF:3.57
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:08:45

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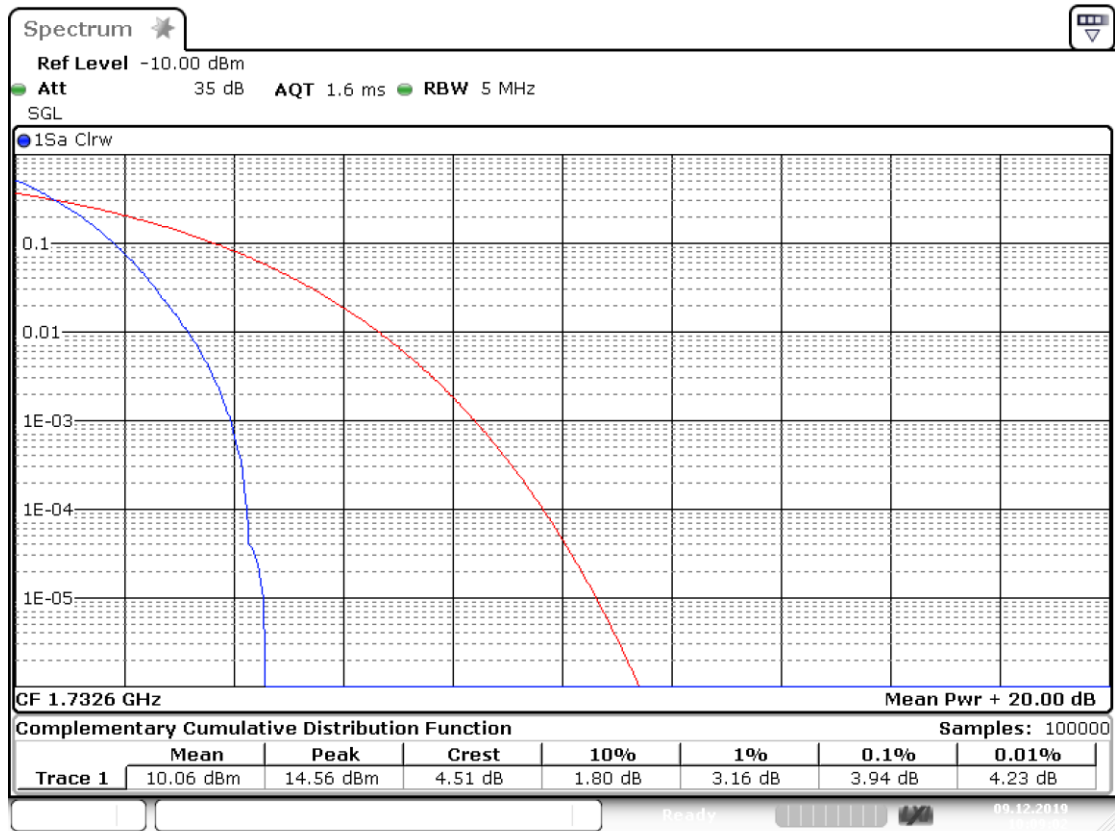
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: Bc/Bd:12/15 CCDF:3.94
Result: PASS	Voltage: VN	Temperature: TN



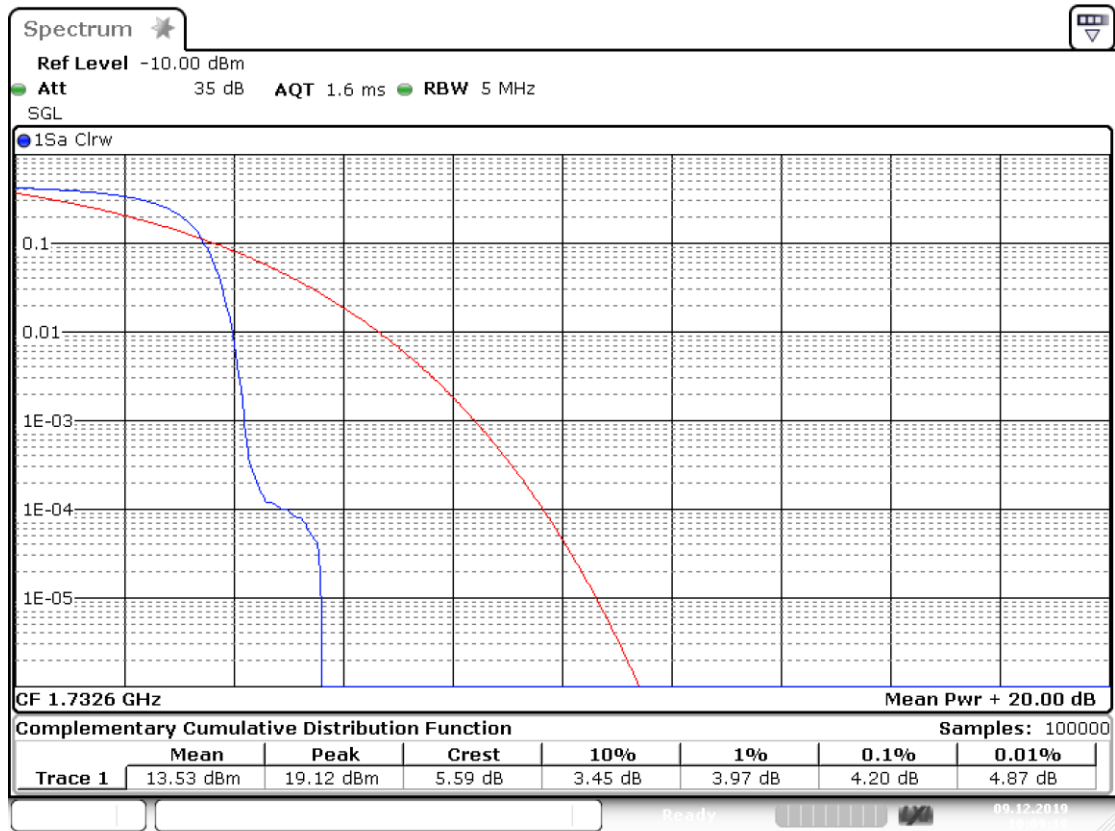
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: Bc/Bd:15/8 CCDF:4.20
Result: PASS	Voltage: VN	Temperature: TN



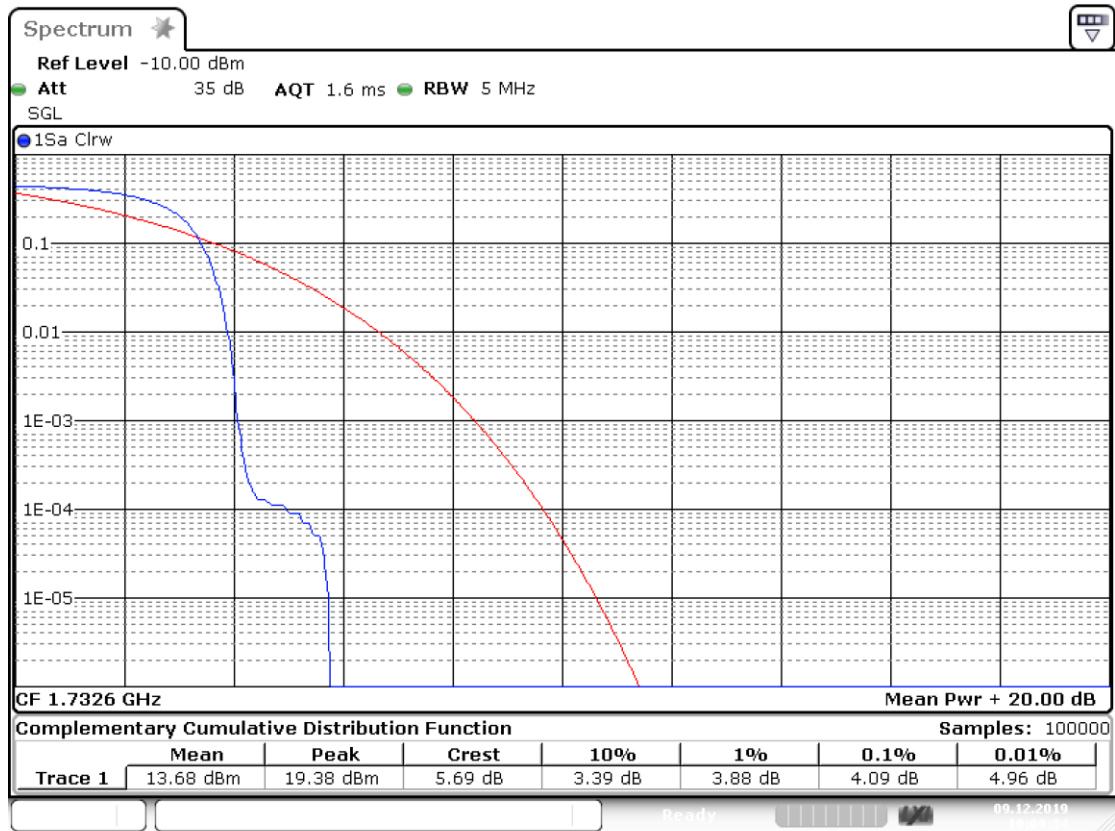
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: Bc/Bd:15/4 CCDF:4.09
Result: PASS	Voltage: VN	Temperature: TN



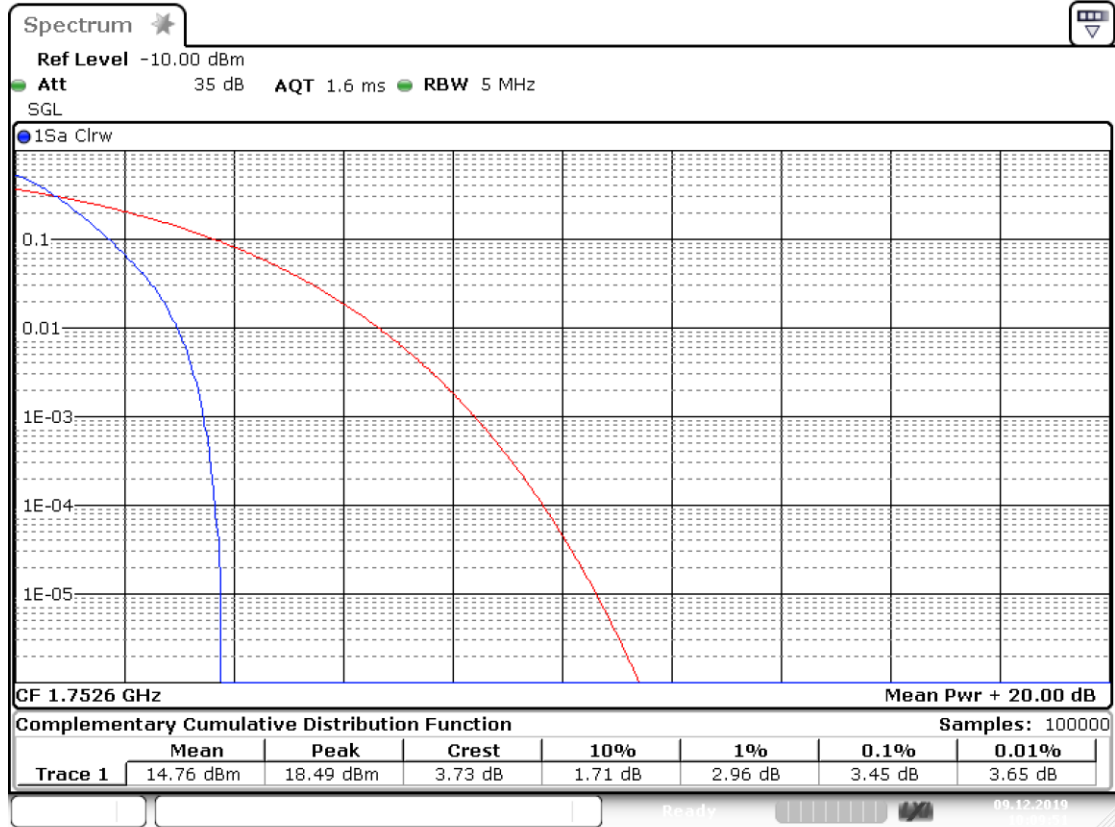
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: Bc/Bd:2/15 CCDF:3.45
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:09:52

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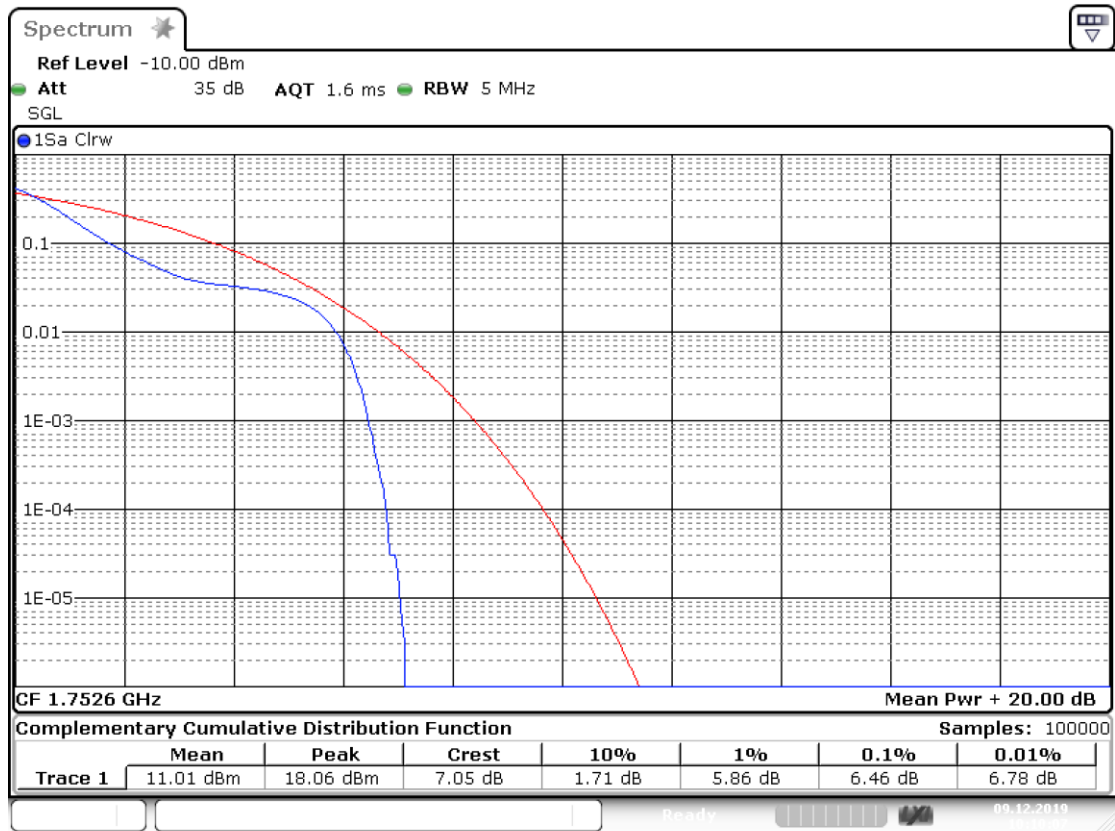
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: Bc/Bd:12/15 CCDF:6.46
Result: PASS	Voltage: VN	Temperature: TN



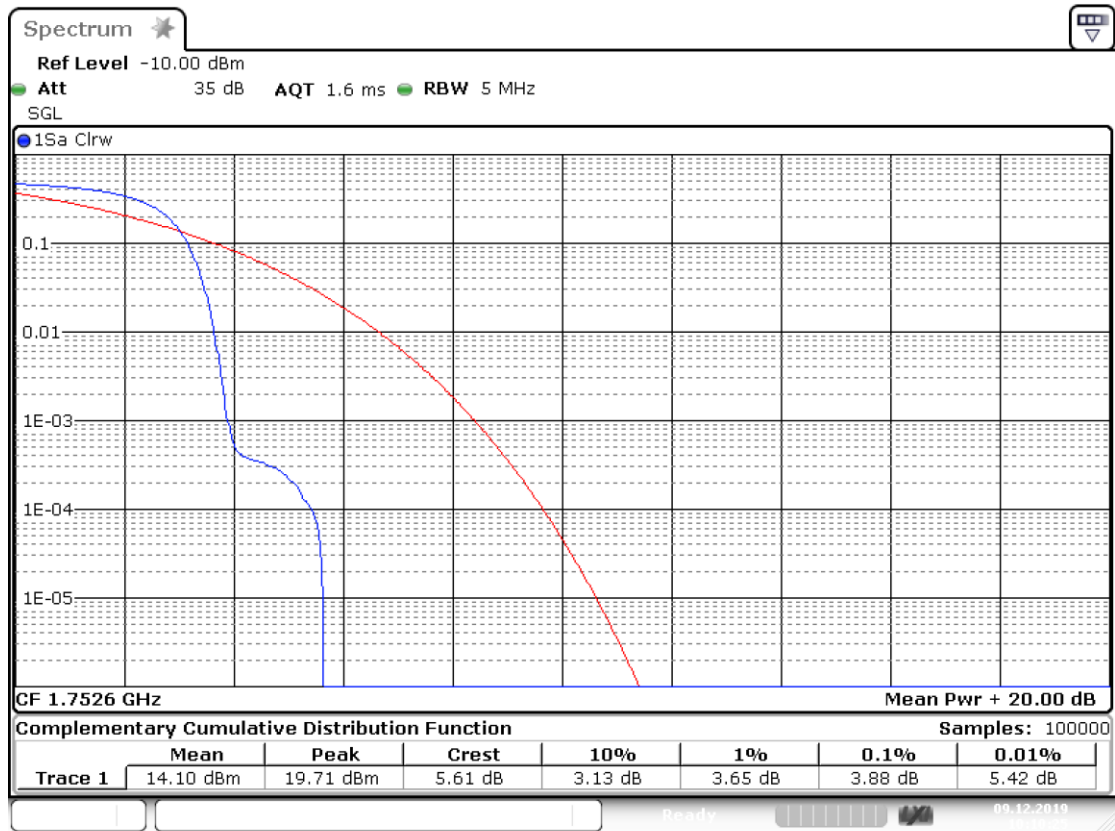
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: Bc/Bd:15/8 CCDF:3.88
Result: PASS	Voltage: VN	Temperature: TN



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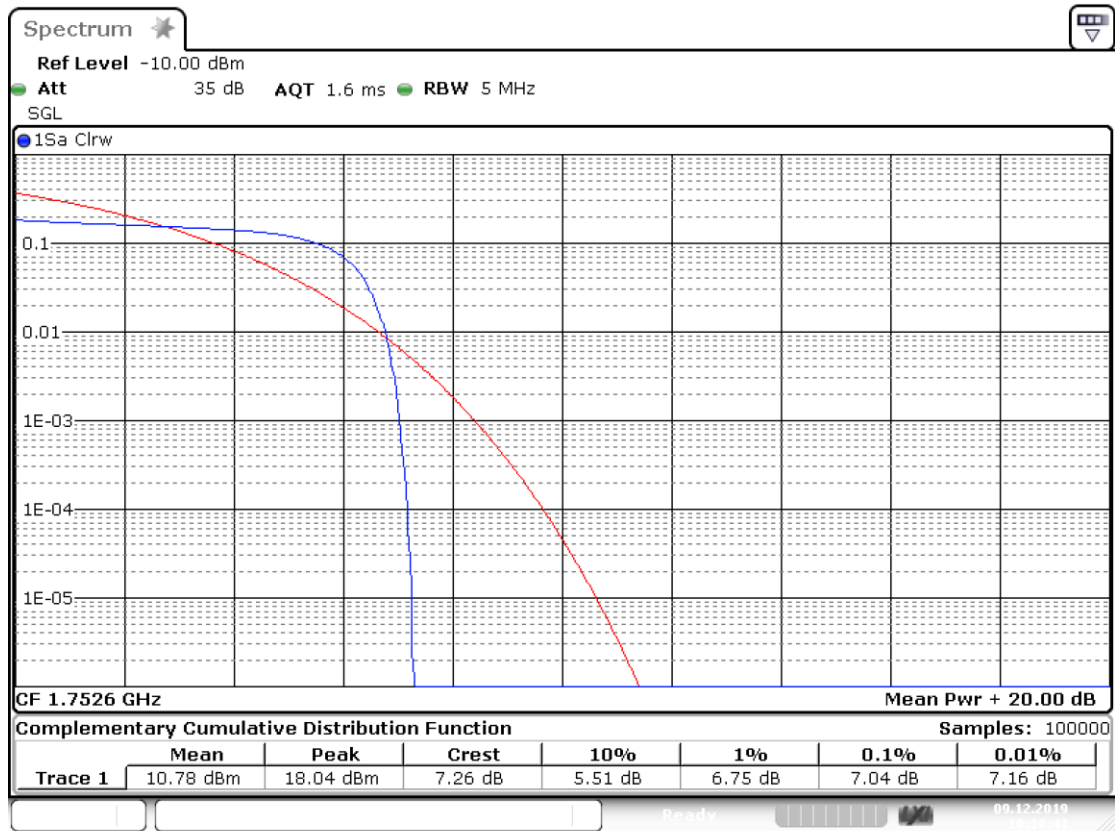
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Test Case: HSDPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: Bc/Bd:15/4 CCDF:7.04
Result: PASS	Voltage: VN	Temperature: TN



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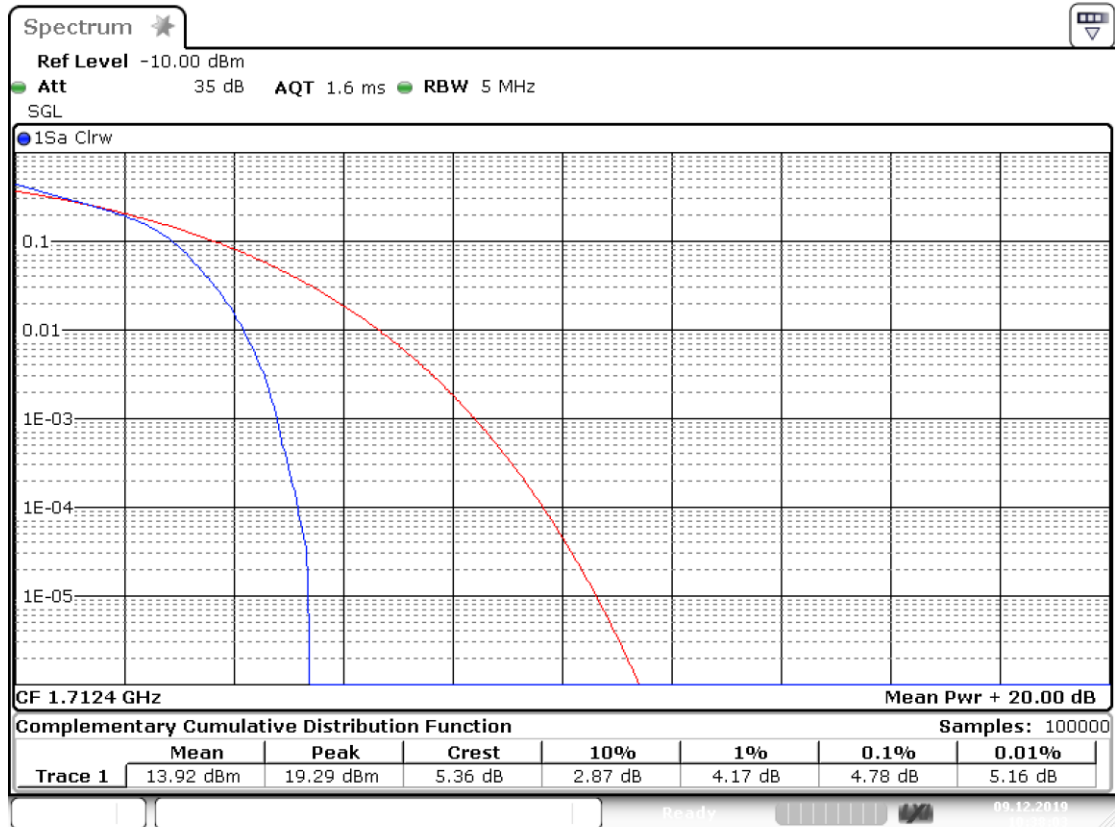
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HSUPA:

Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value:SubTest1: CCDF:4.78
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:38:02

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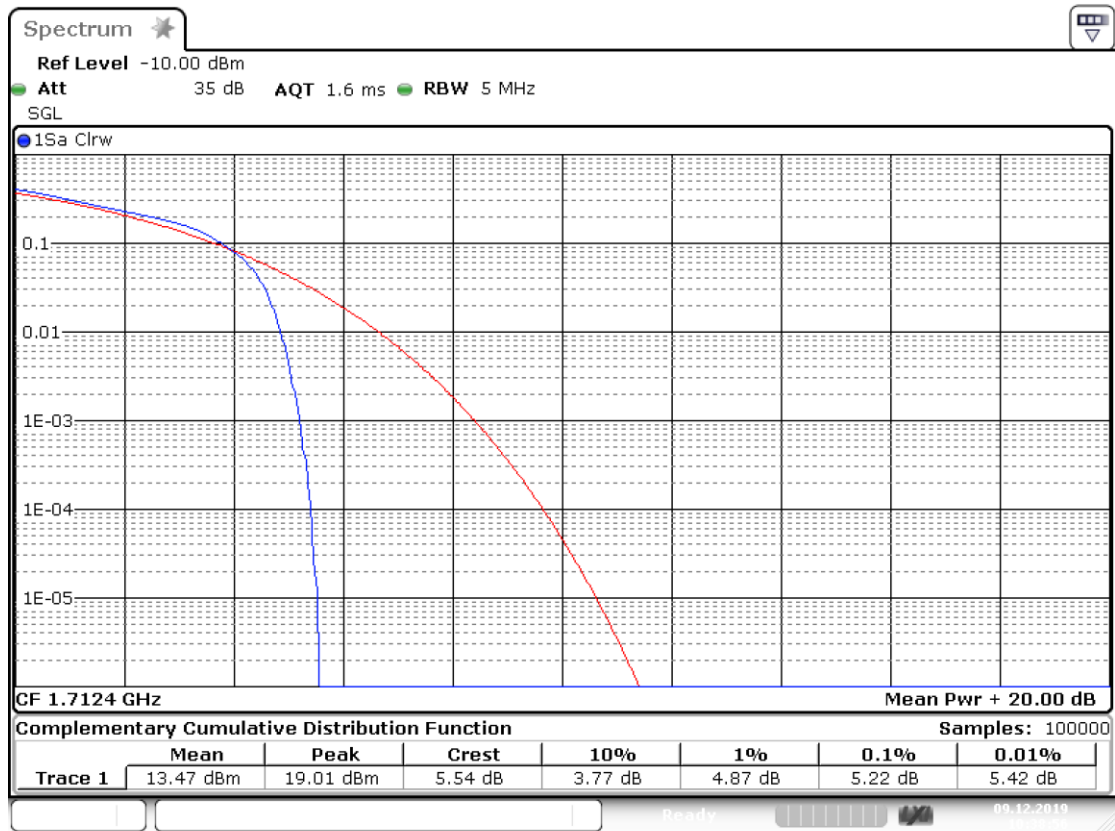
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: SubTest2: CCDF: 5.22
Result: PASS	Voltage: VN	Temperature: TN



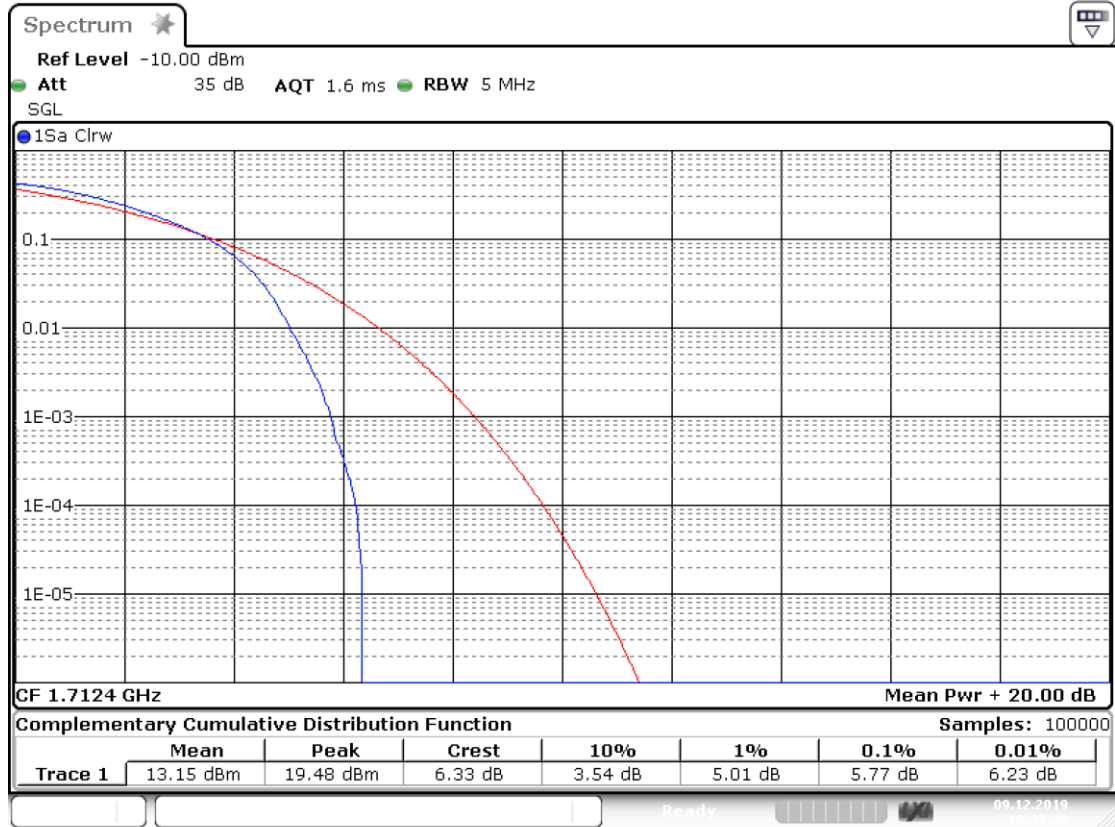
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: SubTest3: CCDF: 5.77
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:39:47

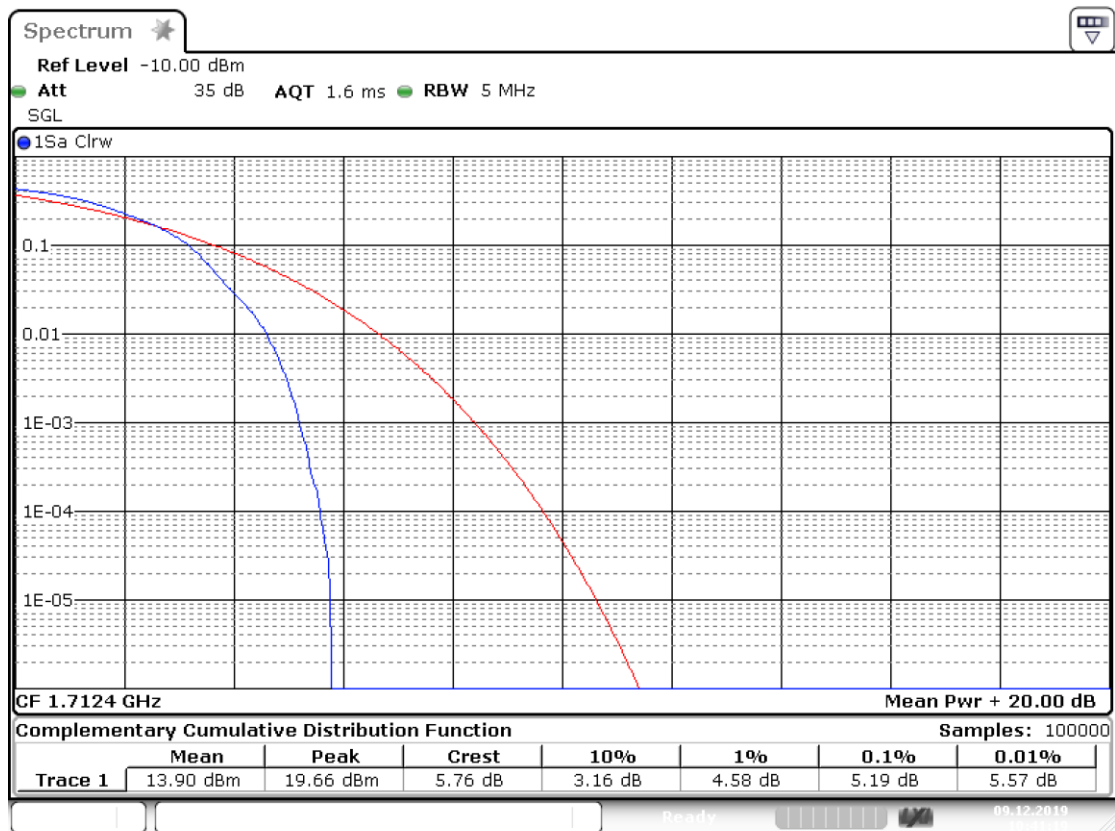
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: SubTest4: CCDF: 5.19
Result: PASS	Voltage: VN	Temperature: TN



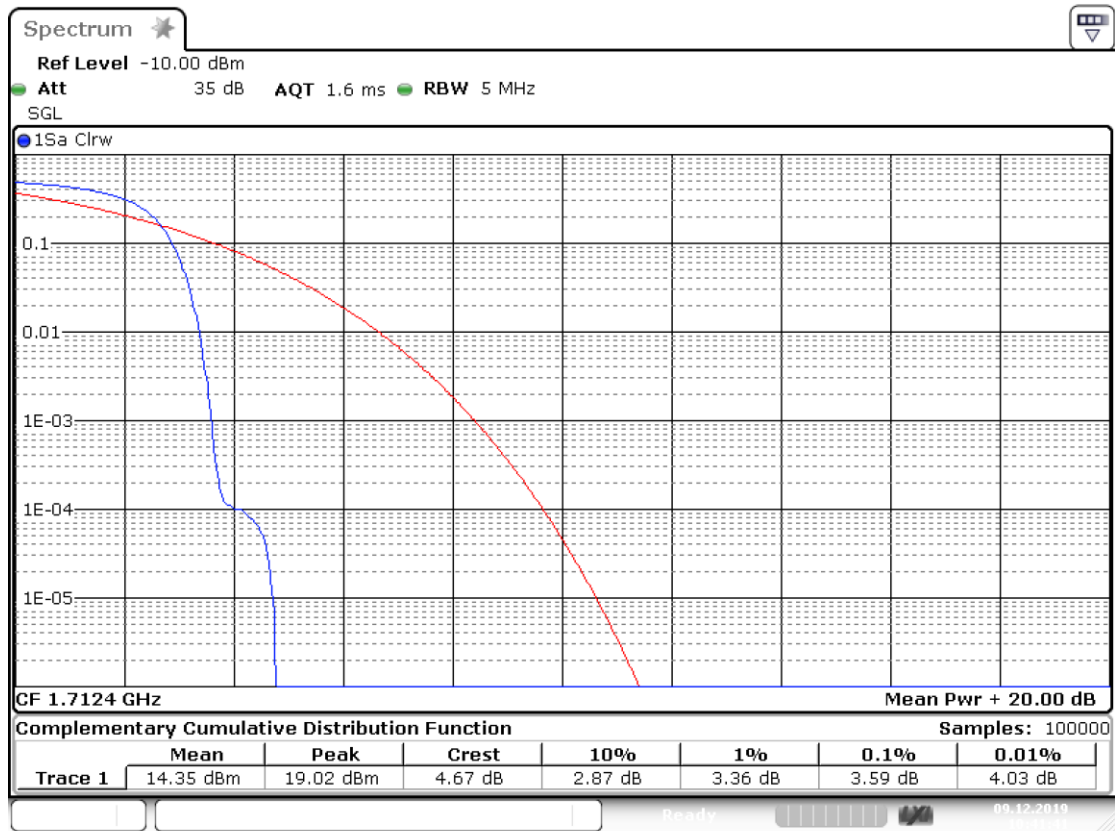
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1312	Value: SubTest5: CCDF: 3.59
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:41:40

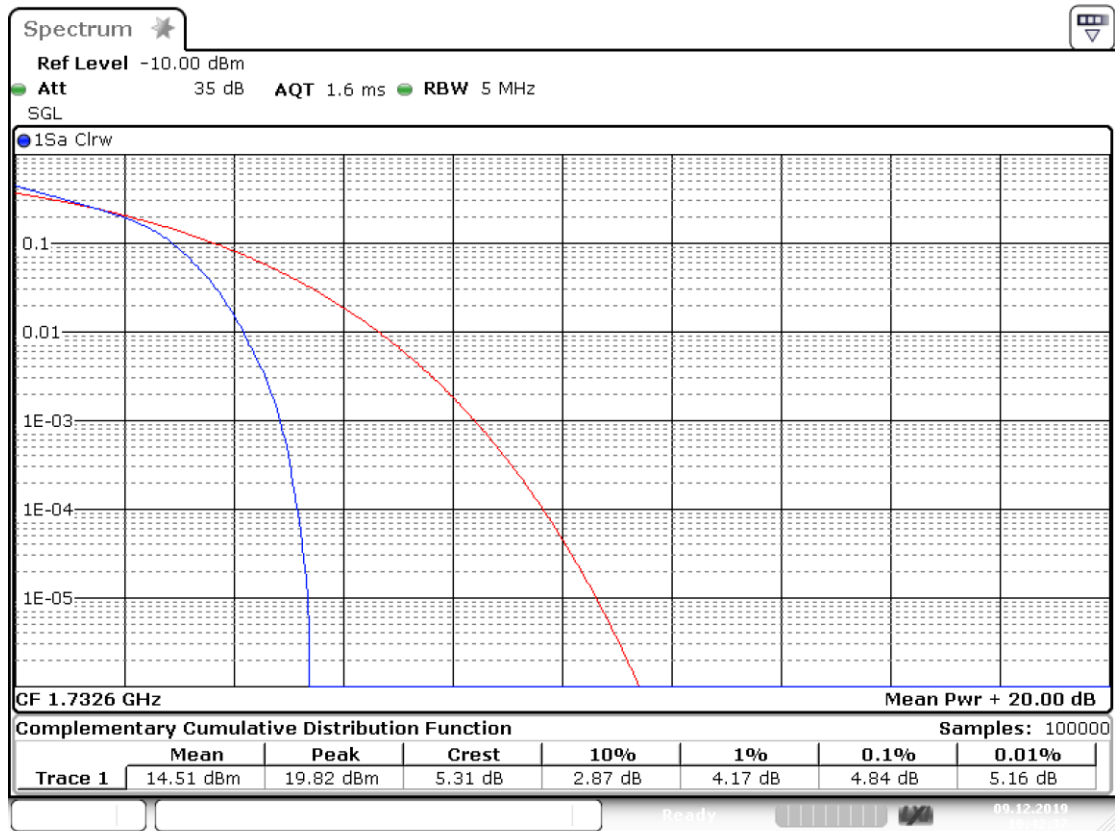
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: SubTest1: CCDF: 4.84
Result: PASS	Voltage: VN	Temperature: TN



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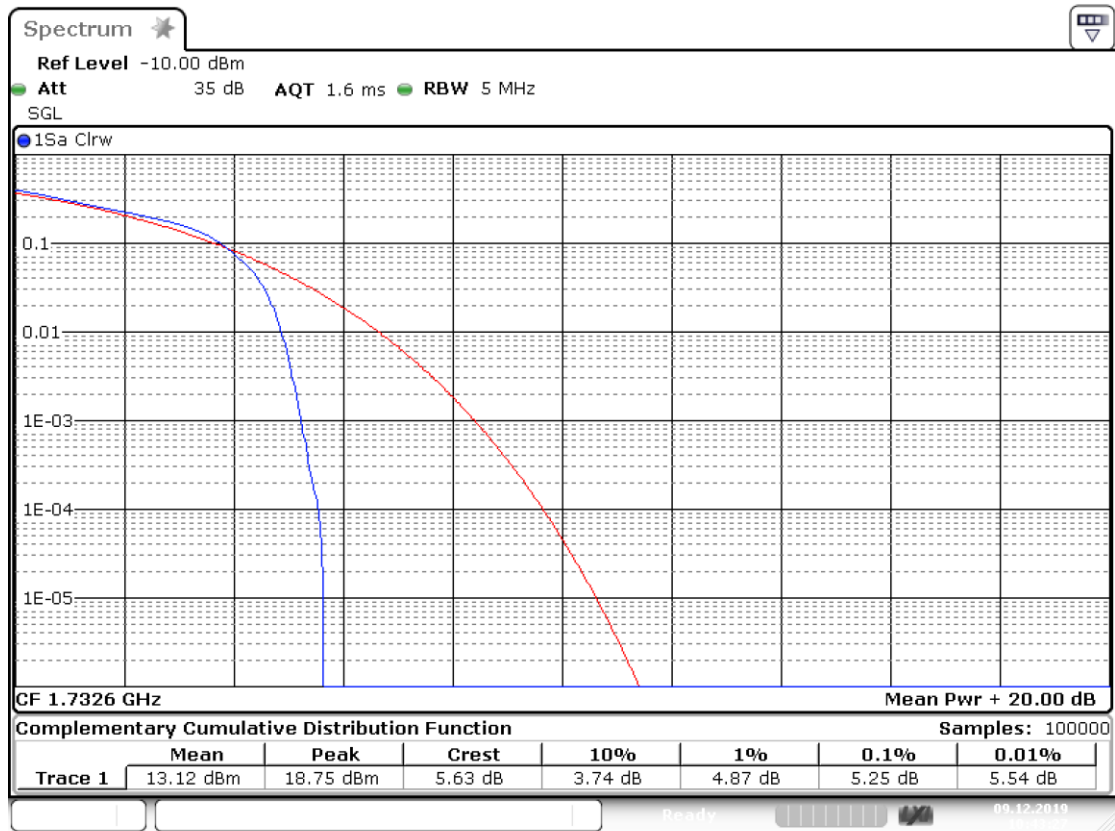
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: SubTest2: CCDF: 5.25
Result: PASS	Voltage: VN	Temperature: TN



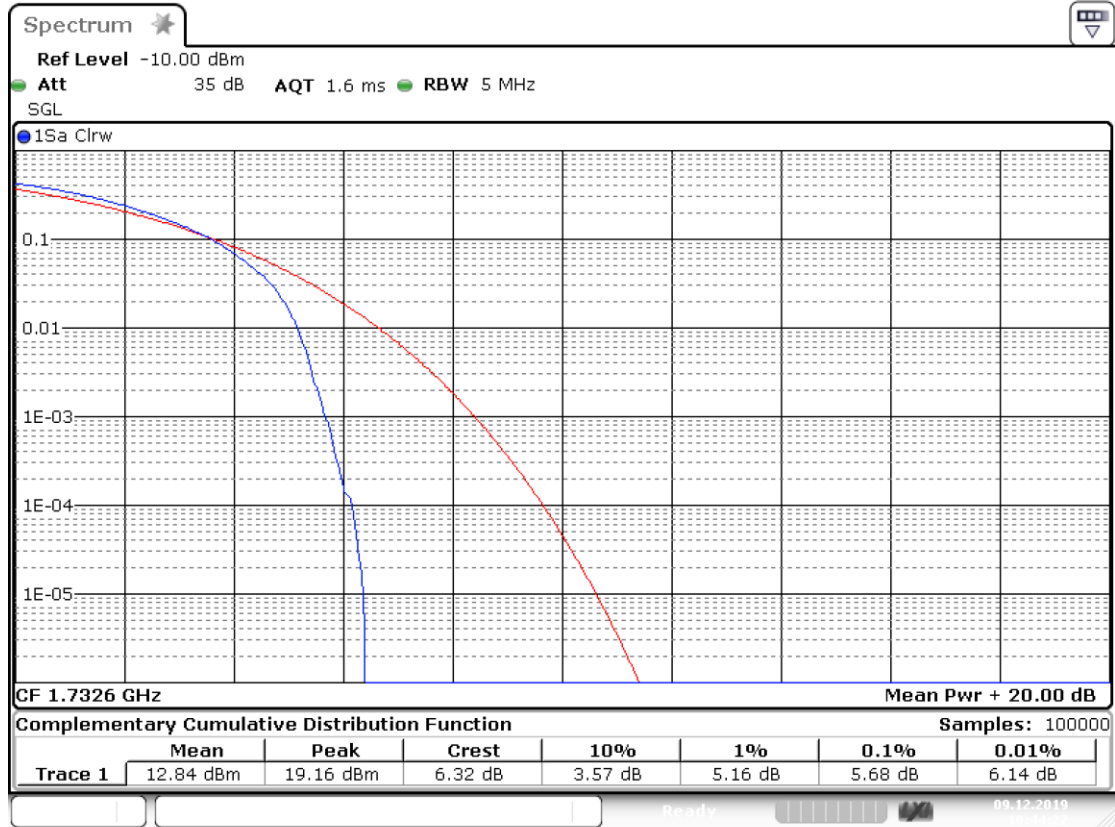
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: SubTest3: CCDF: 5.68
Result: PASS	Voltage: VN	Temperature: TN



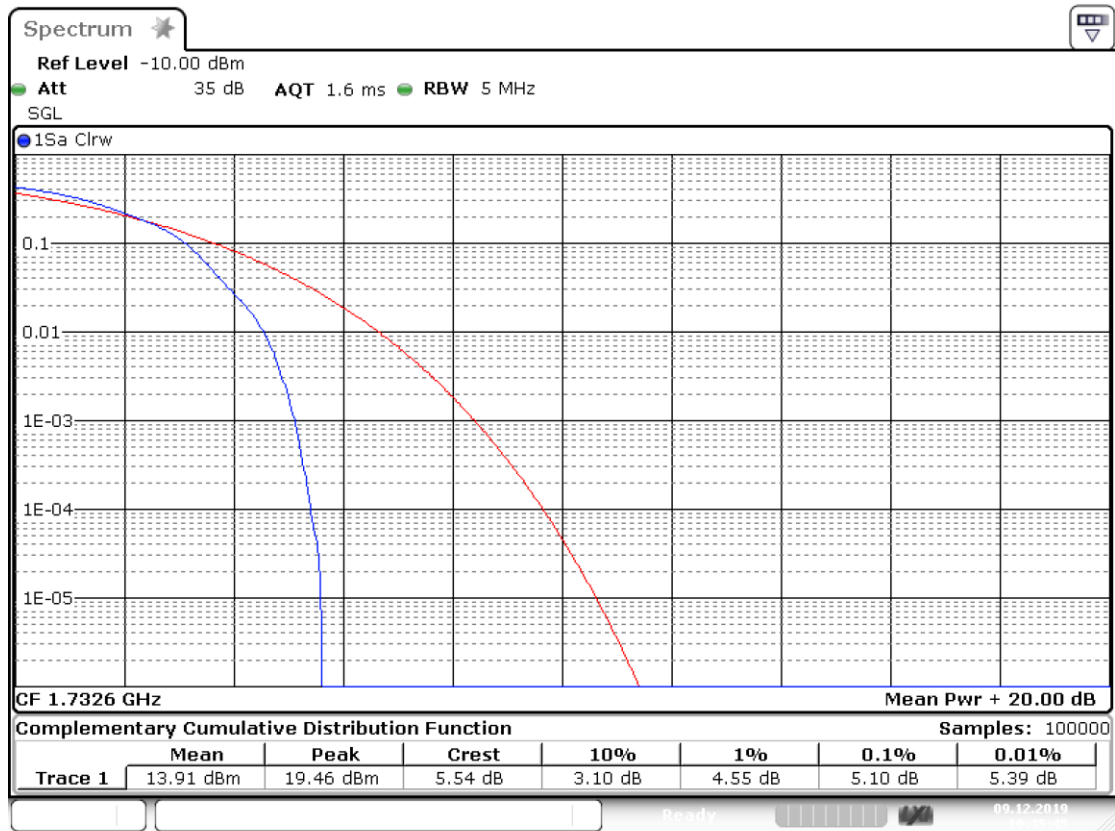
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: SubTest4: CCDF: 5.10
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:45:45

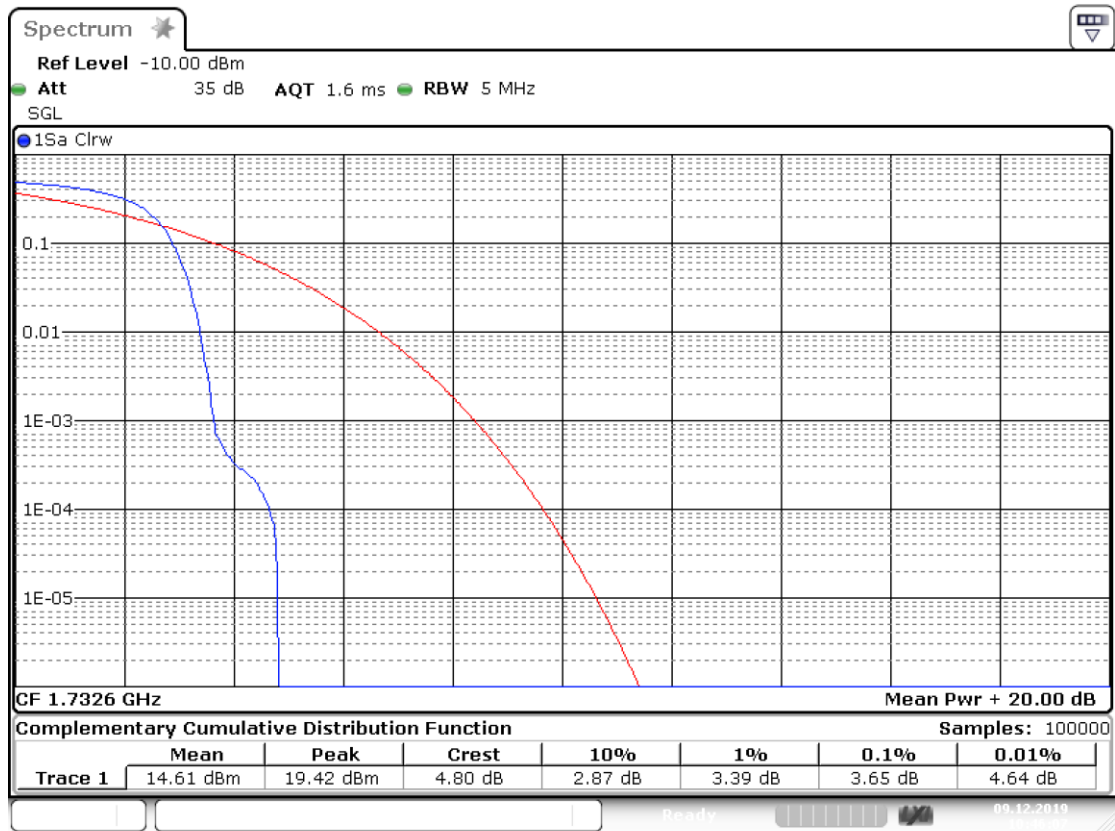
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1413	Value: SubTest5: CCDF: 3.65
Result: PASS	Voltage: VN	Temperature: TN



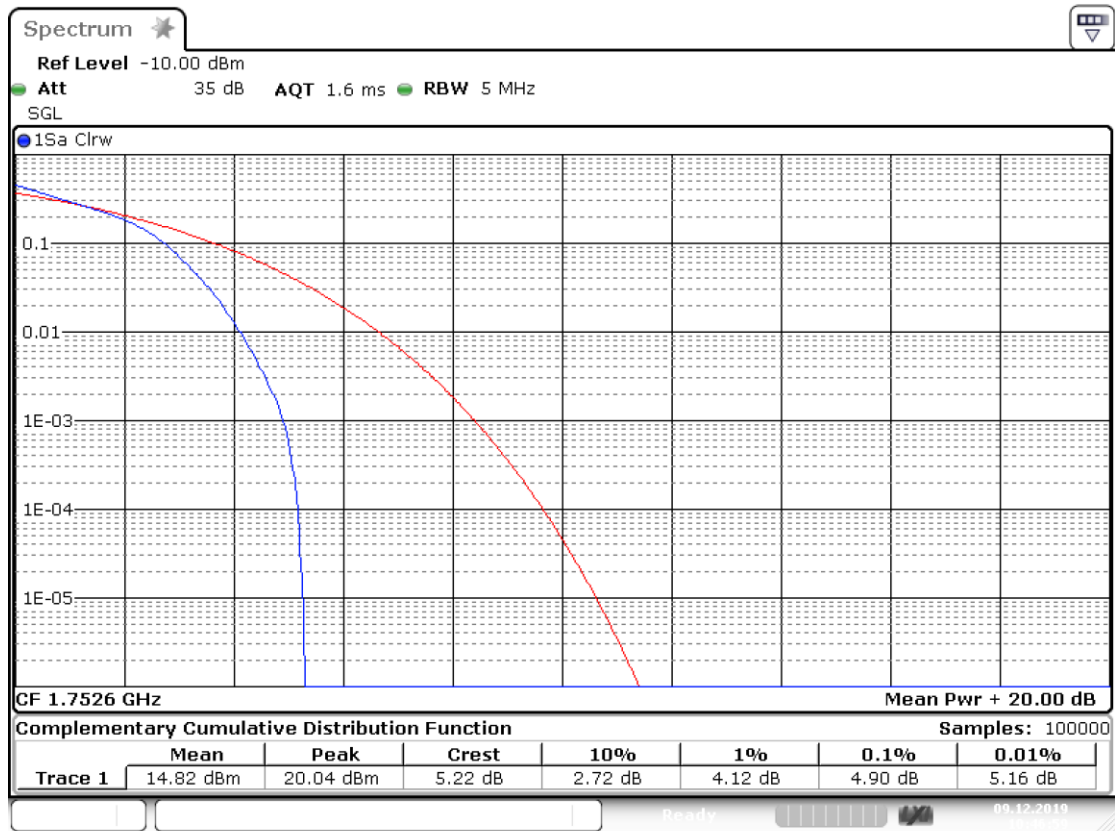
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: SubTest1: CCDF: 4.90
Result: PASS	Voltage: VN	Temperature: TN



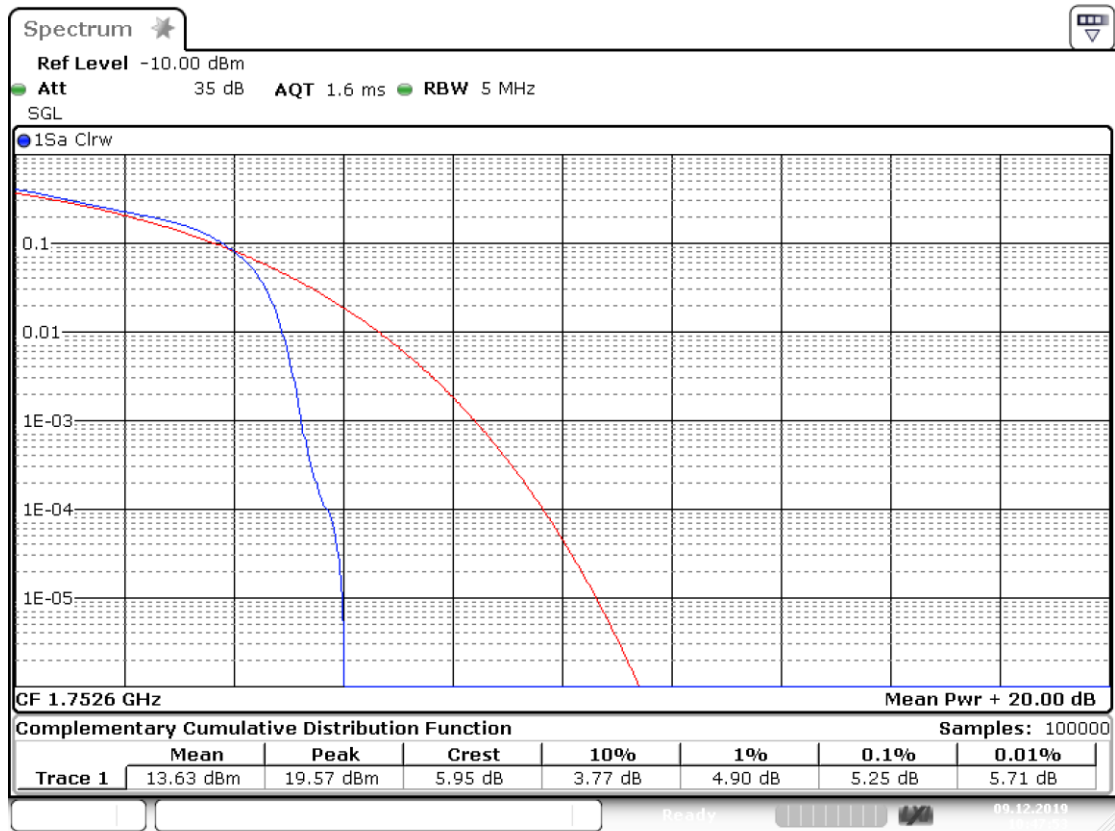
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: SubTest2: CCDF: 5.25
Result: PASS	Voltage: VN	Temperature: TN



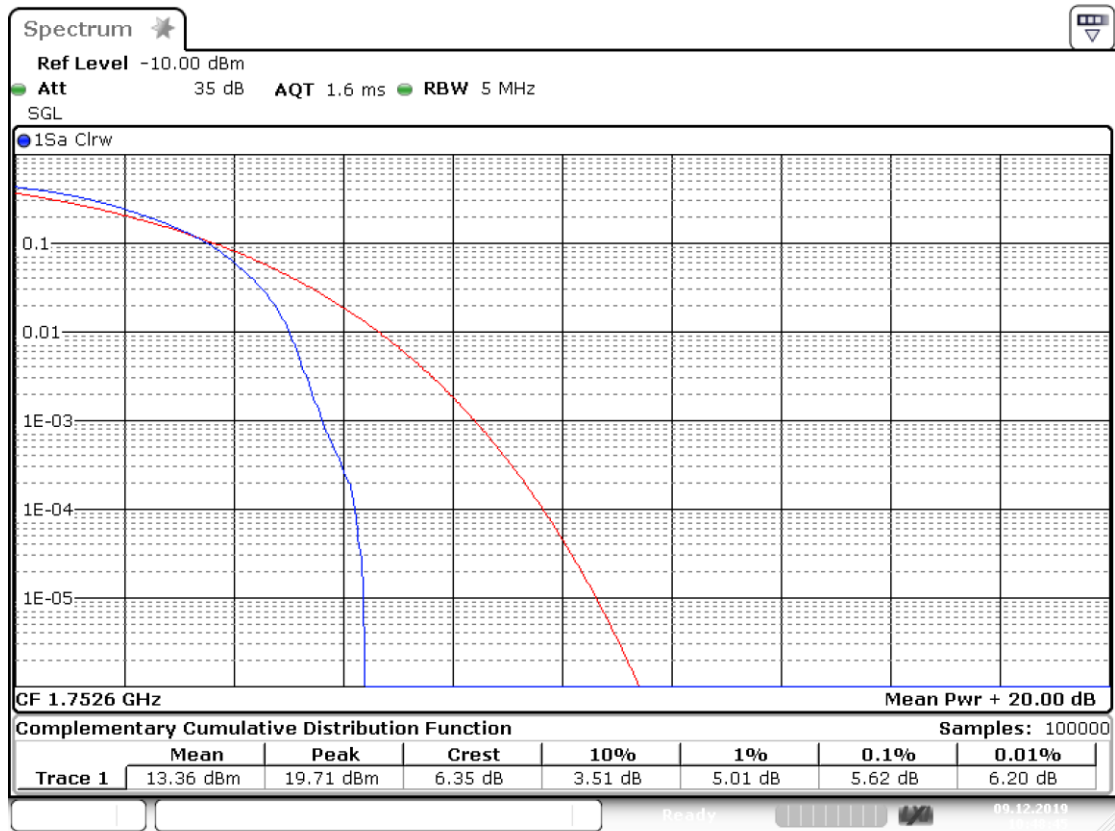
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: SubTest3: CCDF: 5.62
Result: PASS	Voltage: VN	Temperature: TN



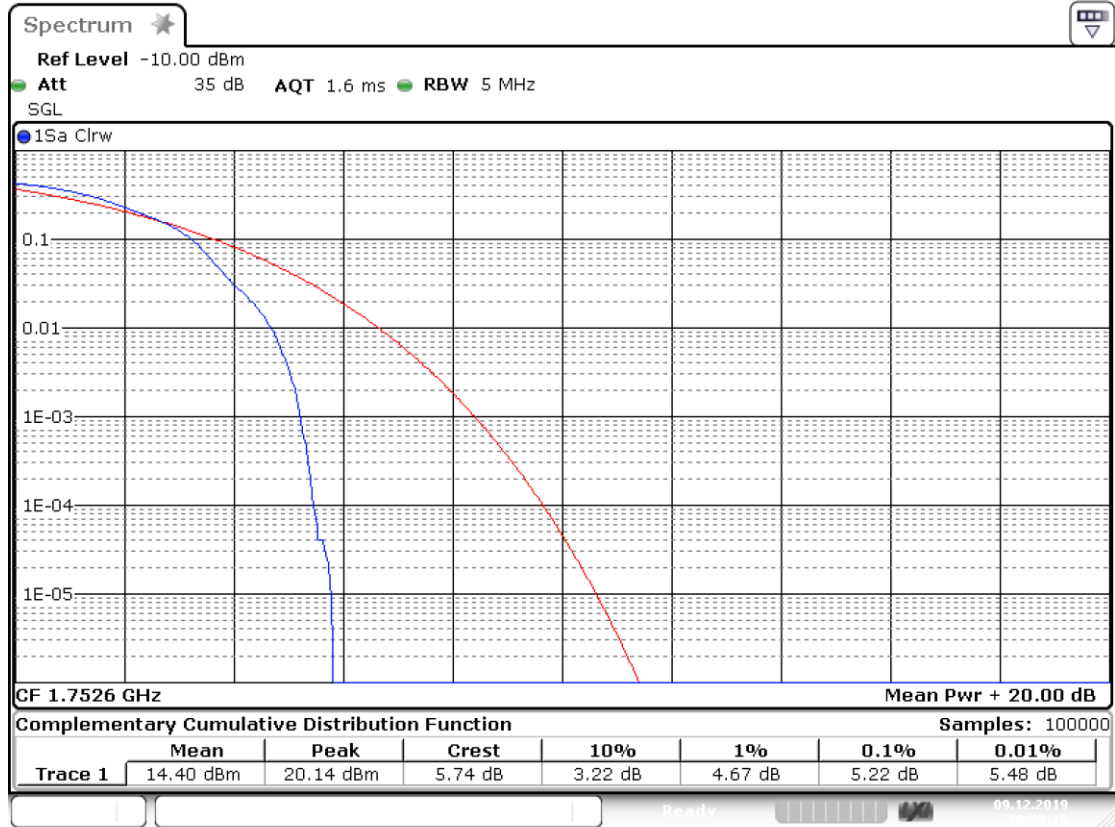
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: SubTest4: CCDF: 5.22
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:50:15

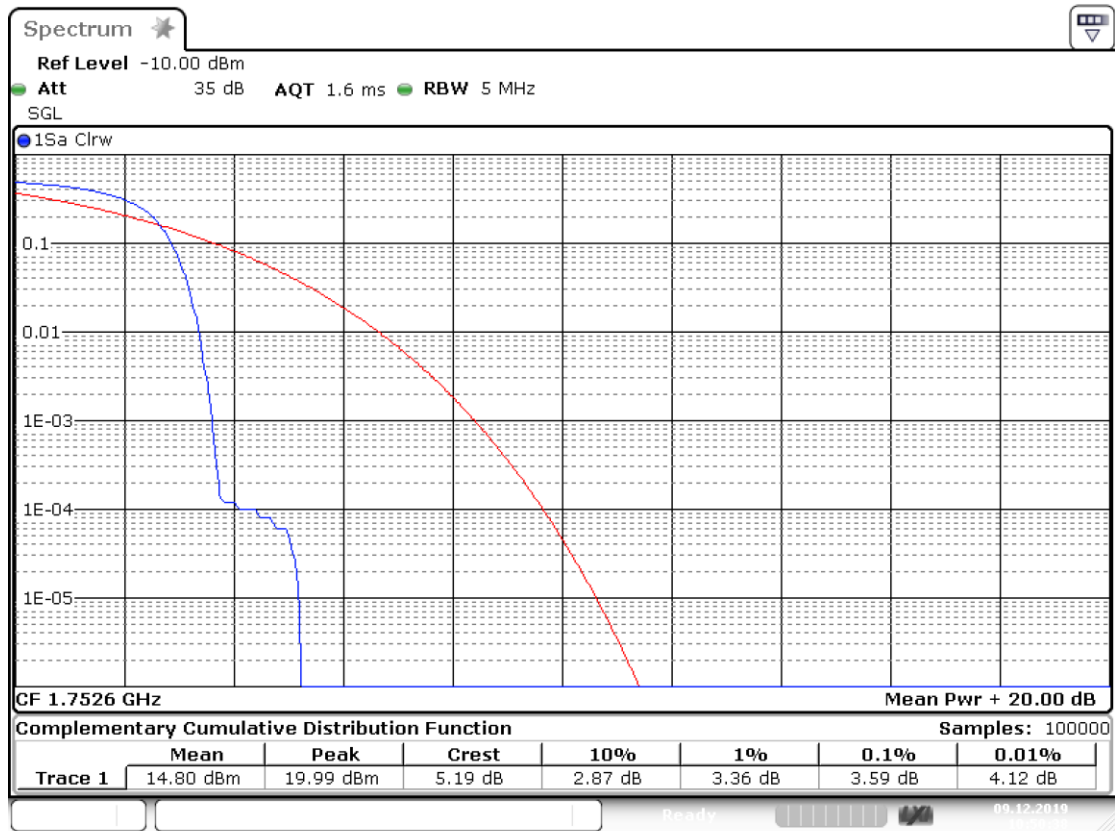
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Test Case: HSUPA Peak-to-Average Ratio

Band: IV	Channel: 1513	Value: SubTest5: CCDF: 3.59
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:50:38

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AppendixC:26dB Bandwidth andOccupied Bandwidth

Test Result

WCDMA:

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band IV	1312	4110.0	4739	---	PASS
Band IV	1413	4124.5	4710	---	PASS
Band IV	1513	4138.9	4725	---	PASS

HSDPA:

Band	Channel	SubTest	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band IV	1312	HSDPA_Sub1	4110.0	4725	---	PASS
Band IV	1312	HSDPA_Sub2	4110.0	4754	---	PASS
Band IV	1312	HSDPA_Sub3	4124.5	4768	---	PASS
Band IV	1312	HSDPA_Sub4	4124.5	4754	---	PASS
Band IV	1413	HSDPA_Sub1	4124.5	4710	---	PASS
Band IV	1413	HSDPA_Sub2	4124.5	4768	---	PASS
Band IV	1413	HSDPA_Sub3	4138.9	4754	---	PASS
Band IV	1413	HSDPA_Sub4	4138.9	4783	---	PASS
Band IV	1513	HSDPA_Sub1	4124.5	4739	---	PASS
Band IV	1513	HSDPA_Sub2	4124.5	4754	---	PASS
Band IV	1513	HSDPA_Sub3	4138.9	4768	---	PASS
Band IV	1513	HSDPA_Sub4	4153.4	4739	---	PASS

HSUPA:

Band	Channel	SubTest	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band IV	1312	HSUPA_Sub1	4153.4	4754	---	PASS
Band IV	1312	HSUPA_Sub2	4138.9	4754	---	PASS
Band IV	1312	HSUPA_Sub3	4153.4	4754	---	PASS
Band IV	1312	HSUPA_Sub4	4153.4	4739	---	PASS
Band IV	1312	HSUPA_Sub5	4110.0	4754	---	PASS
Band IV	1413	HSUPA_Sub1	4110.0	4725	---	PASS
Band IV	1413	HSUPA_Sub2	4124.5	4739	---	PASS
Band IV	1413	HSUPA_Sub3	4138.9	4754	---	PASS
Band IV	1413	HSUPA_Sub4	4124.5	4725	---	PASS
Band IV	1413	HSUPA_Sub5	4138.9	4768	---	PASS
Band IV	1513	HSUPA_Sub1	4124.5	4754	---	PASS

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Band IV	1513	HSUPA_Sub2	4124.5	4739	---	PASS
Band IV	1513	HSUPA_Sub3	4124.5	4754	---	PASS
Band IV	1513	HSUPA_Sub4	4124.5	4725	---	PASS
Band IV	1513	HSUPA_Sub5	4124.5	4739	---	PASS

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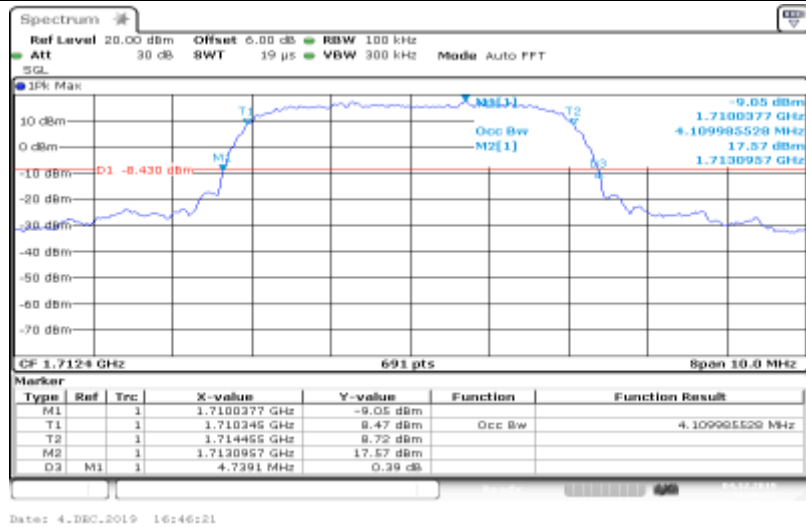
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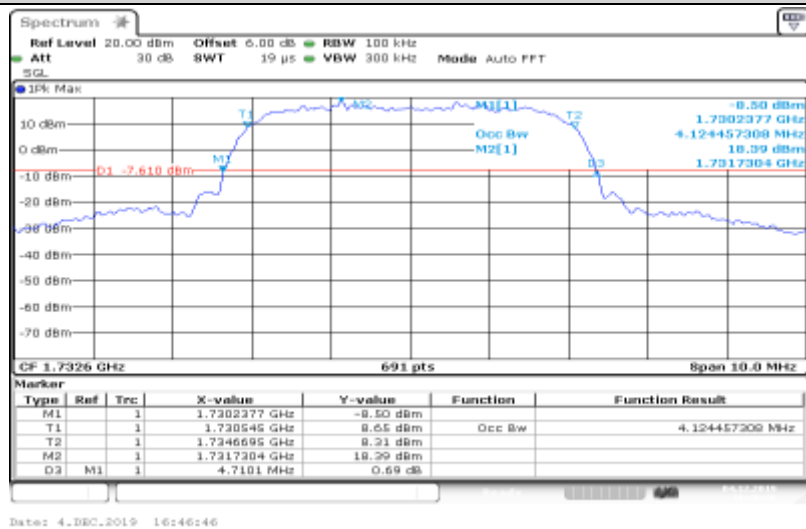
Test Graphs

WCDMA:

Band IV-1312



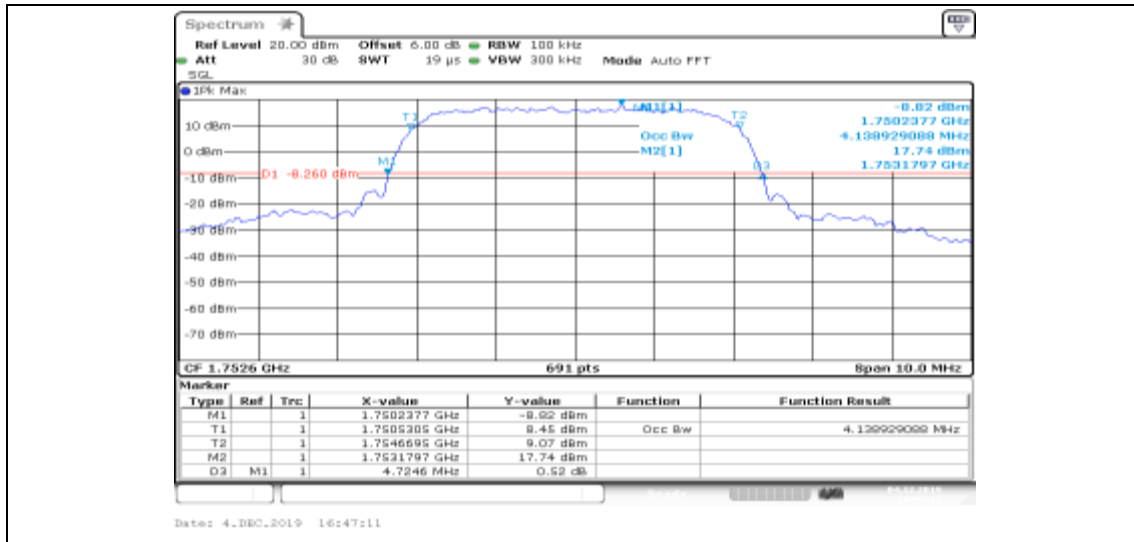
Band IV-1413



Band IV-1513

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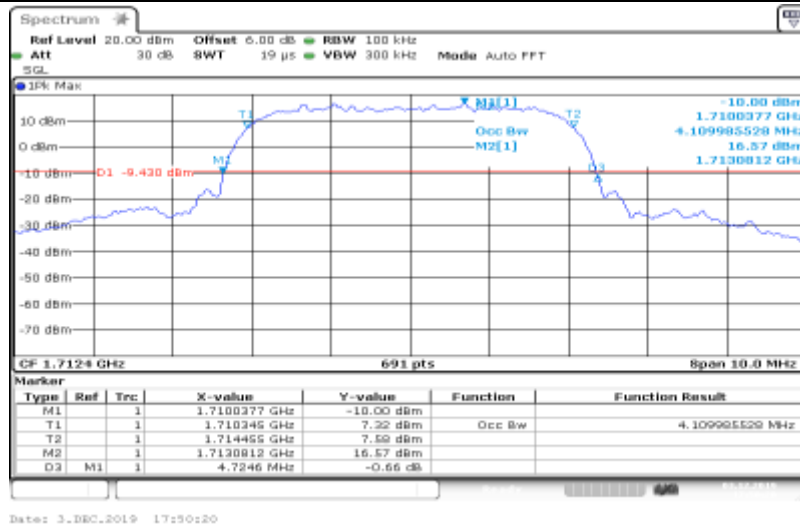
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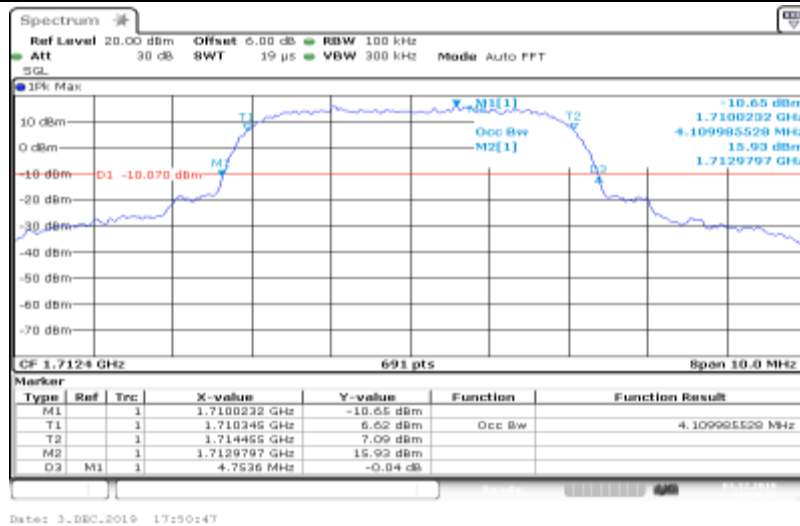
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HSDPA:

Band IV-1312-HSDPA_Sub1



Band IV-1312-HSDPA_Sub2



Band IV-1312-HSDPA_Sub3

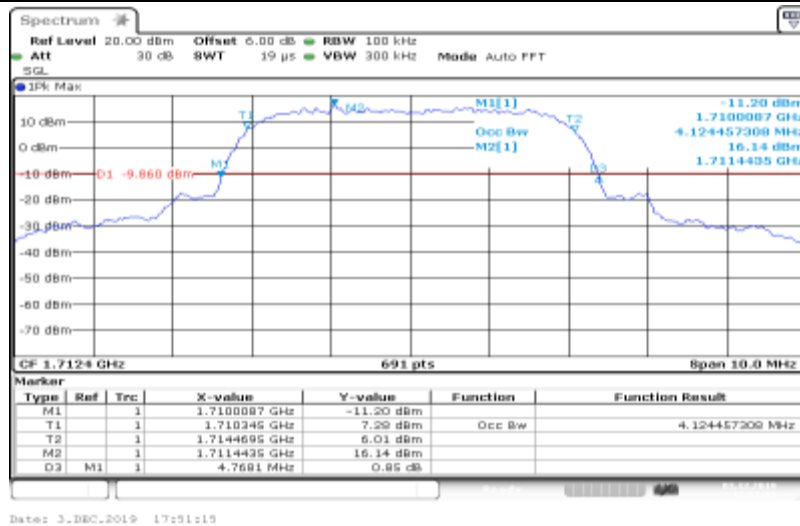
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Band IV-1312-HSDPA_Sub4



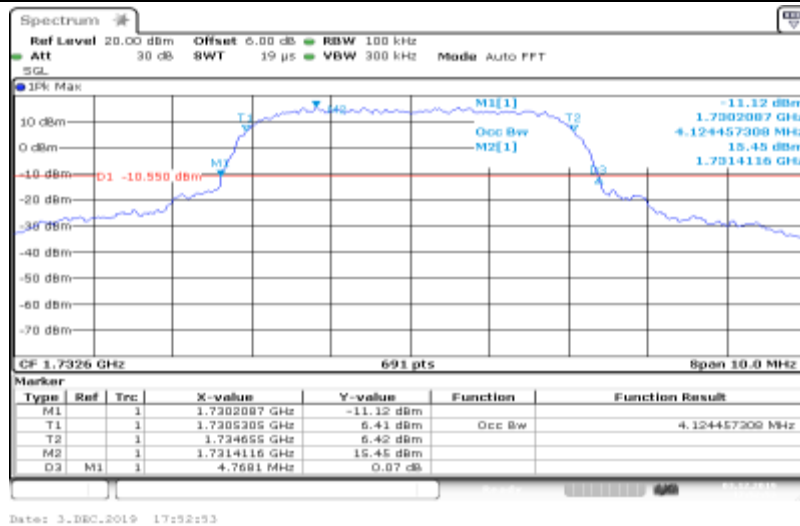
Band IV-1413-HSDPA_Sub1



Band IV-1413-HSDPA_Sub2

CTC Laboratories, Inc.

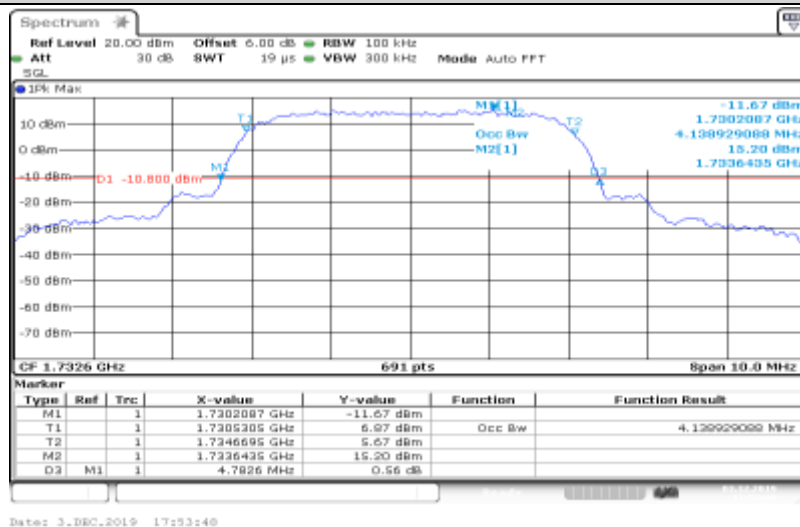
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Band IV-1413-HSDPA_Sub3



Band IV-1413-HSDPA_Sub4



Band IV-1513-HSDPA_Sub1

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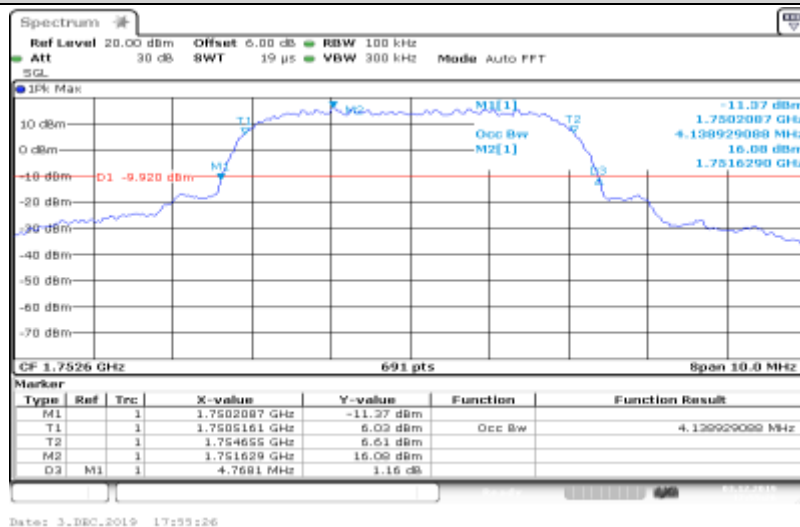
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Band IV-1513-HSDPA_Sub2



Band IV-1513-HSDPA_Sub3

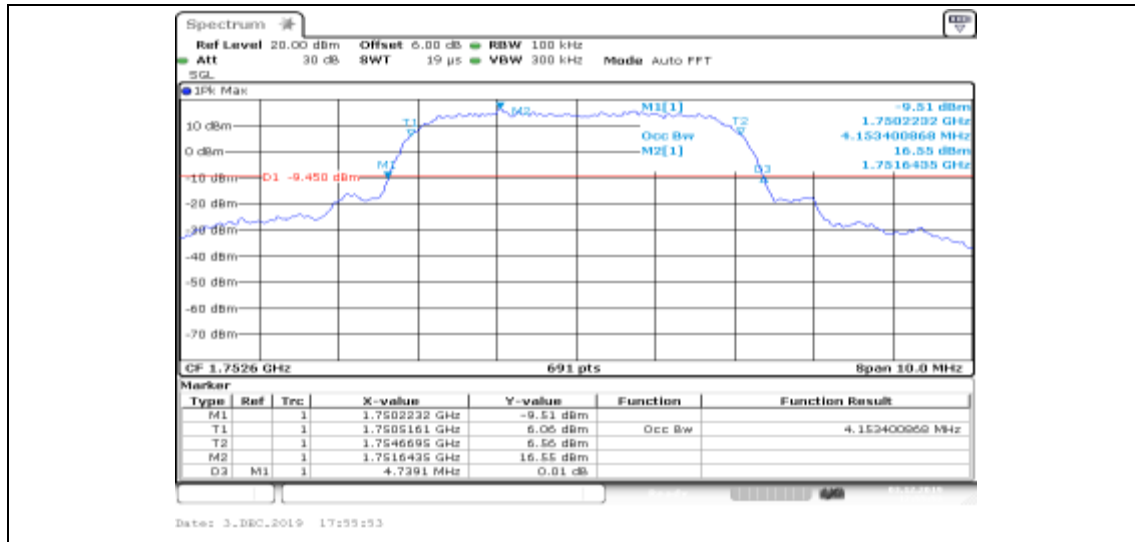


Band IV-1513-HSDPA_Sub4

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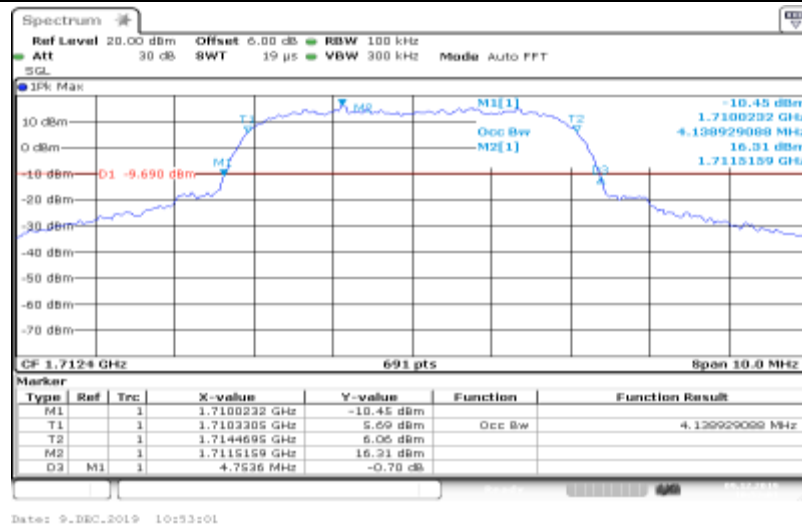
HSUPA:

Band IV-1312-HSUPA_Sub1



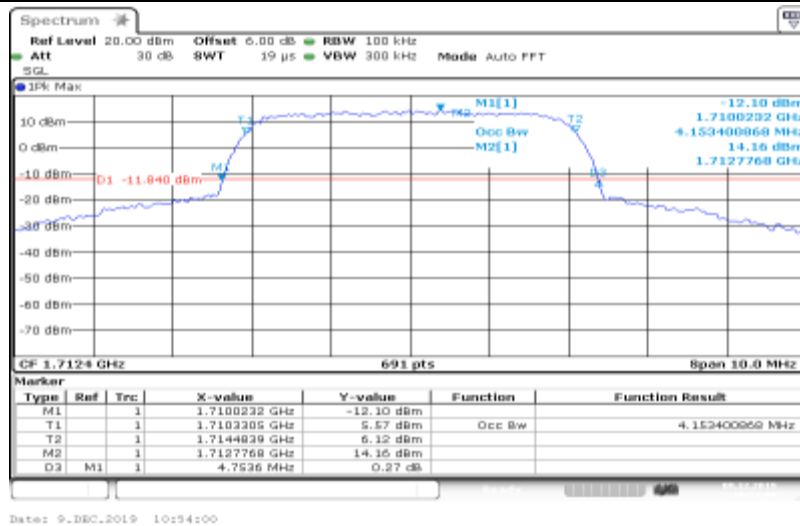
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Band IV-1312-HSUPA_Sub2

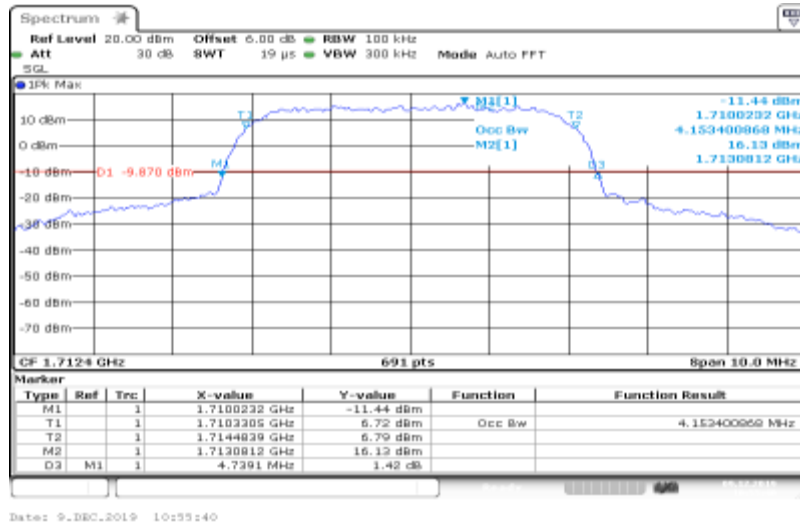


Date: 9_DEC.2019 10:53:01

Band IV-1312-HSUPA_Sub3



Band IV-1312-HSUPA_Sub4



Band IV-1312-HSUPA_Sub5

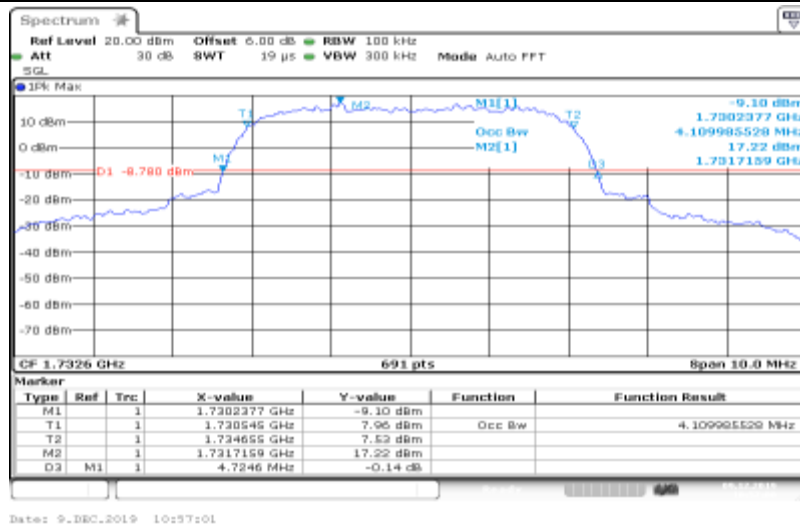


Band IV-1413-HSUPA_Sub1

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Band IV-1413-HSUPA_Sub2



Band IV-1413-HSUPA_Sub3

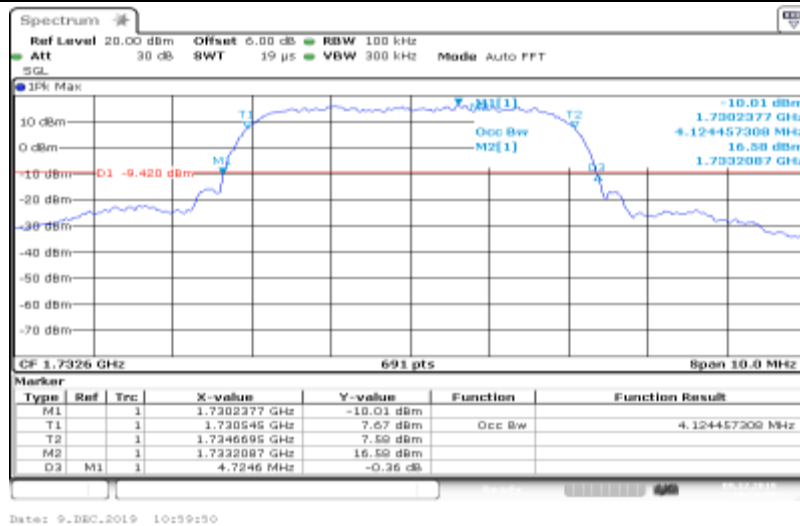


Band IV-1413-HSUPA_Sub4

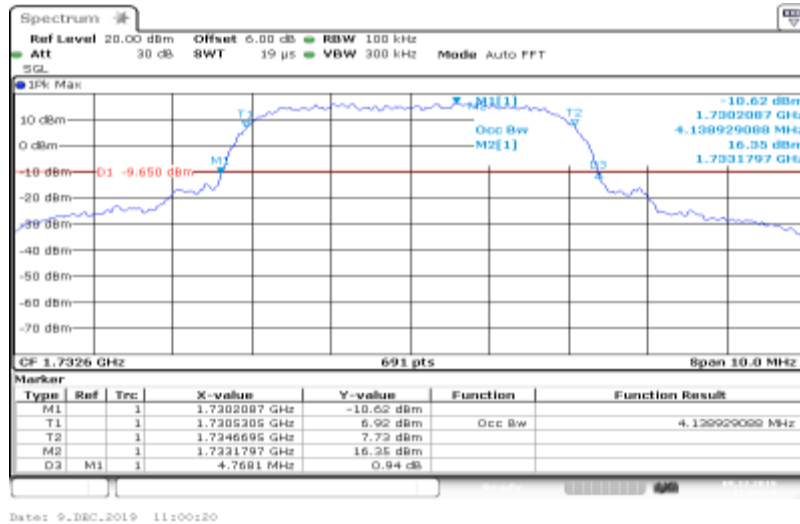
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Band IV-1413-HSUPA_Sub5



Band IV-1513-HSUPA_Sub1

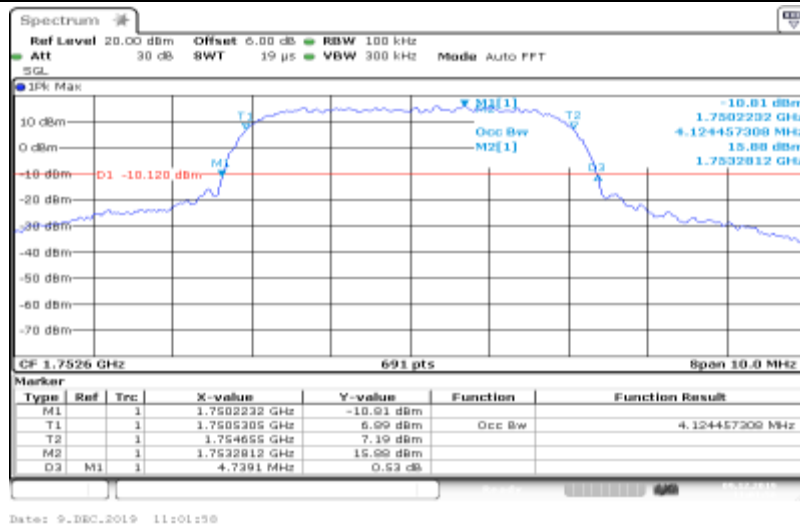


Band IV-1513-HSUPA_Sub2

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Band IV-1513-HSUPA_Sub3



Band IV-1513-HSUPA_Sub4

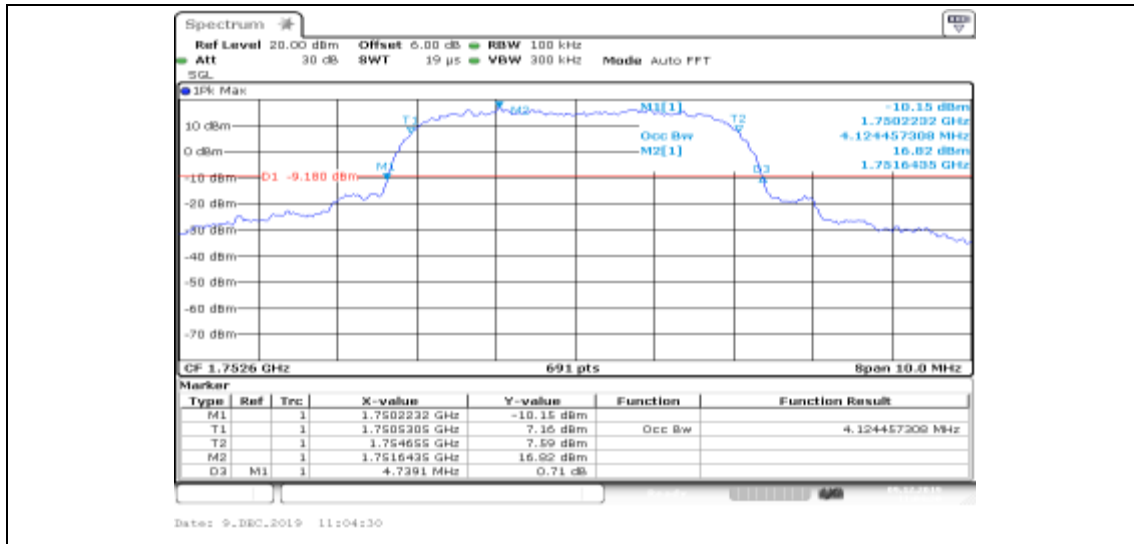


Band IV-1513-HSUPA_Sub5

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AppendixD:Band Edge

Test Result

WCDMA:

Band	Channel	Value(dBm)	Limit(dBm)	Verdict
Band IV	1312	-18.22	-13	PASS
Band IV	1513	-17.37	-13	PASS

HSDPA:

Band	Channel	SubTest	Value(dBm)	Limit(dBm)	Verdict
Band IV	1312	HSDPA_Sub0	-18.80	-13	PASS
Band IV	1312	HSDPA_Sub1	-18.26	-13	PASS
Band IV	1312	HSDPA_Sub2	-15.93	-13	PASS
Band IV	1312	HSDPA_Sub3	-16.48	-13	PASS
Band IV	1513	HSDPA_Sub0	-19.01	-13	PASS
Band IV	1513	HSDPA_Sub1	-18.52	-13	PASS
Band IV	1513	HSDPA_Sub2	-17.49	-13	PASS
Band IV	1513	HSDPA_Sub3	-16.85	-13	PASS

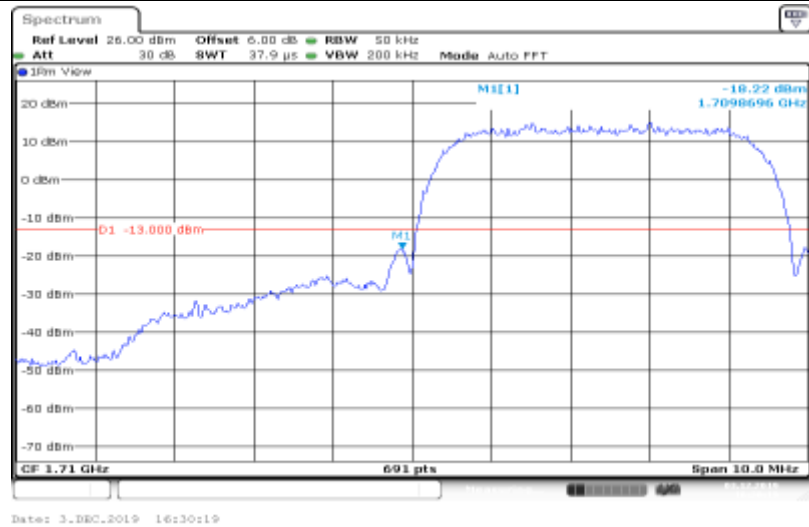
HSUPA:

Band	Channel	SubTest	Value(dBm)	Limit(dBm)	Verdict
Band IV	1312	HSUPA_Sub1	-17.90	-13	PASS
Band IV	1312	HSUPA_Sub2	-19.69	-13	PASS
Band IV	1312	HSUPA_Sub3	-17.10	-13	PASS
Band IV	1312	HSUPA_Sub4	-19.14	-13	PASS
Band IV	1312	HSUPA_Sub5	-17.24	-13	PASS
Band IV	1513	HSUPA_Sub1	-20.84	-13	PASS
Band IV	1513	HSUPA_Sub2	-20.35	-13	PASS
Band IV	1513	HSUPA_Sub3	-20.53	-13	PASS
Band IV	1513	HSUPA_Sub4	-20.67	-13	PASS
Band IV	1513	HSUPA_Sub5	-19.98	-13	PASS

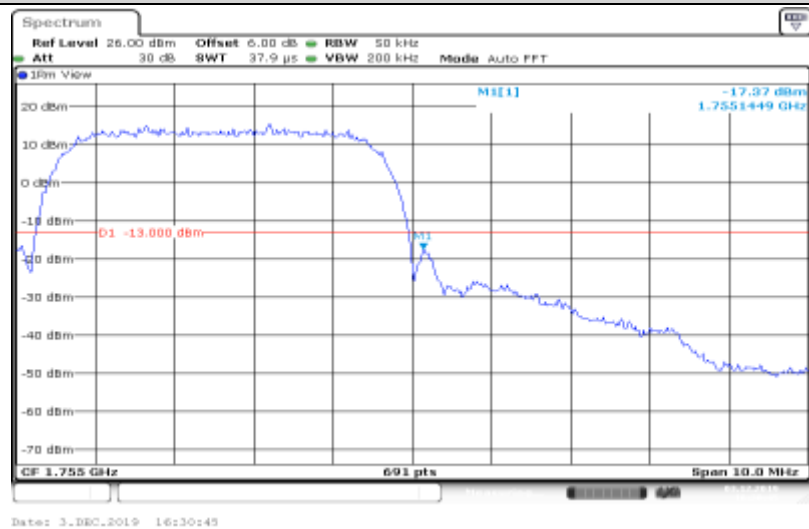
Test Graphs

WCDMA:

Band IV-1312



Band IV-1513



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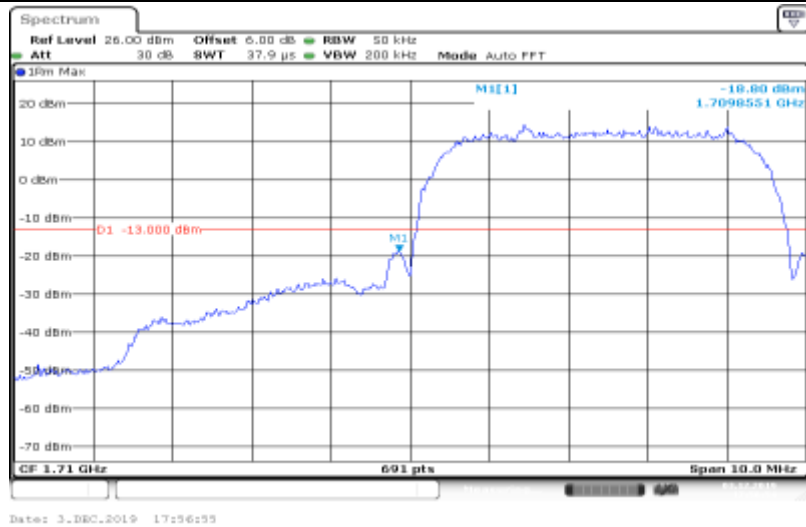
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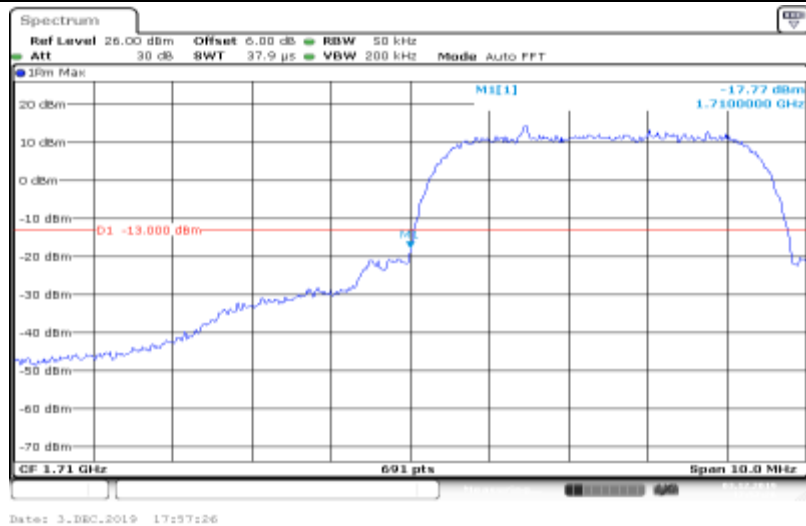
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HSDPA:

Band IV-1312-HSDPA_Sub0



Band IV-1312-HSDPA_Sub1



Band IV-1312-HSDPA_Sub2

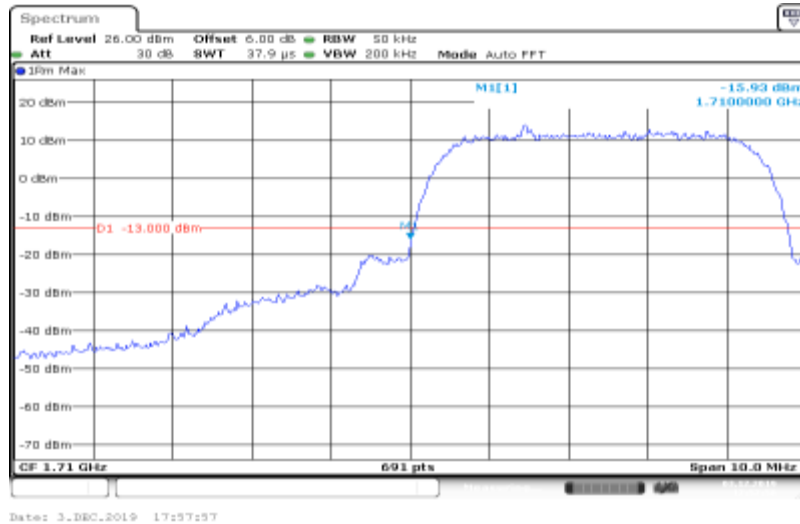
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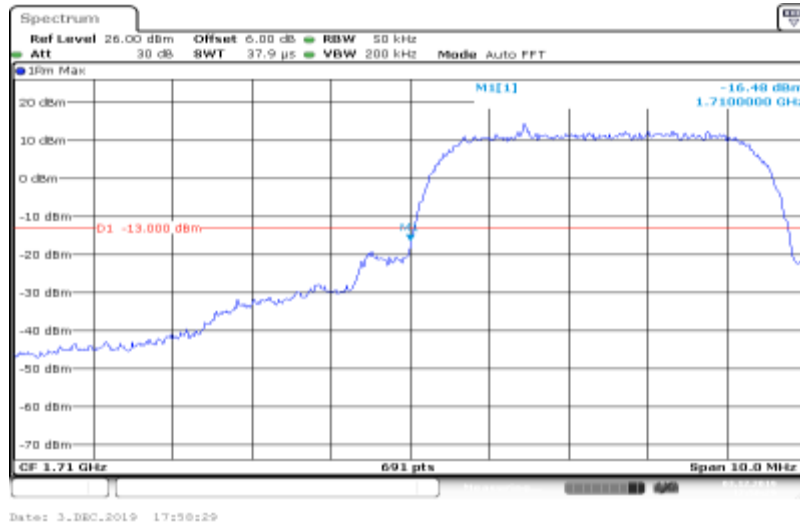
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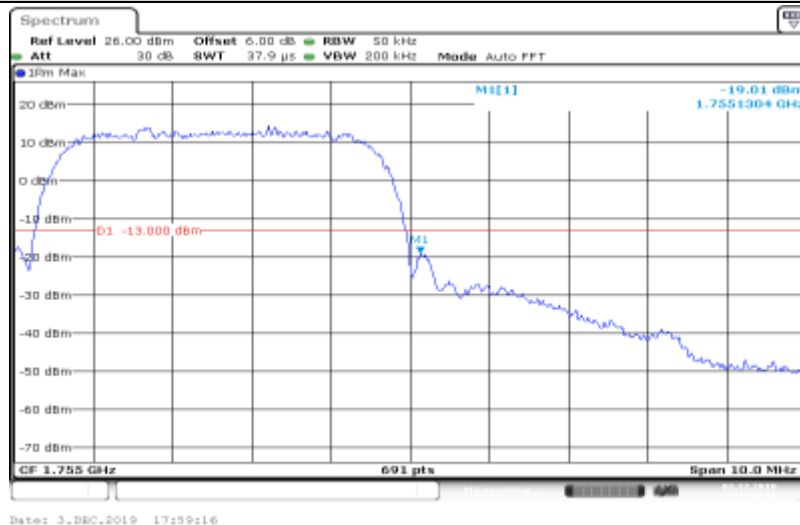
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Band IV-1312-HSDPA_Sub3



Band IV-1513-HSDPA_Sub0



Band IV-1513-HSDPA_Sub1

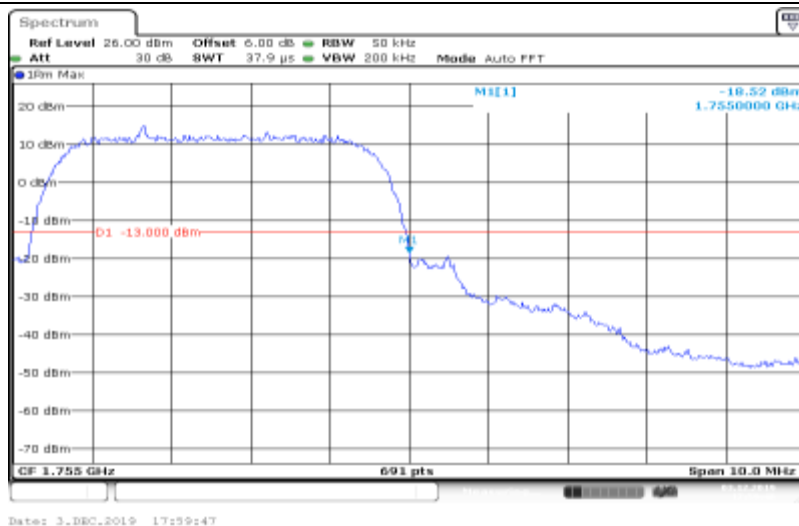
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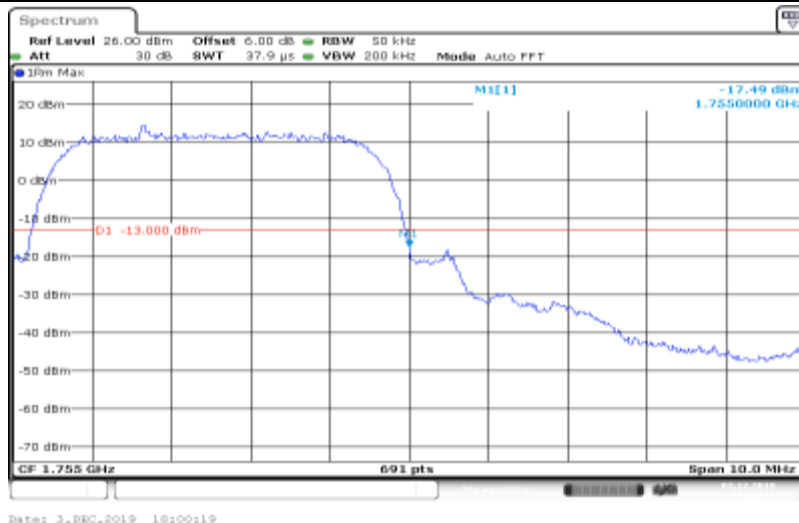
Tel.: (86)755-27521059

Fax: (86)755-27521011

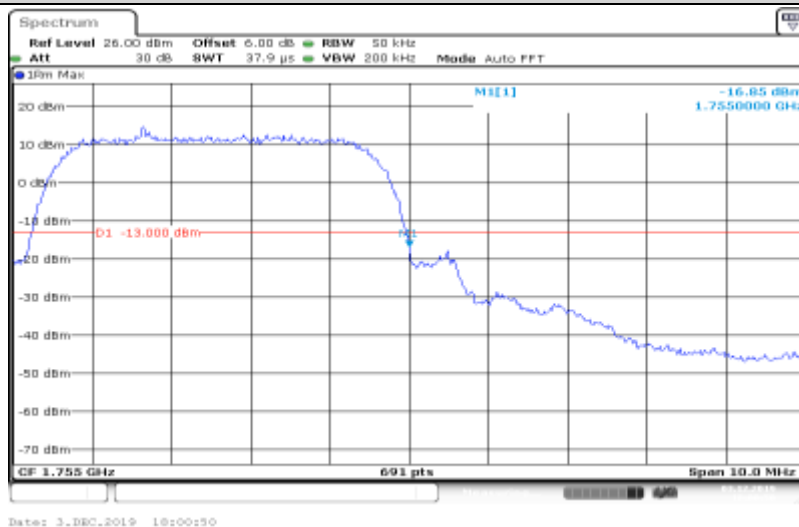
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Band IV-1513-HSDPA_Sub2



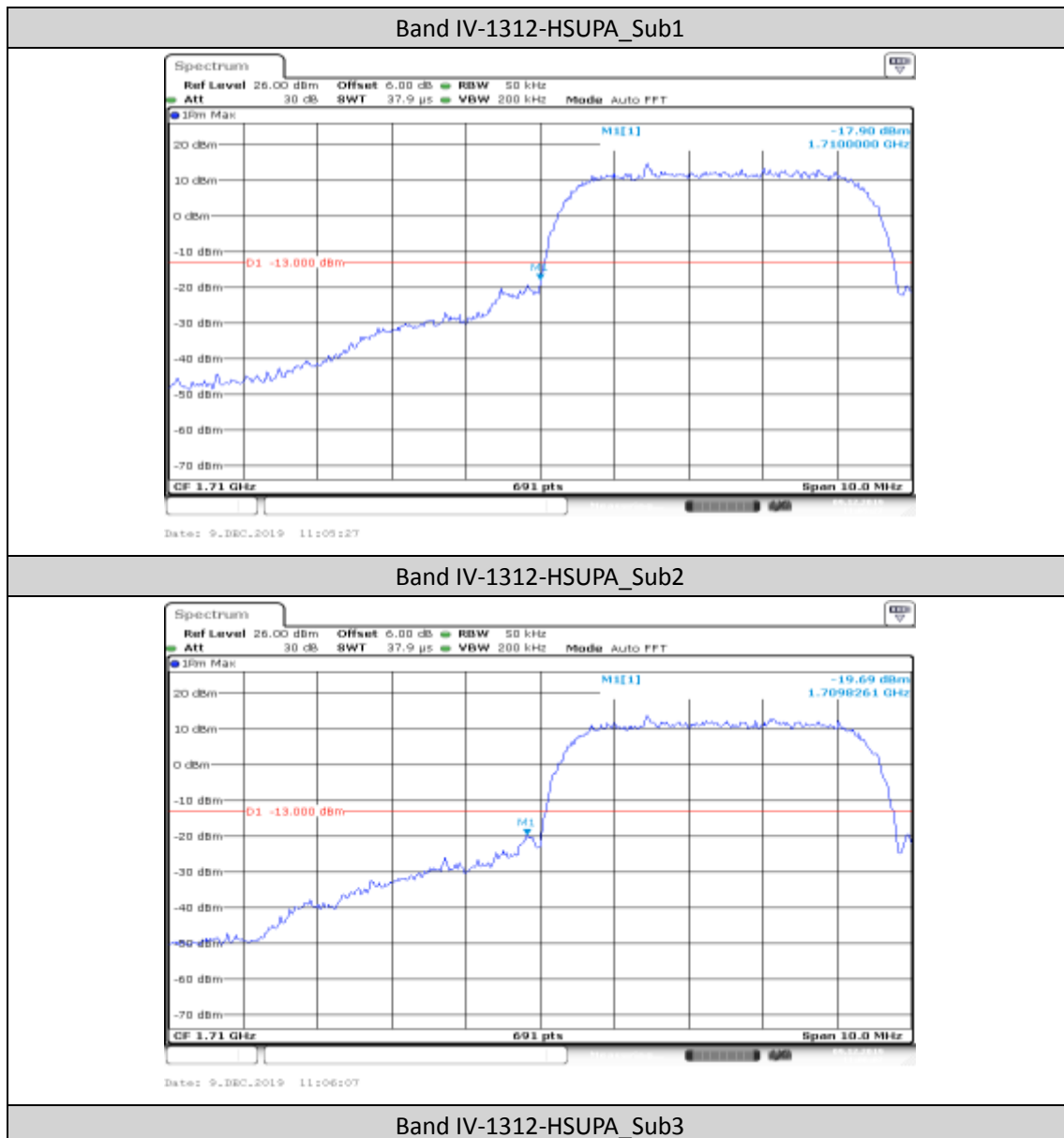
Band IV-1513-HSDPA_Sub3



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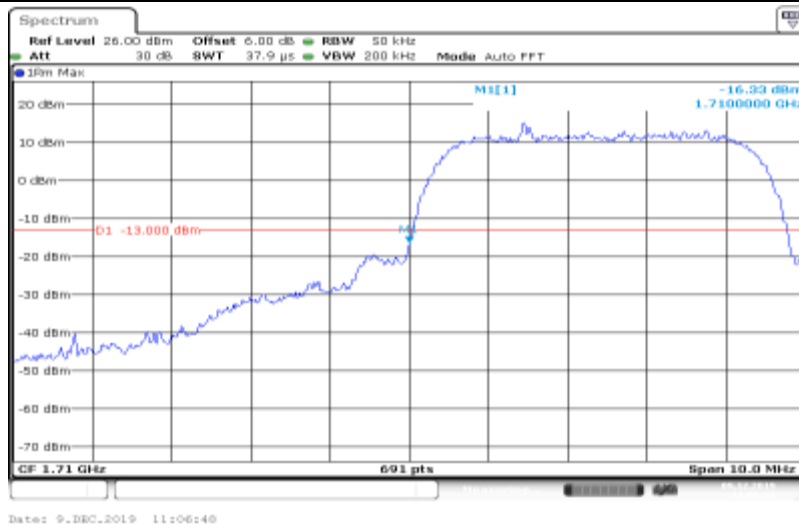
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HSUPA:

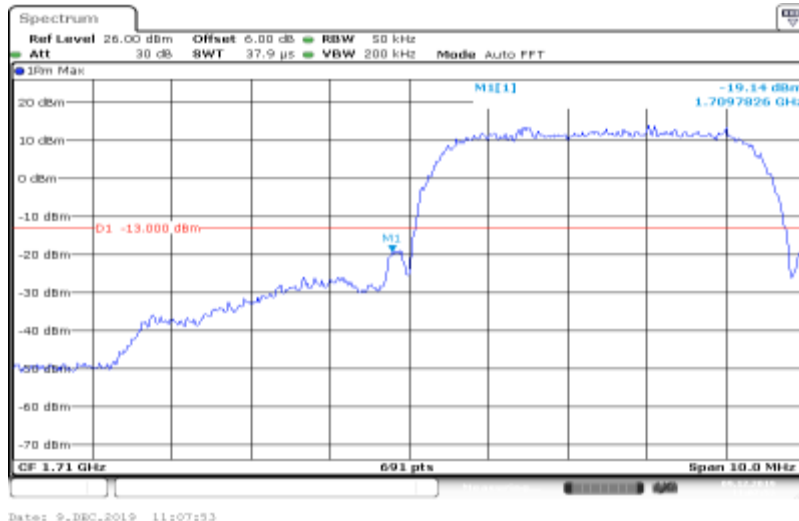


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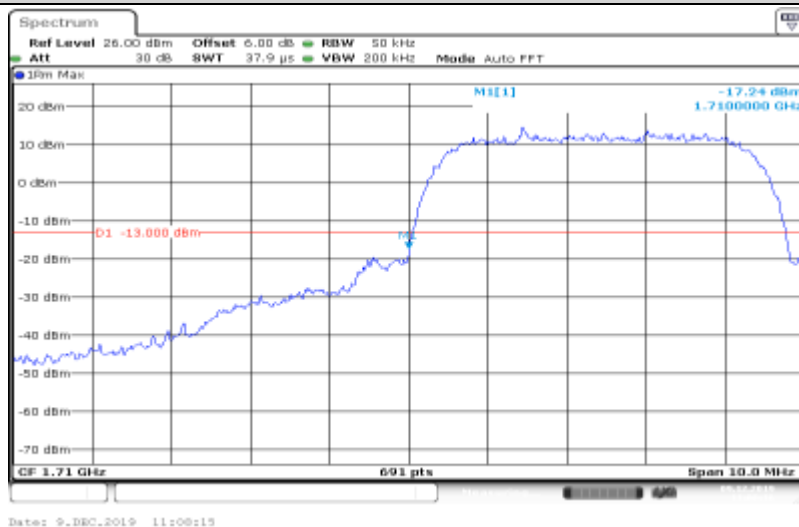
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Band IV-1312-HSUPA_Sub4



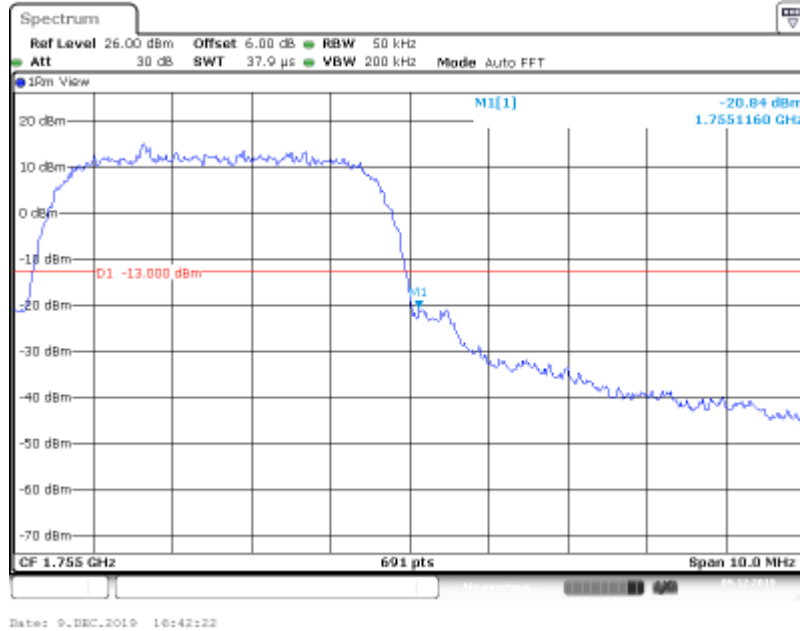
Band IV-1312-HSUPA_Sub5



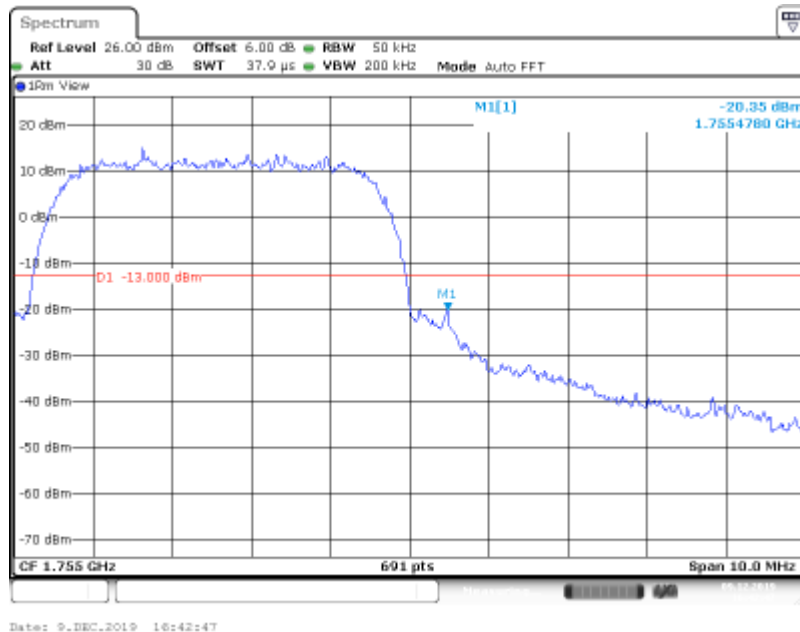
Band IV-1513-HSUPA_Sub1

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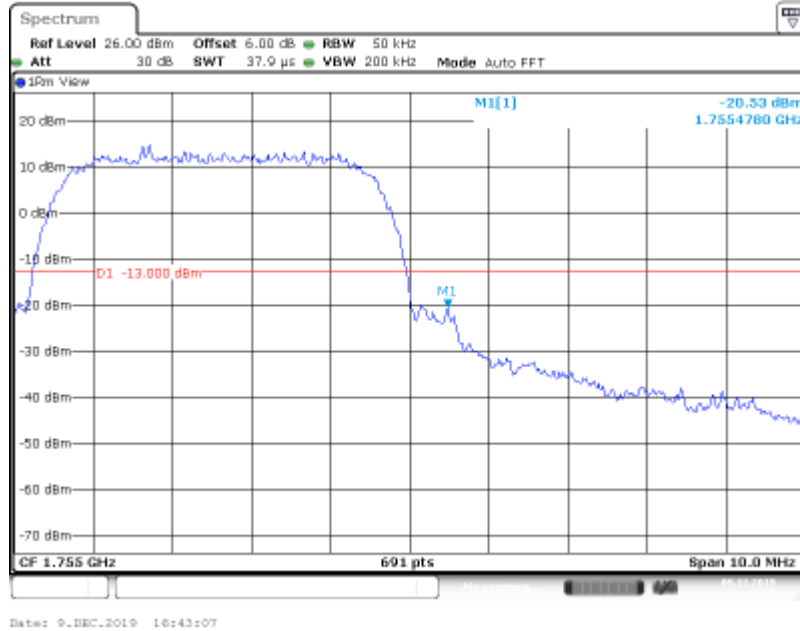
Band IV-1513-HSUPA_Sub2



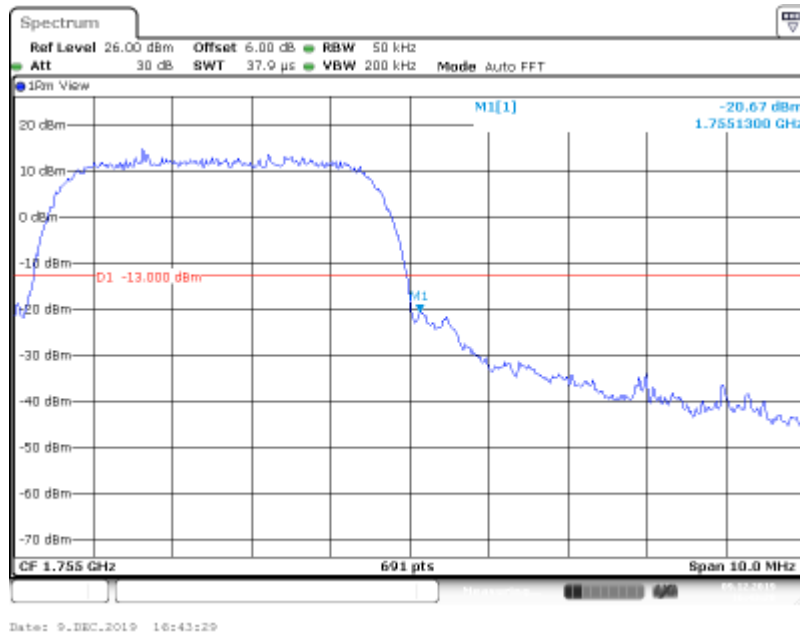
Band IV-1513-HSUPA_Sub3

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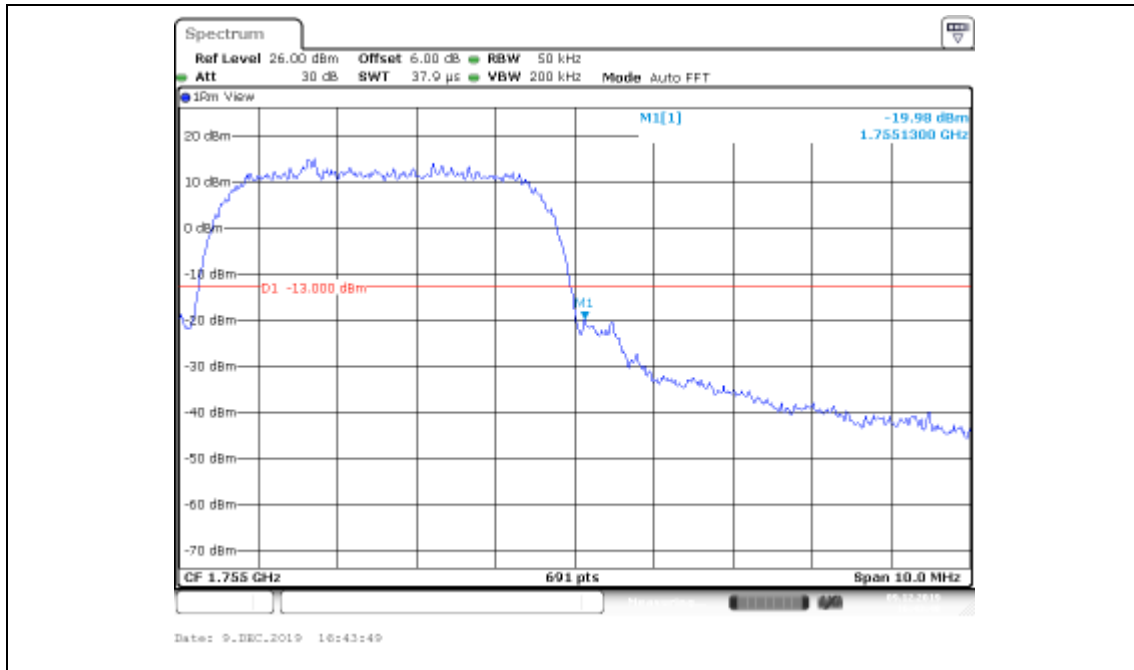
Band IV-1513-HSUPA_Sub4



Band IV-1513-HSUPA_Sub5

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