



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

CTC Laboratories, Inc.

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Appendix A: 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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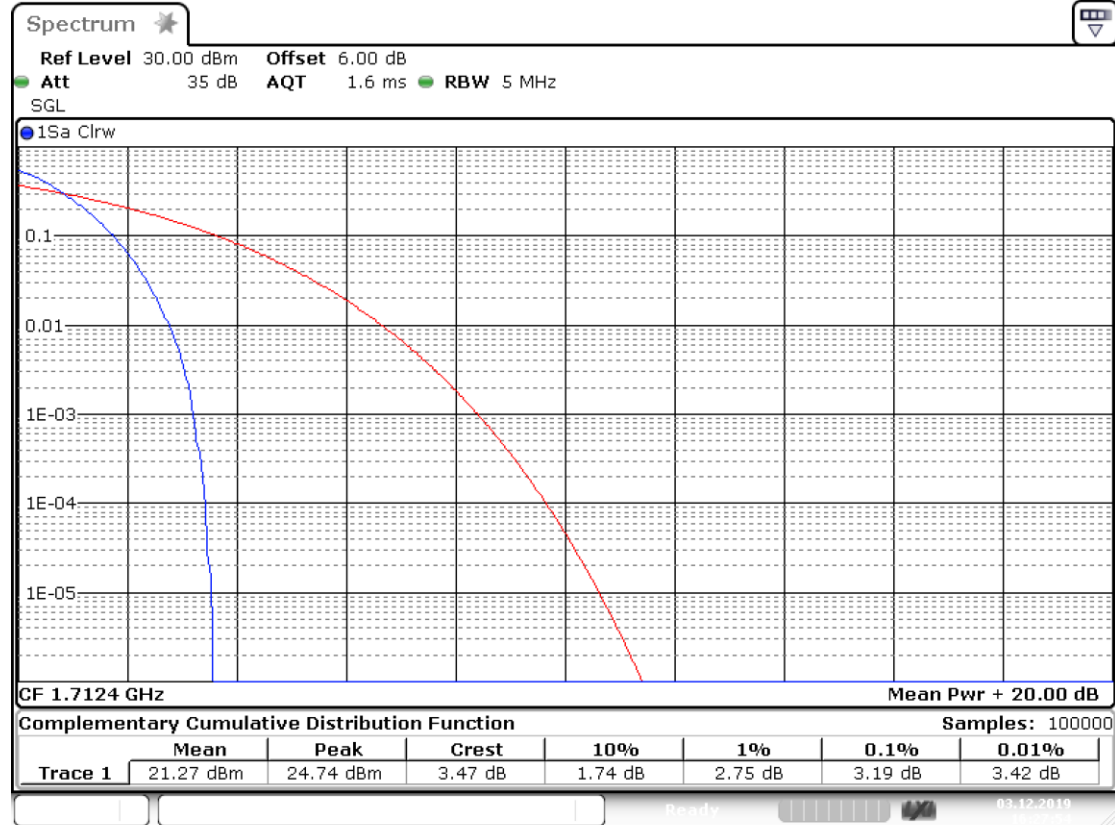


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Test Graphs

WCDMA:

Test Case: (WCDMA)Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value:CCDF:3.19
Result: PASS	Voltage: VN	Temperature: TN



Date: 3.DEC.2019 16:27:54

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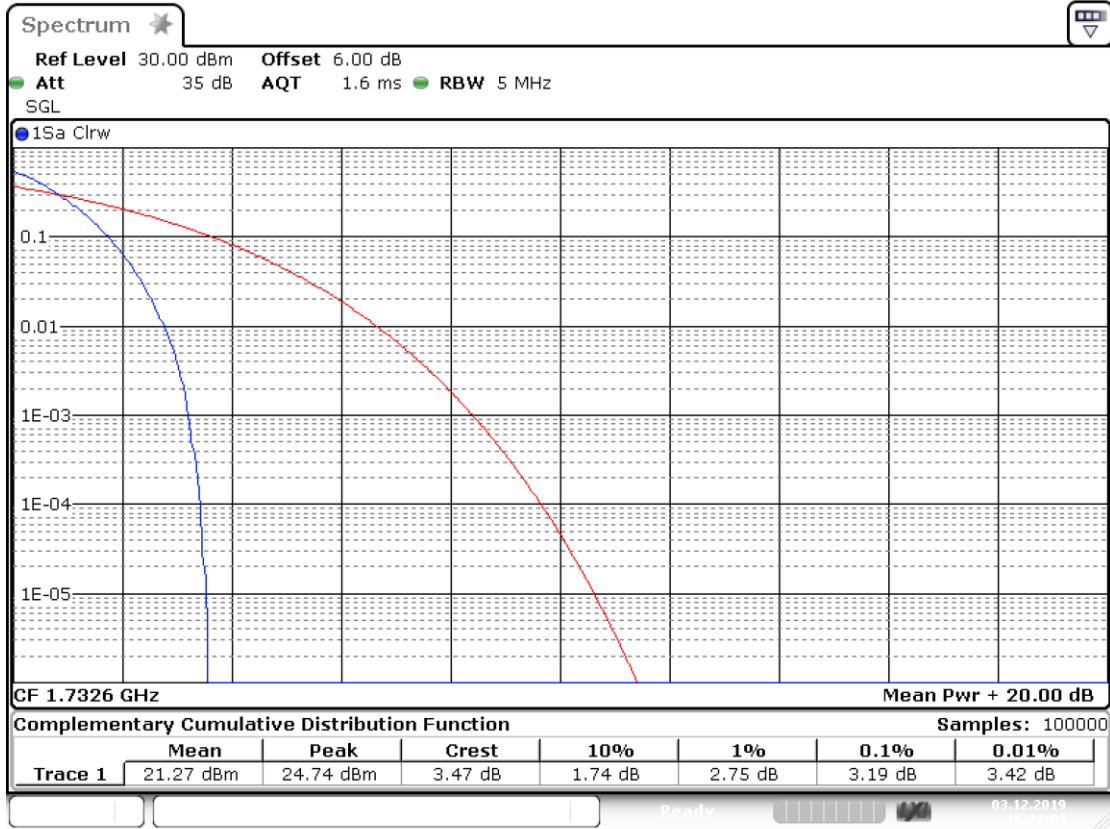
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Test Case: (WCDMA)Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value:CCDF:3.19
Result: PASS	Voltage: VN	Temperature: TN



Date: 3.DEC.2019 16:28:04

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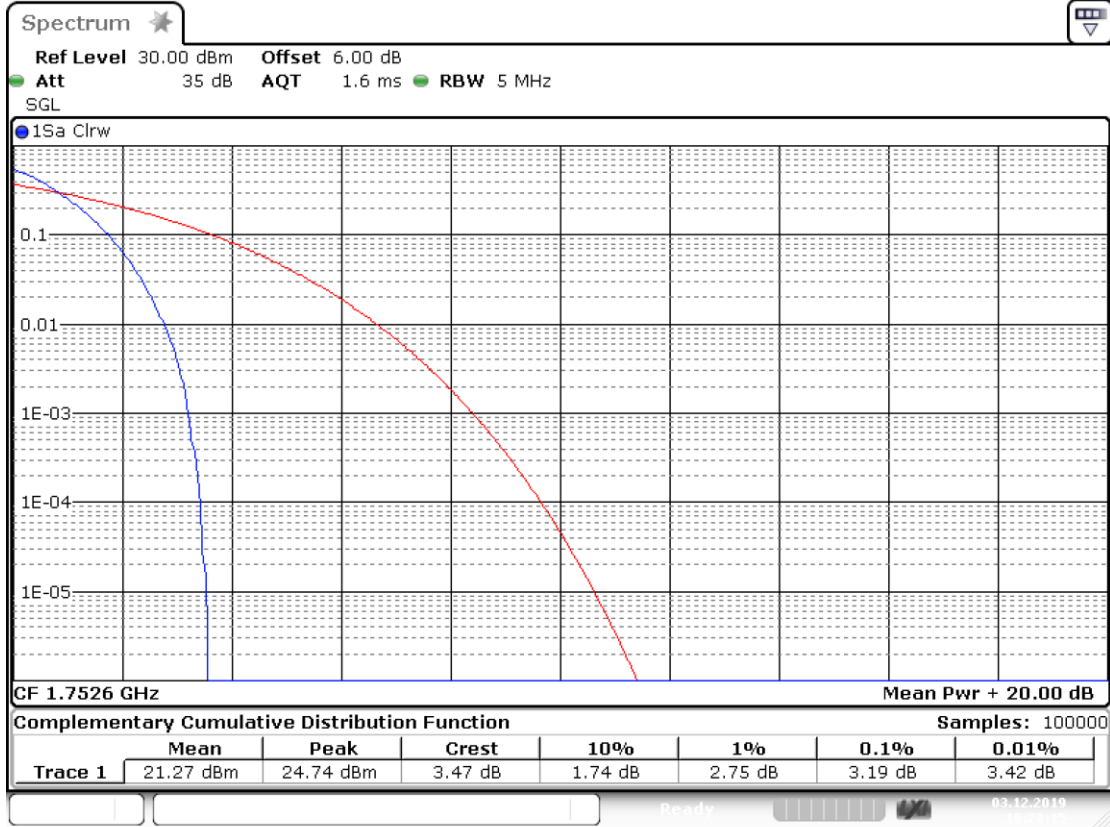
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Test Case: (WCDMA)Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value:CCDF:3.19
Result: PASS	Voltage: VN	Temperature: TN



Date: 3.DEC.2019 16:28:14

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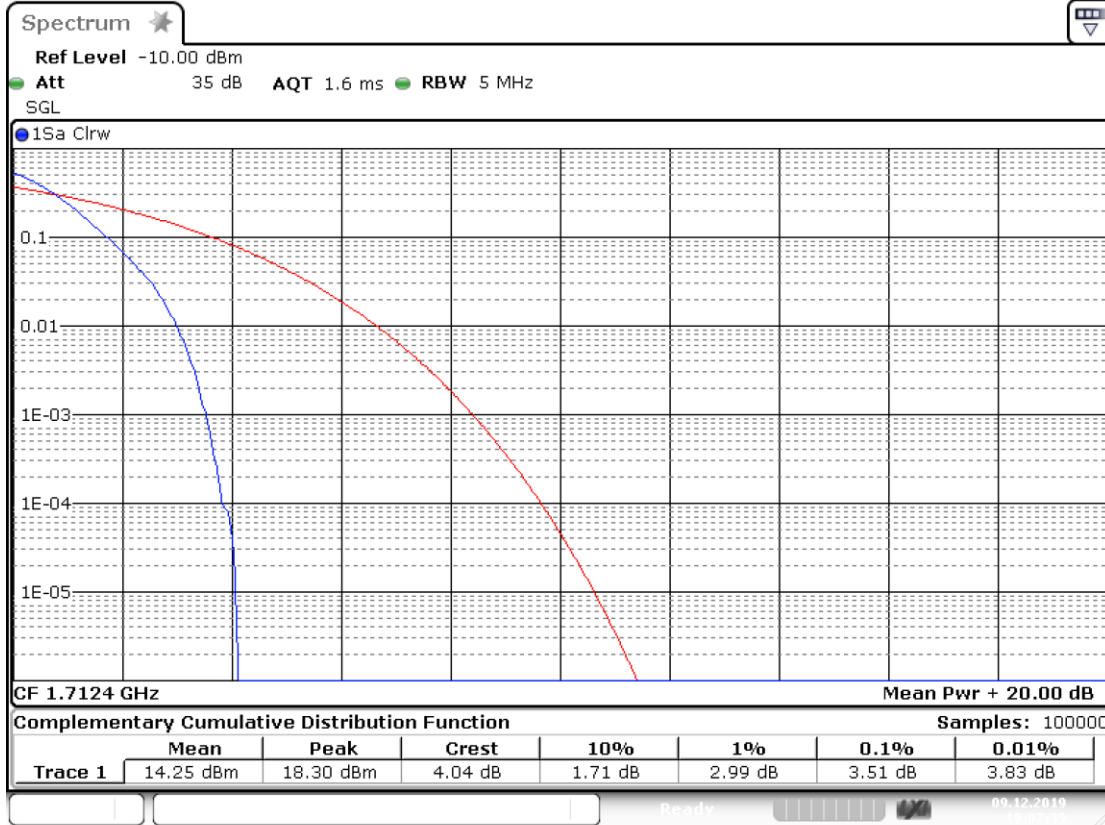
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HSDPA:

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



Date: 9.DEC.2019 10:07:39

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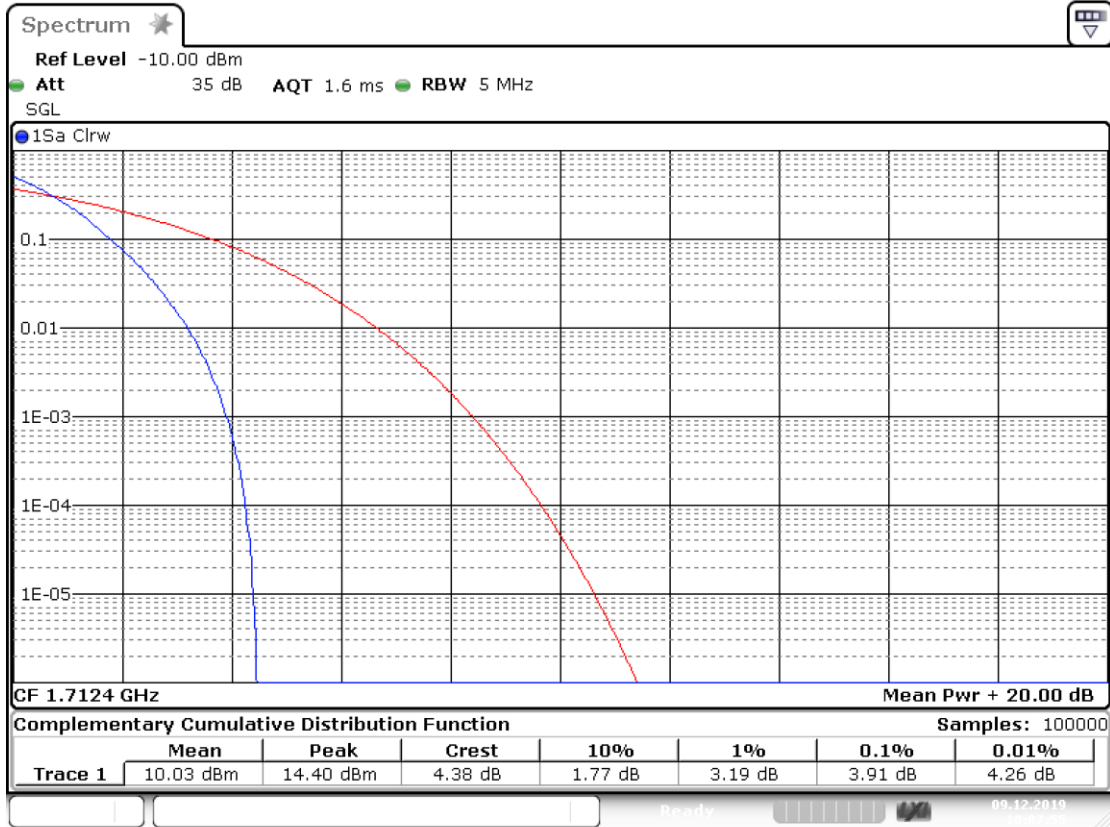
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value: Bc/Bd:12/15 CCDF:3.91
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:07:55

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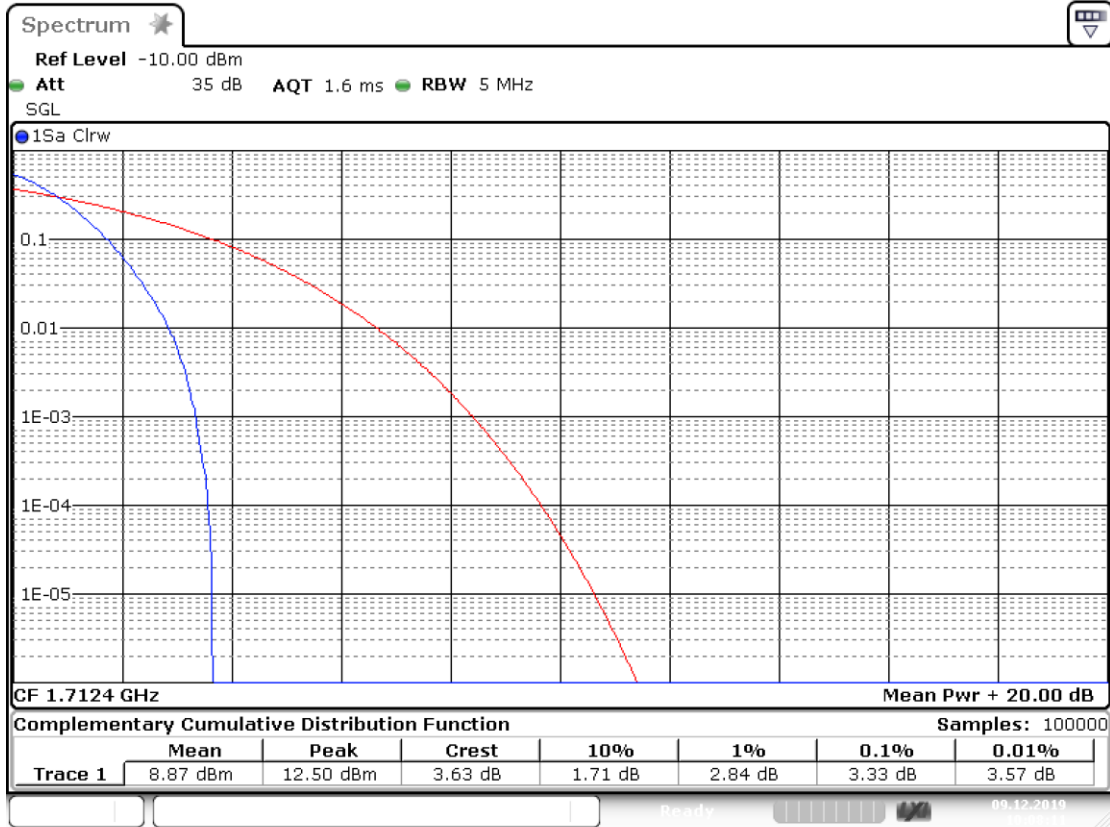
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value: Bc/Bd:15/8 CCDF:3.33
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:08:11

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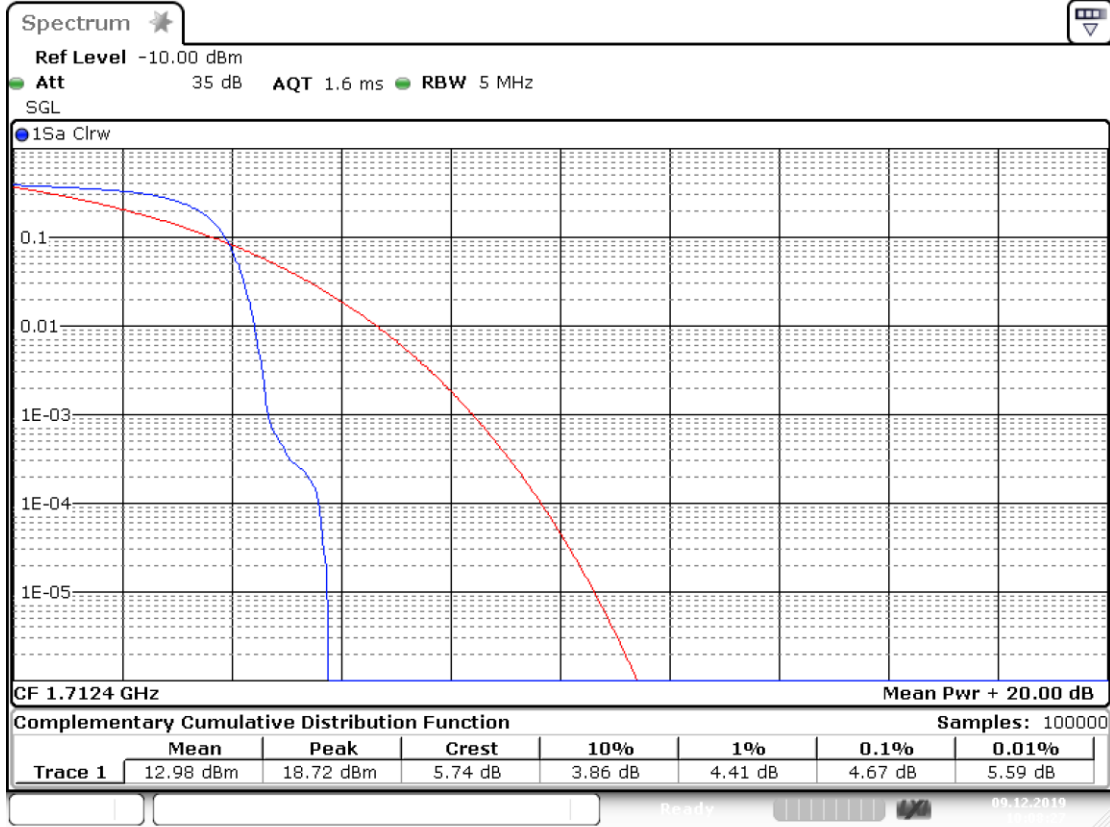
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value: Bc/Bd:15/4 CCDF:4.67
Result: PASS	Voltage: VN	Temperature: TN



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

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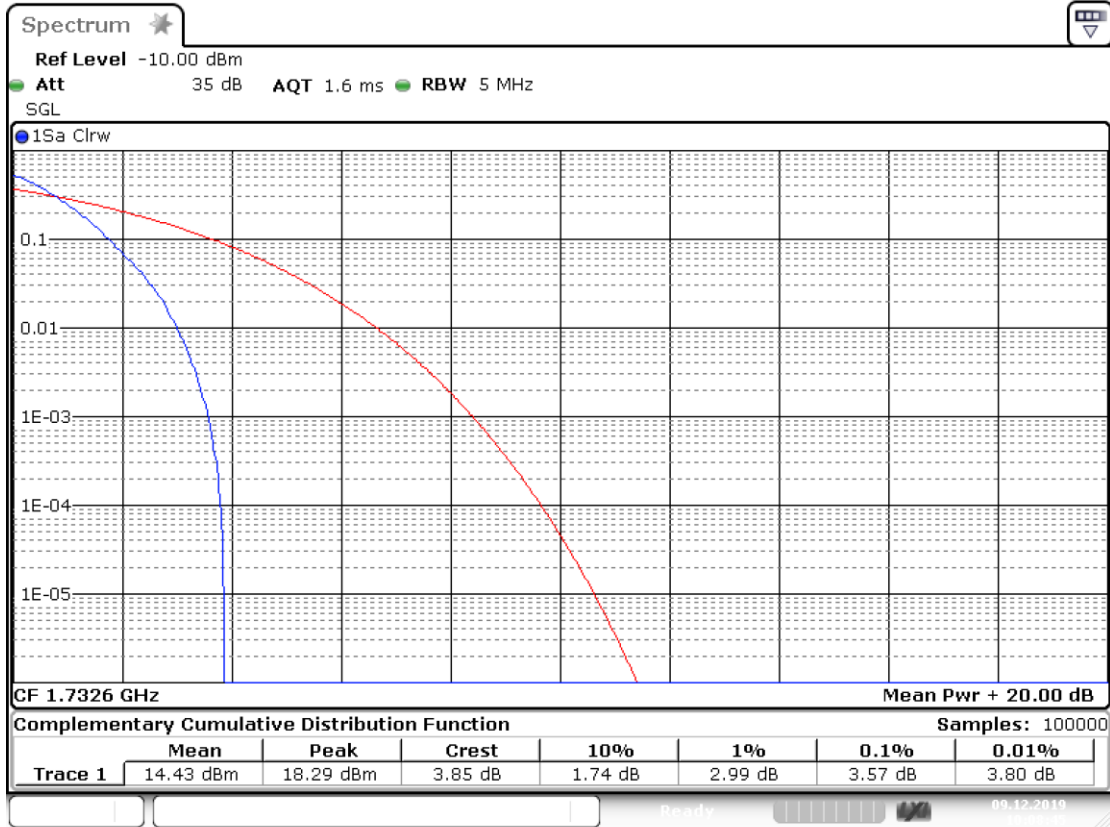
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value: Bc/Bd:2/15 CCDF:3.57
Result: PASS	Voltage: VN	Temperature: TN



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

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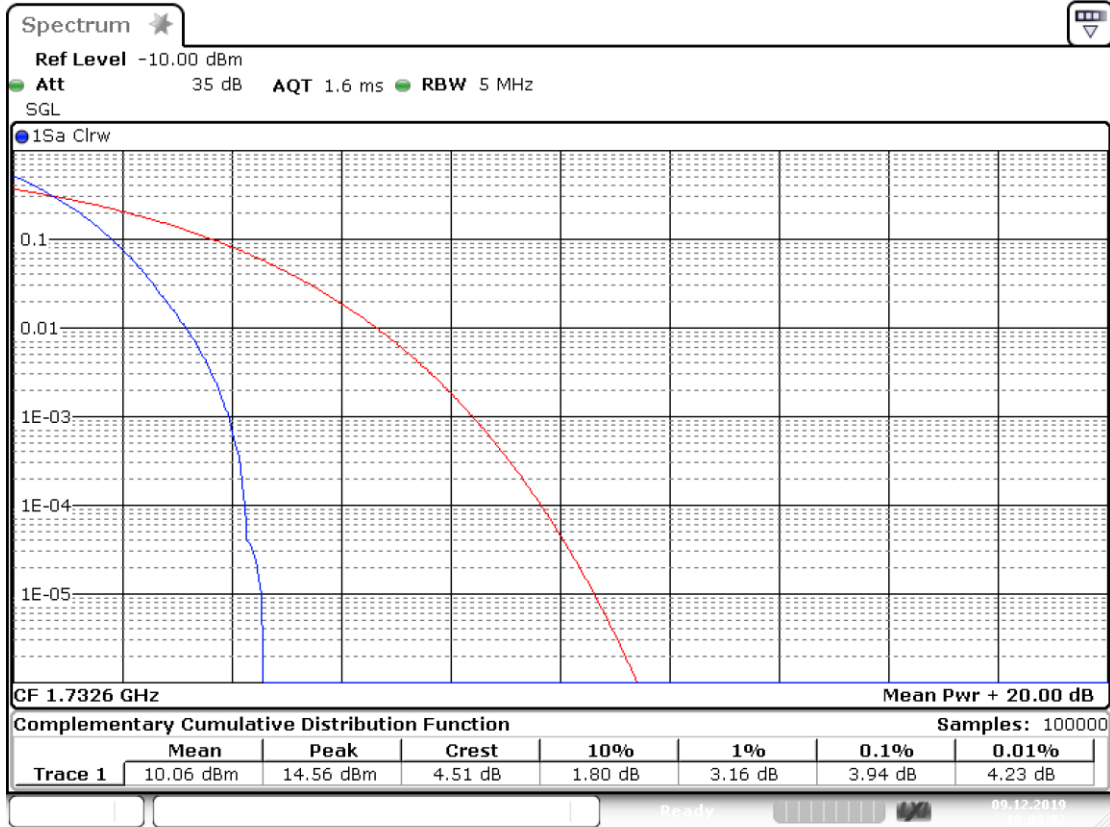
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value: Bc/Bd:12/15 CCDF:3.94
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:09:01

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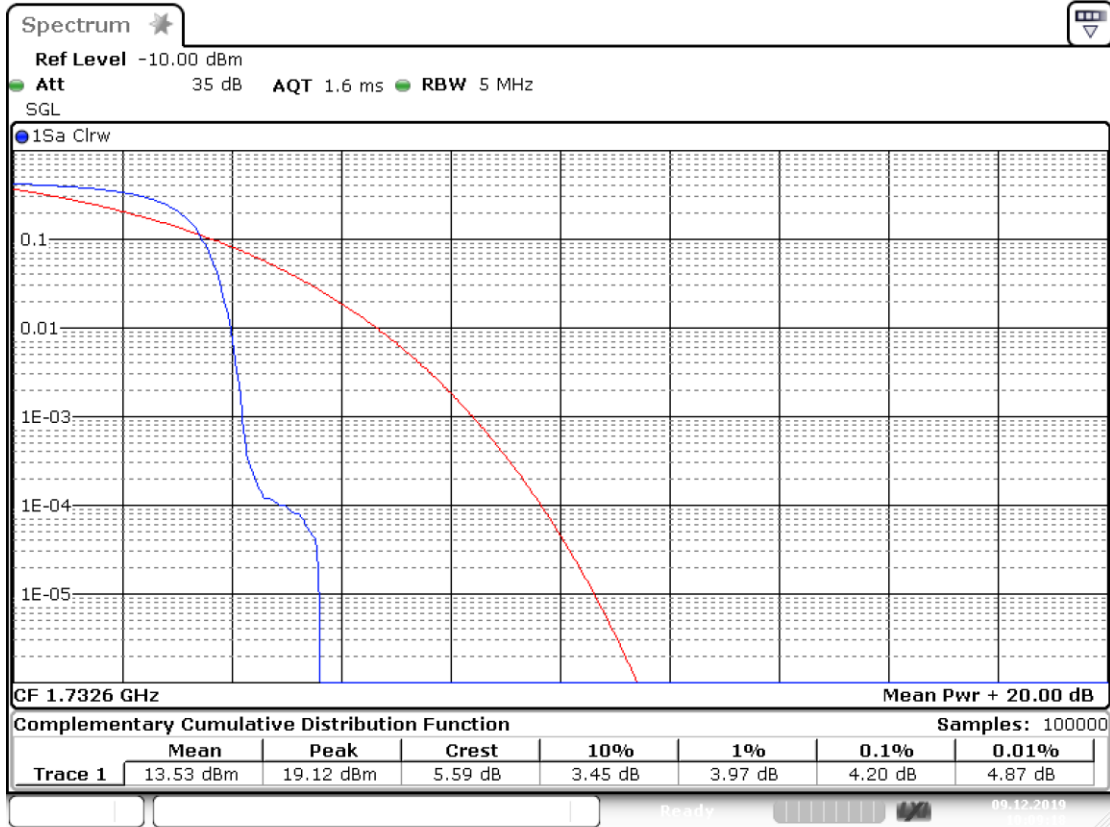
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value: Bc/Bd:15/8 CCDF:4.20
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:09:18

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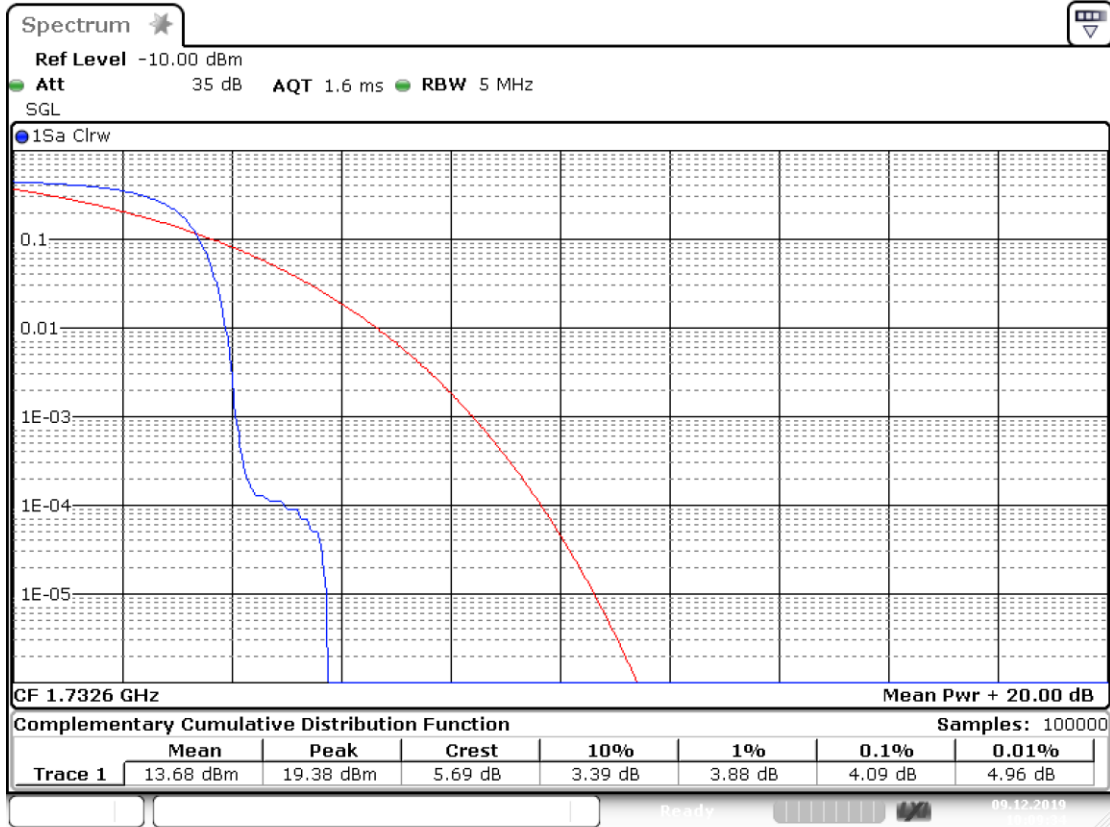
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value: Bc/Bd:15/4 CCDF:4.09
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:09:34

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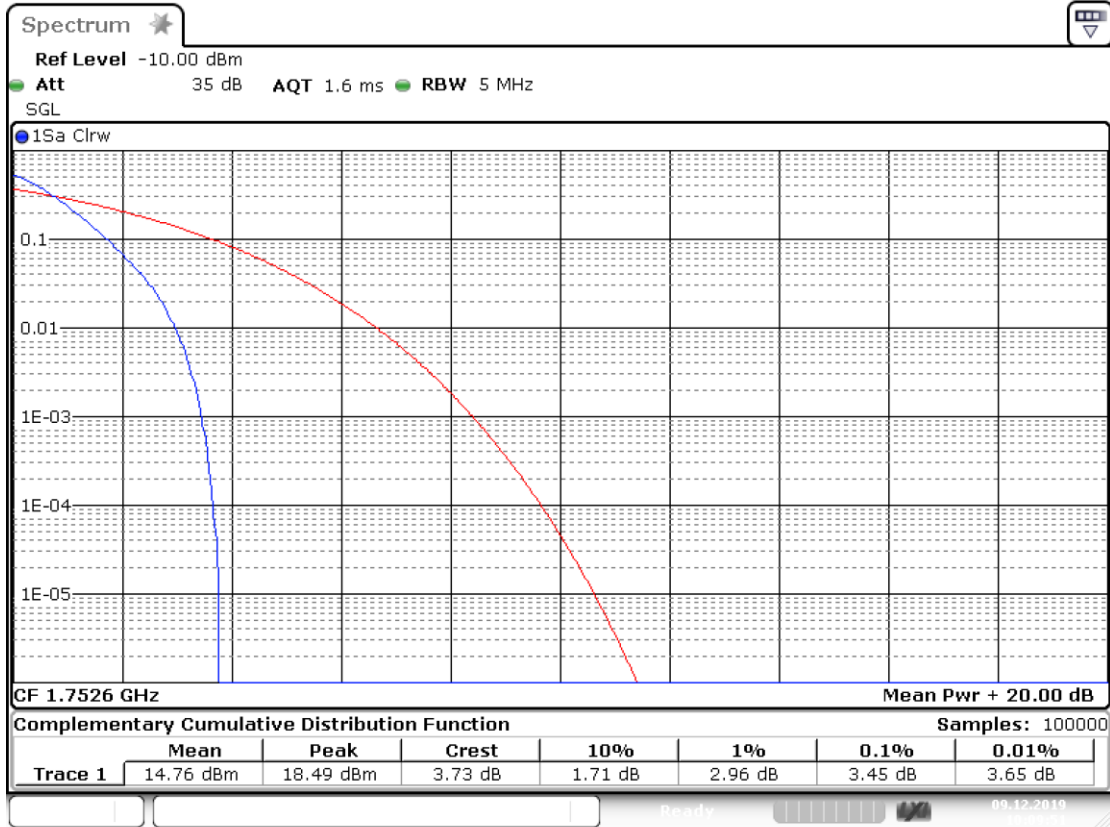
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value: Bc/Bd:2/15 CCDF:3.45
Result: PASS	Voltage: VN	Temperature: TN



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

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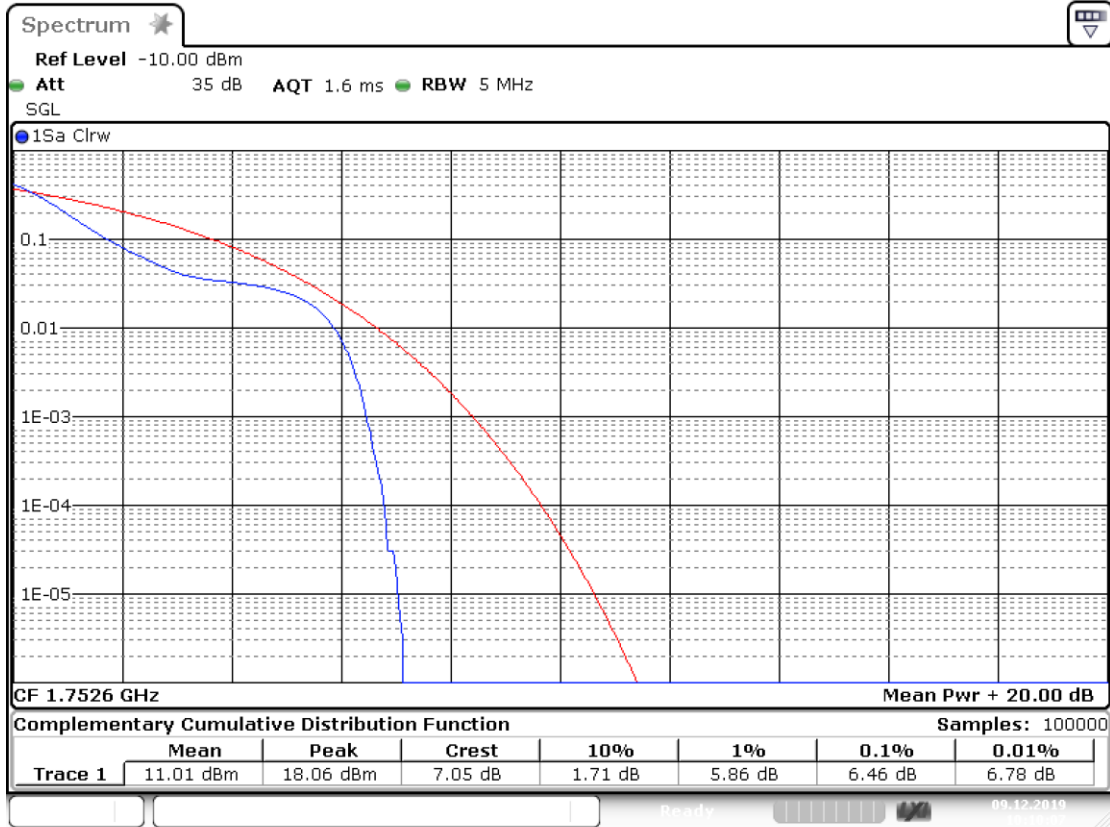
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value: Bc/Bd:12/15 CCDF:6.46
Result: PASS	Voltage: VN	Temperature: TN



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

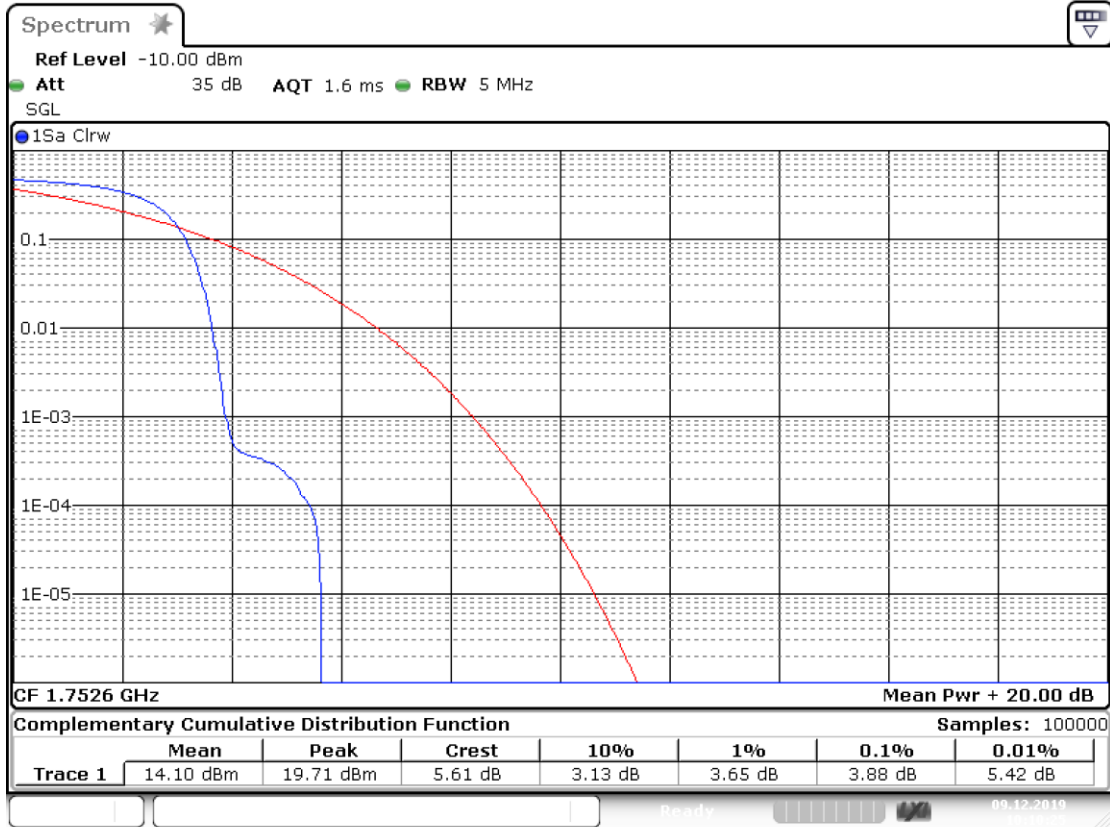
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Test Case: HSDPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value: Bc/Bd:15/8 CCDF:3.88
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:10:24

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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



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

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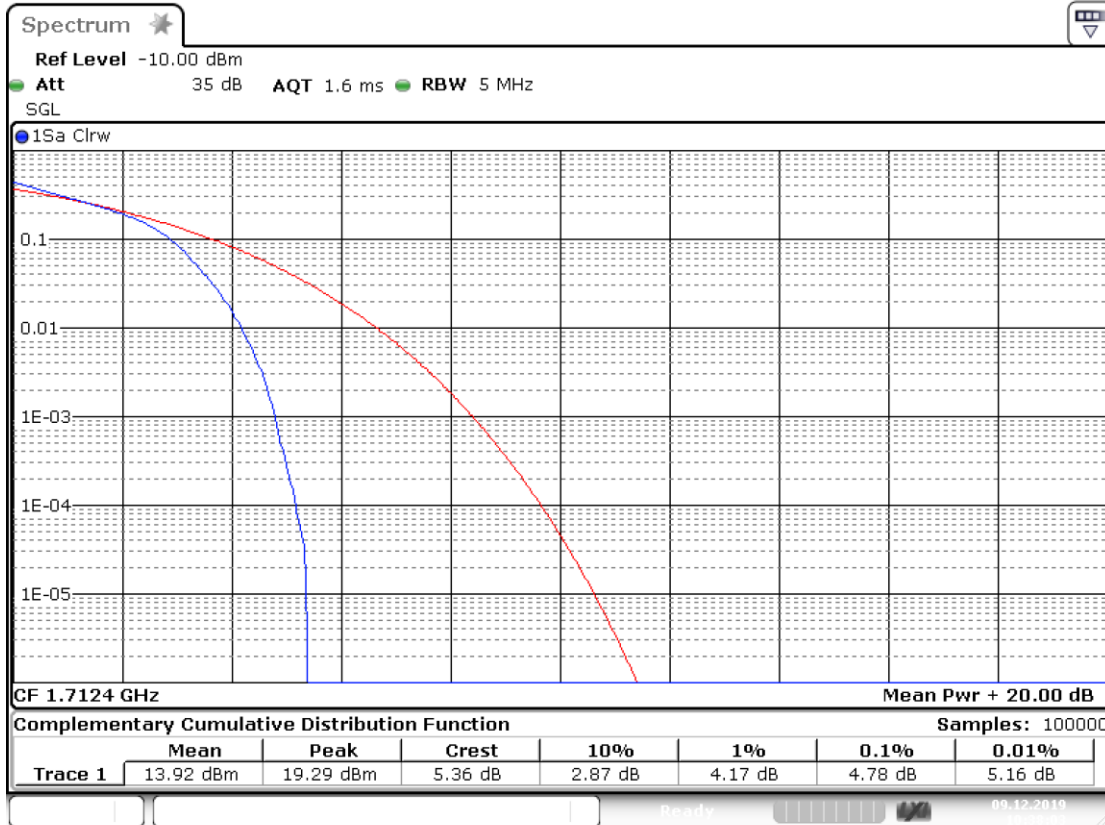
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HSUPA:

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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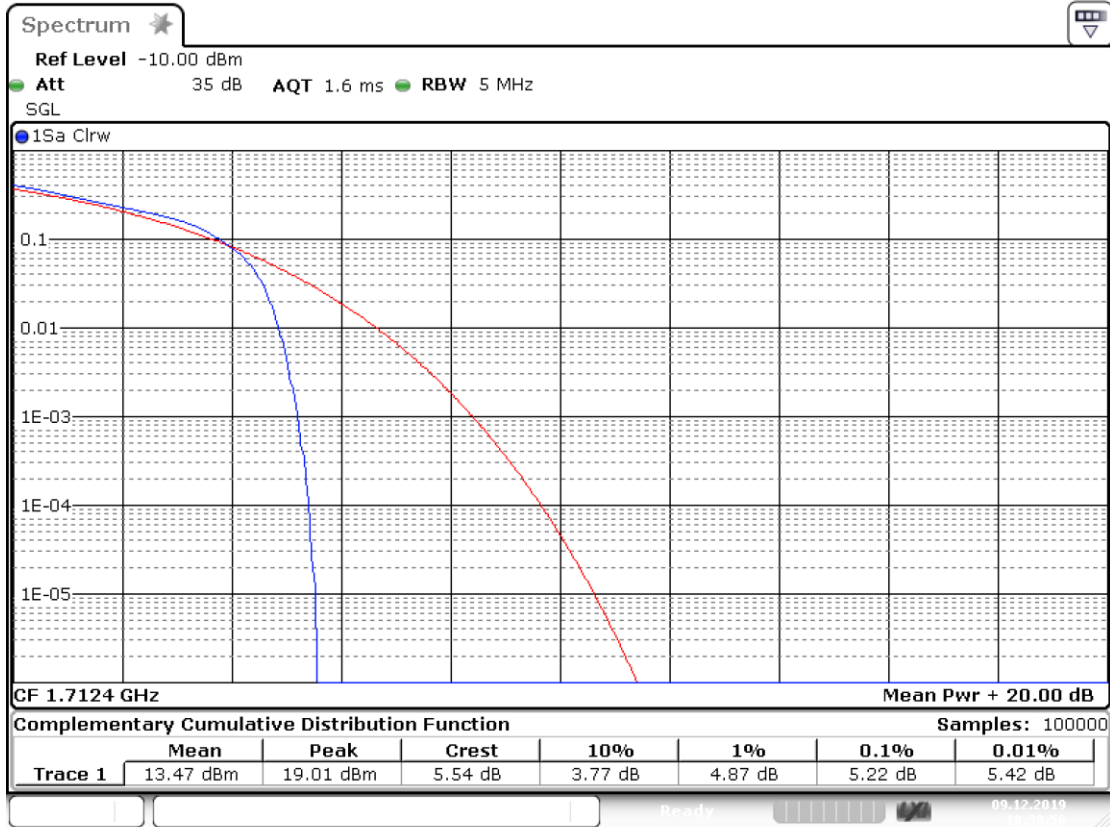
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value:SubTest2: CCDF:5.22
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:38:56

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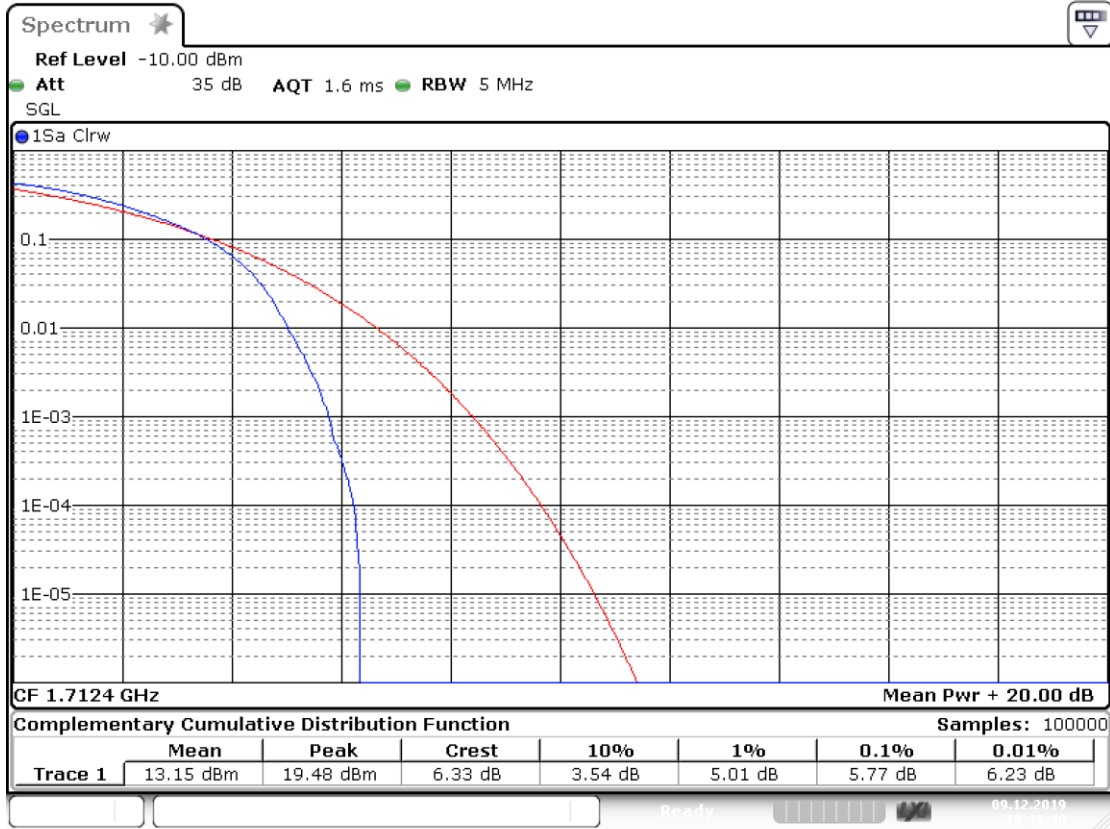
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value:SubTest3: CCDF:5.77
Result: PASS	Voltage: VN	Temperature: TN



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

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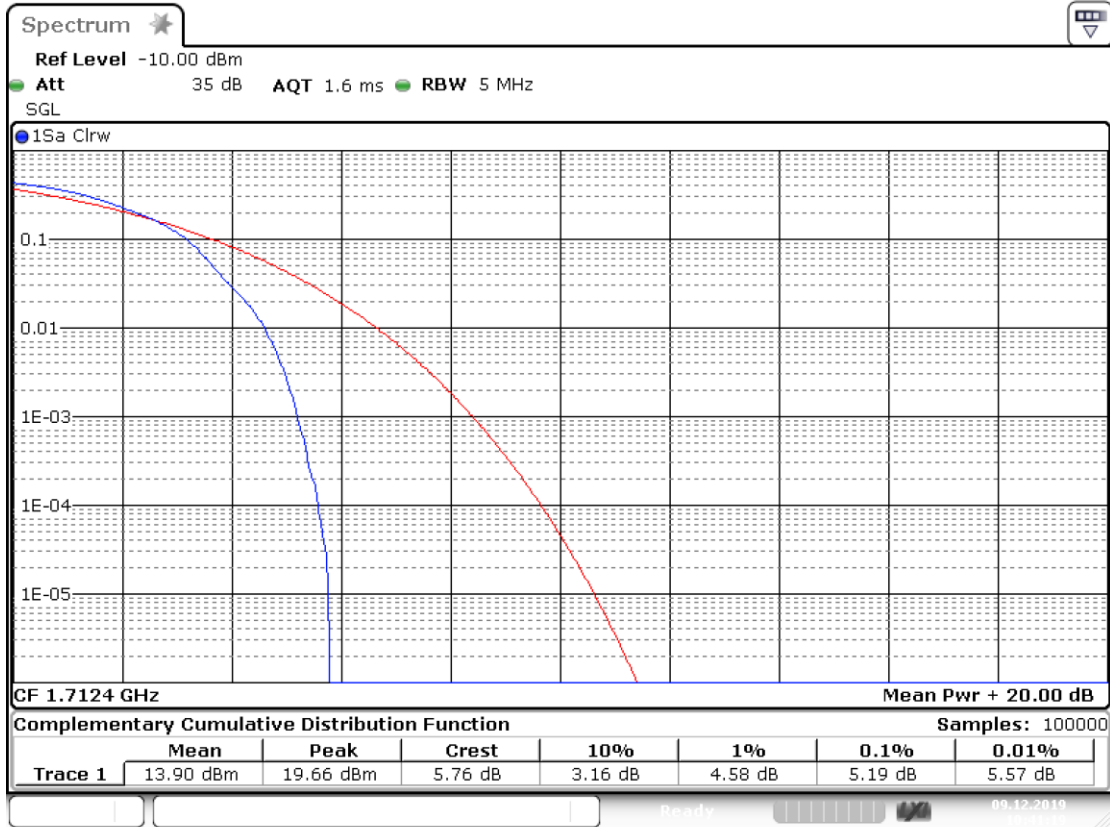
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value:SubTest4: CCDF:5.19
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:41:18

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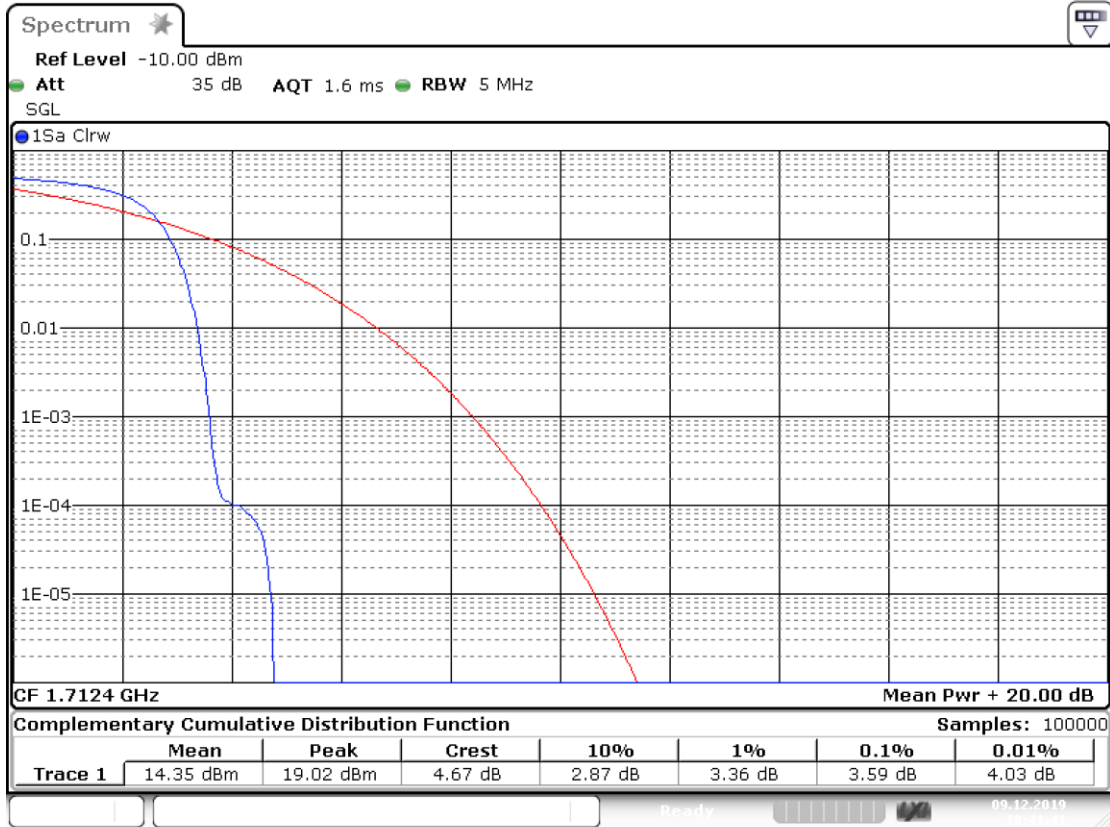
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1312	Value:SubTest5: CCDF:3.59
Result: PASS	Voltage: VN	Temperature: TN



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

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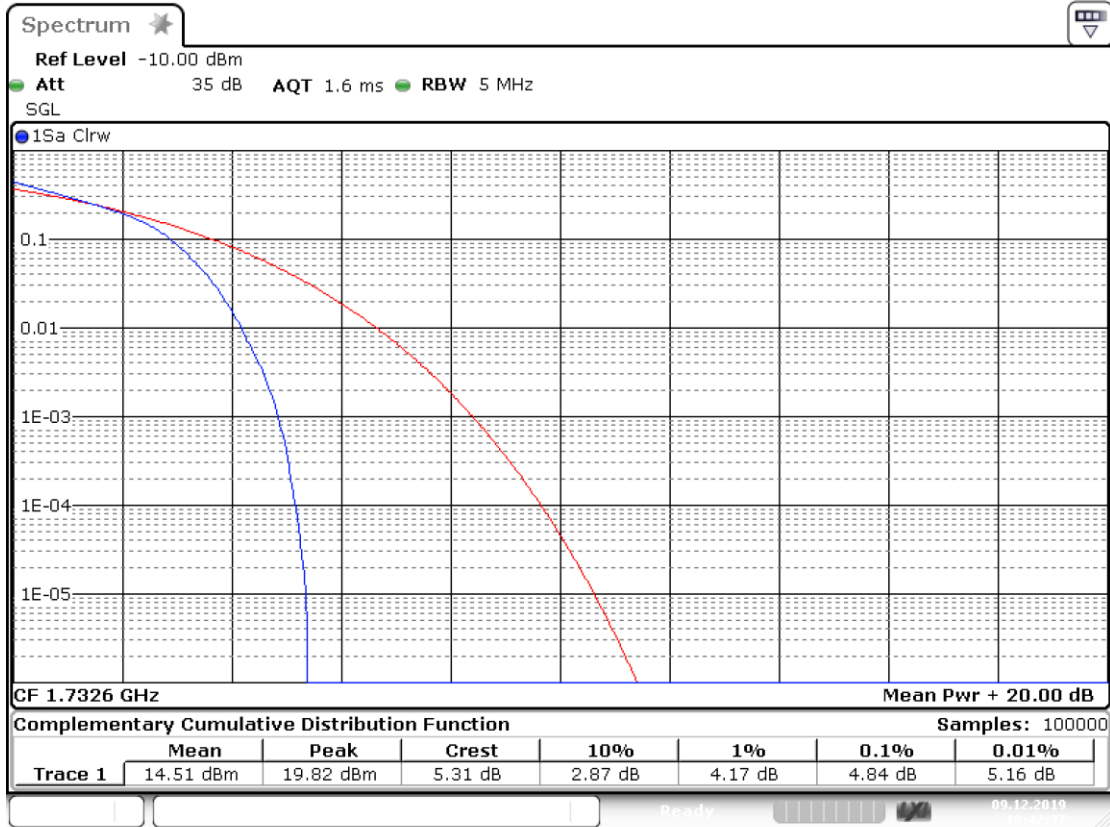
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value:SubTest1: CCDF:4.84
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:42:37

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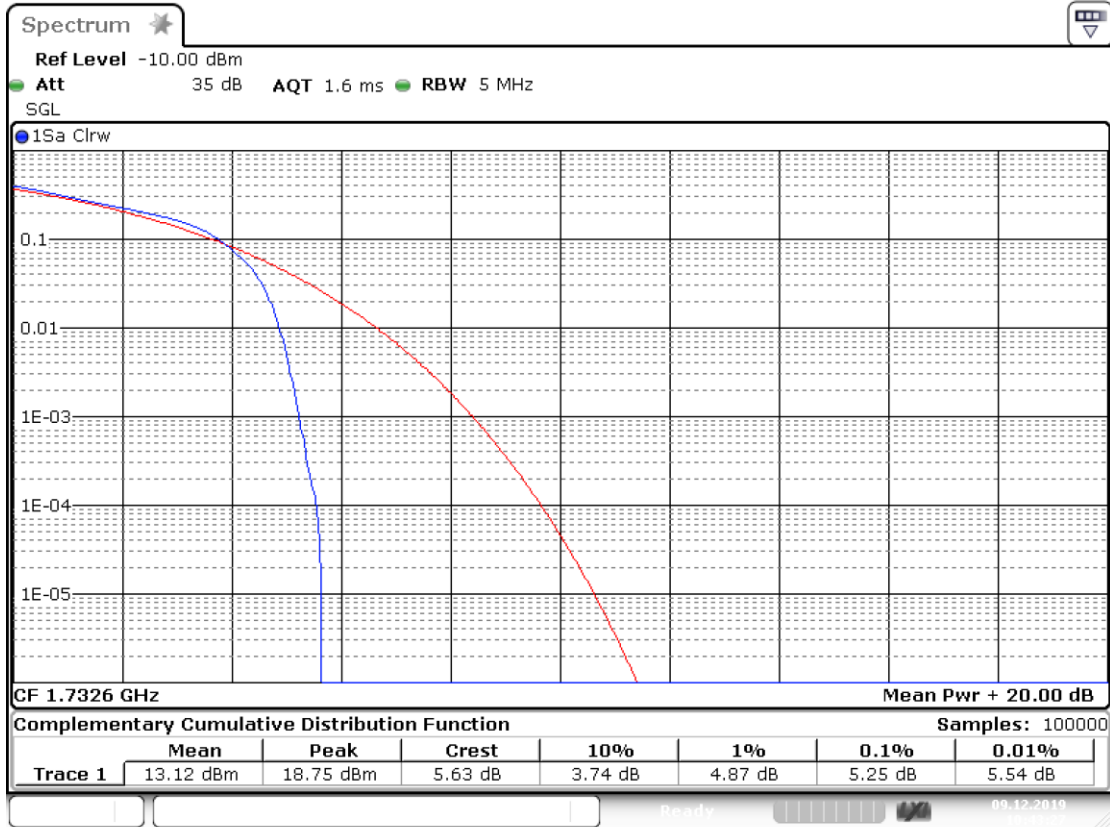
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value:SubTest2: CCDF:5.25
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:43:27

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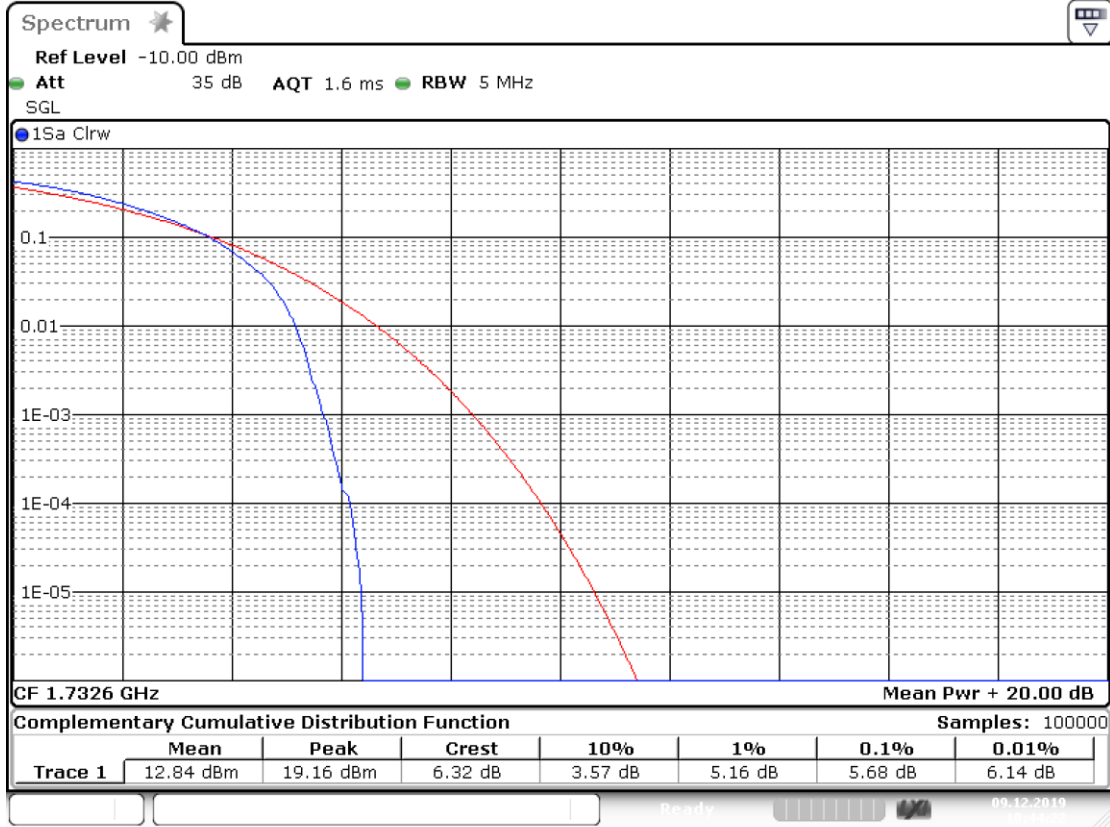
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value:SubTest3: CCDF:5.68
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:44:22

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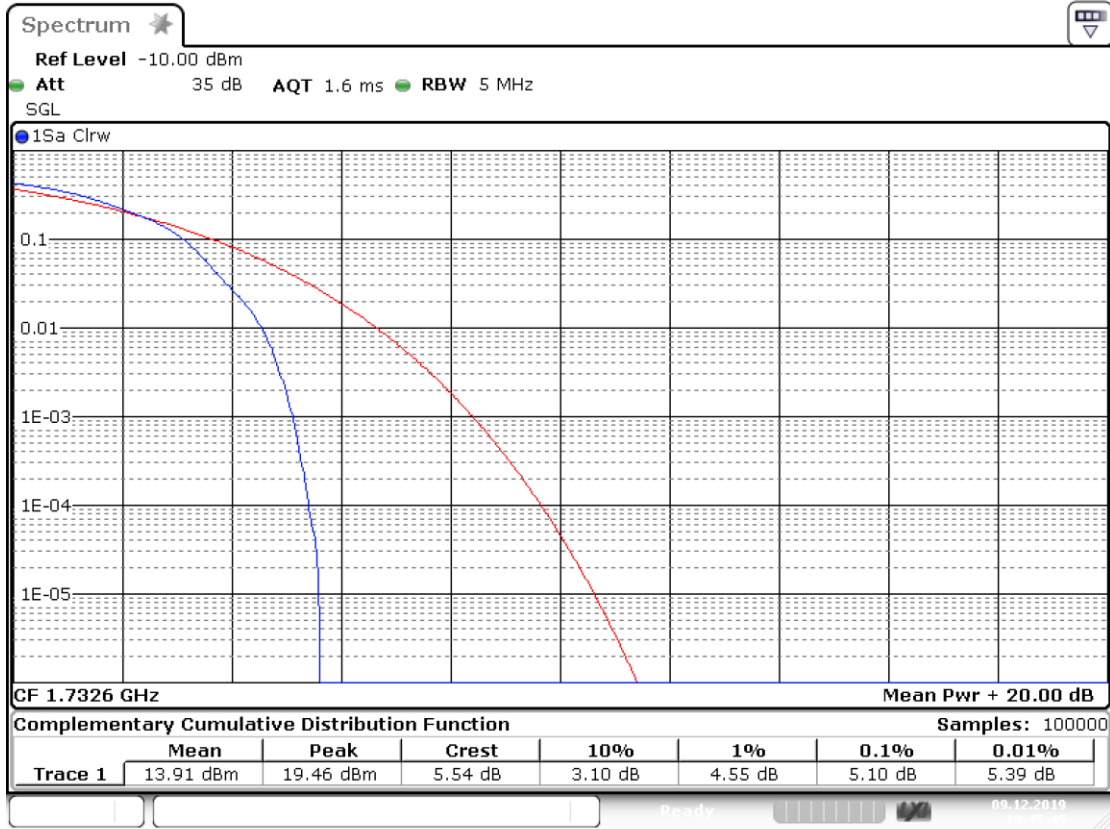
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value:SubTest4: CCDF:5.10
Result: PASS	Voltage: VN	Temperature: TN



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

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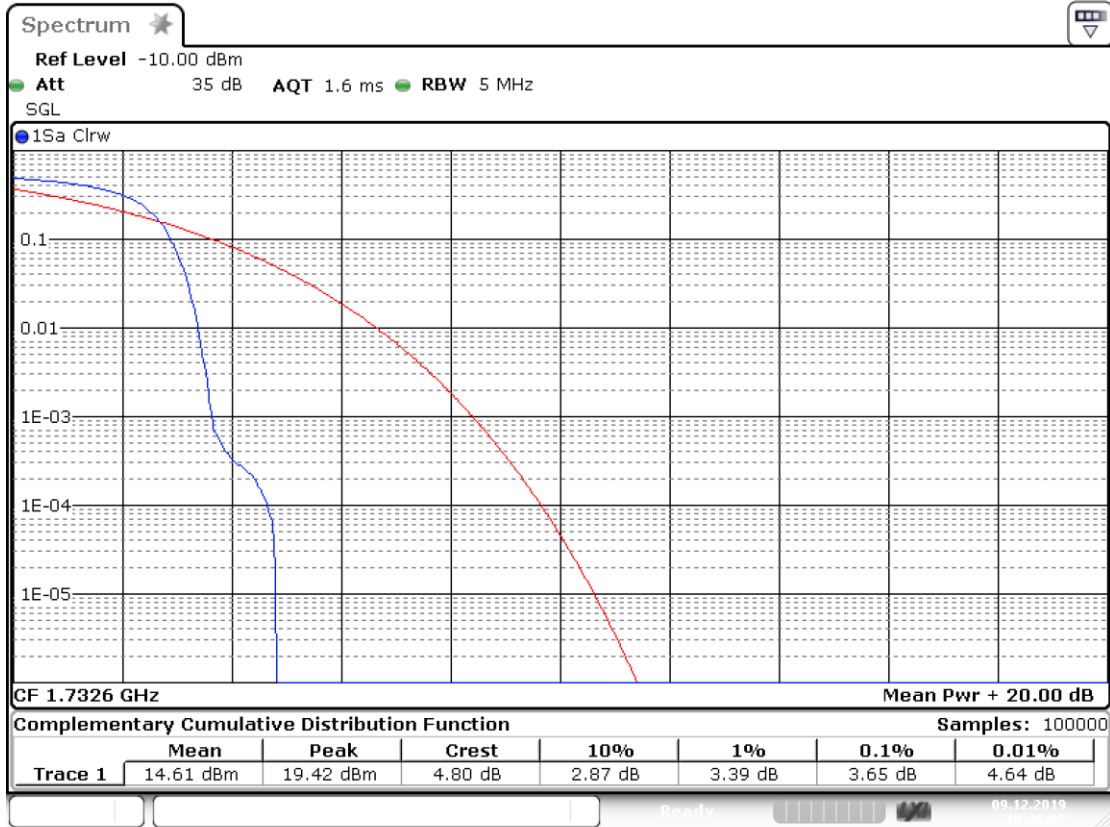
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1413	Value:SubTest5: CCDF:3.65
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:46:07

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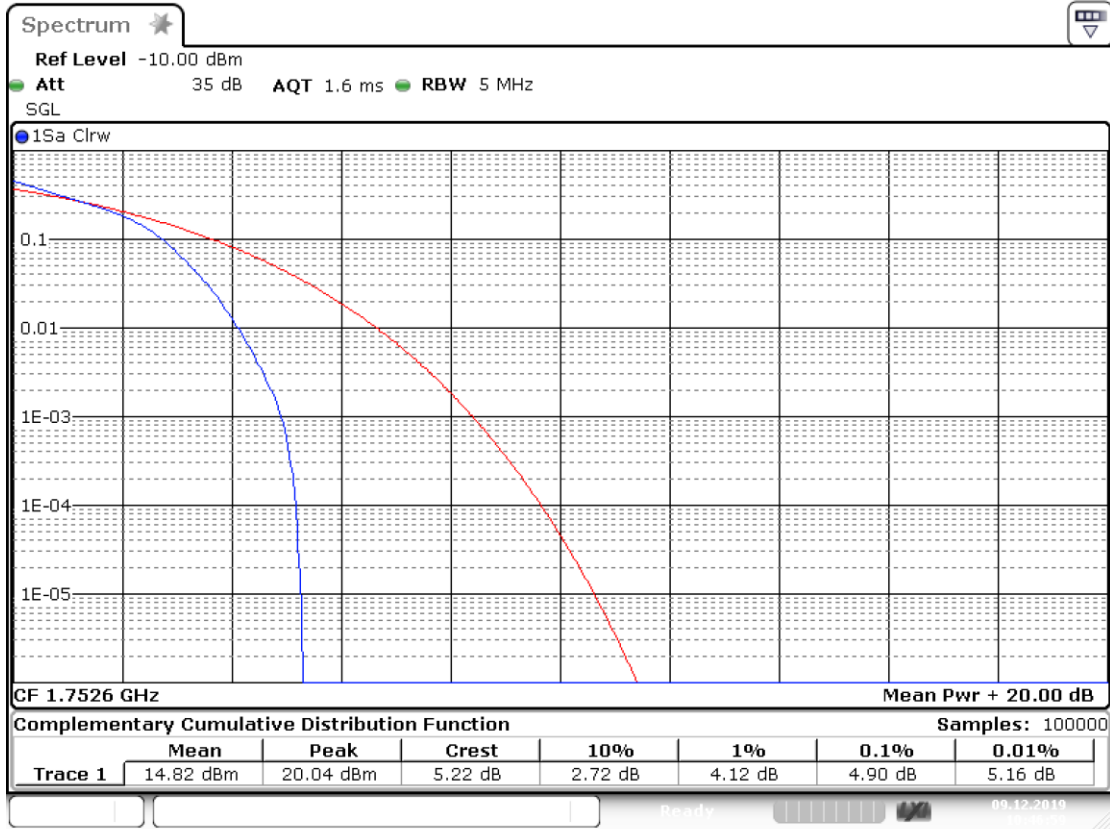
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value:SubTest1: CCDF:4.90
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:46:59

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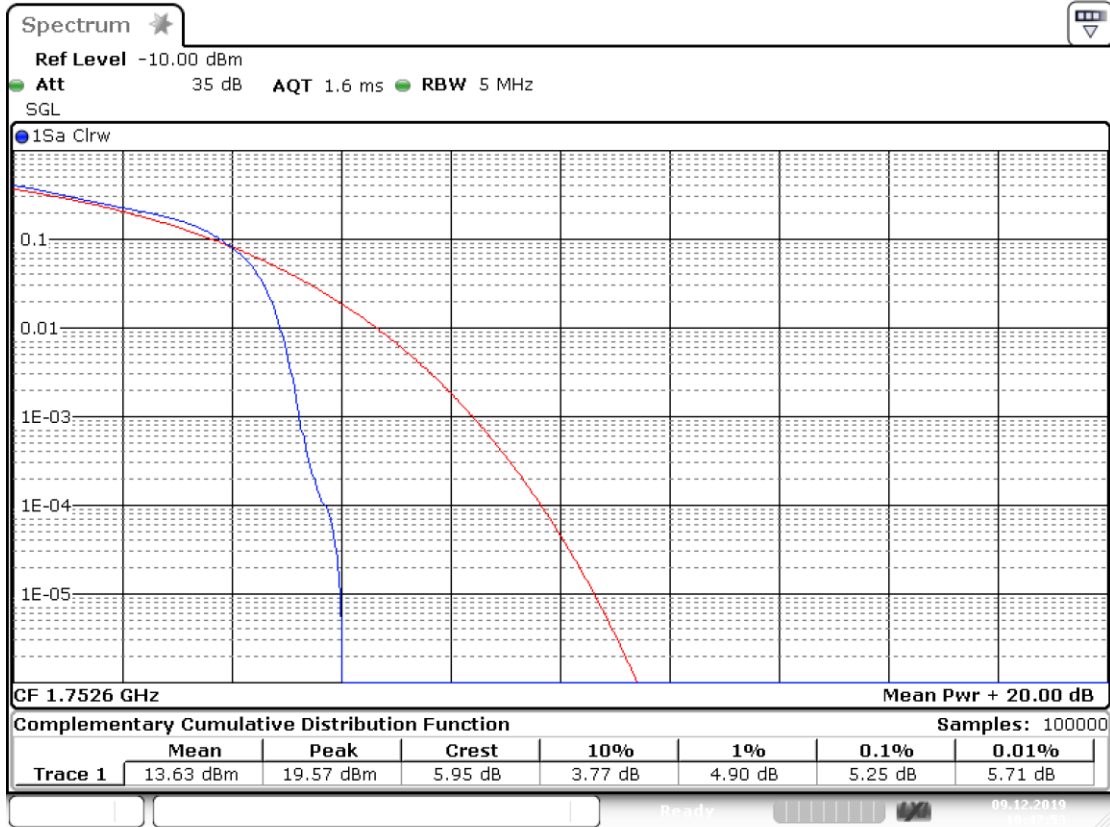
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value:SubTest2: CCDF:5.25
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:47:53

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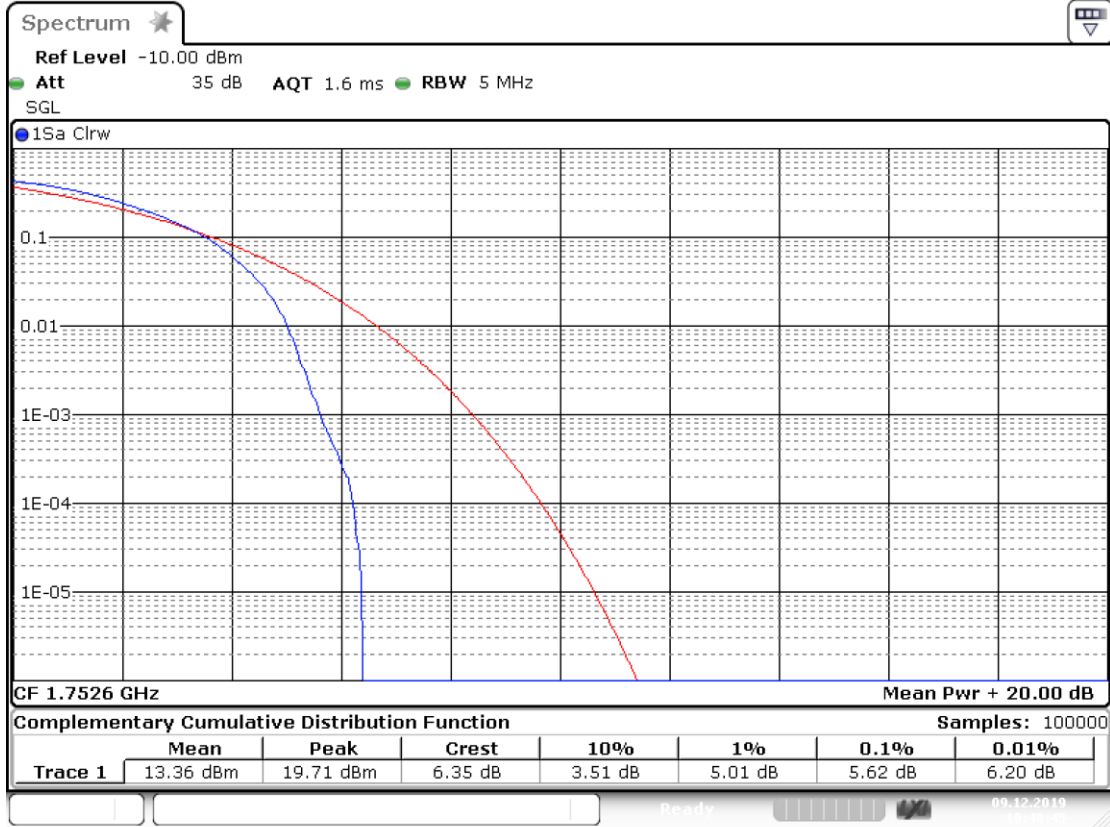
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value:SubTest3: CCDF:5.62
Result: PASS	Voltage: VN	Temperature: TN



Date: 9.DEC.2019 10:48:44

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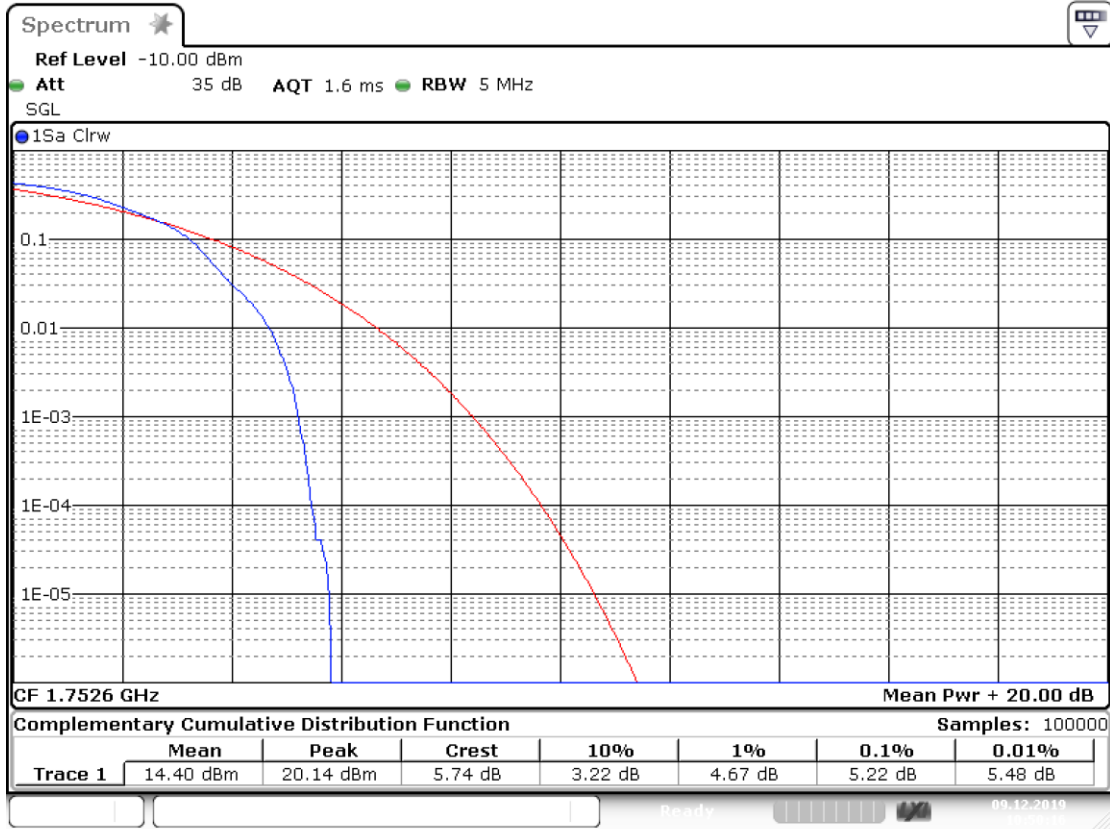
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China

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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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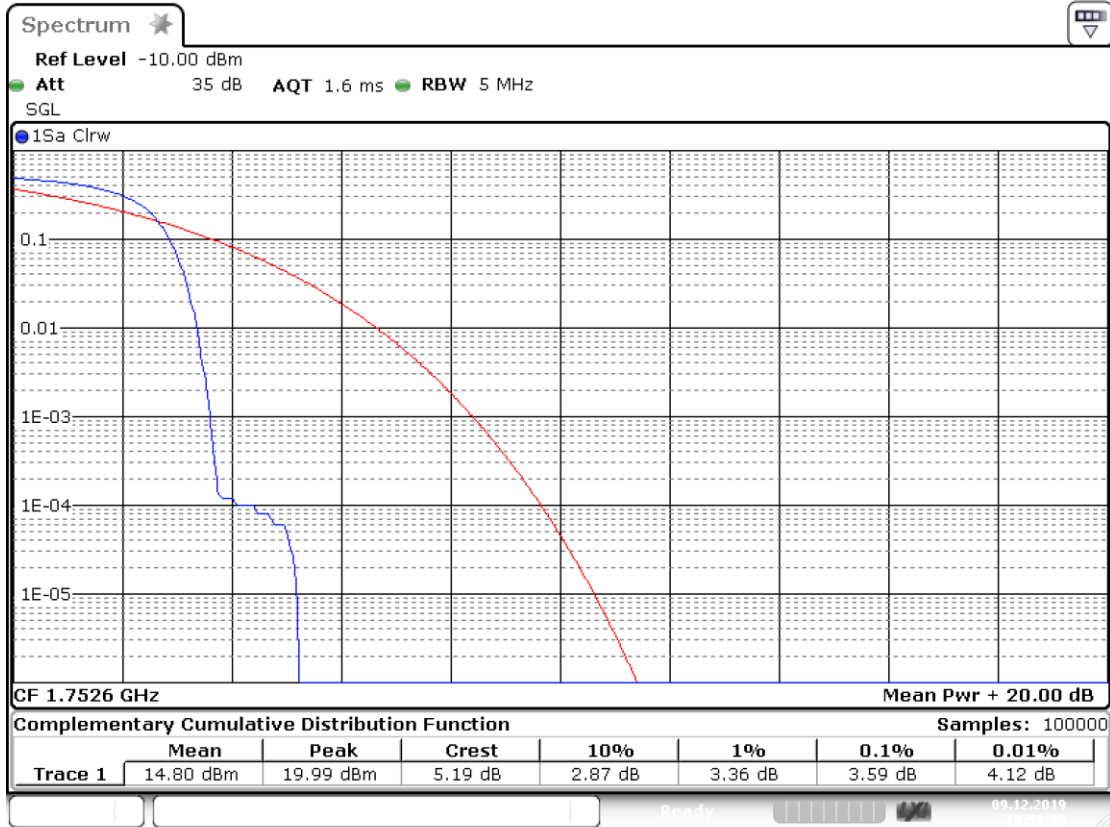
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Test Case: HSUPA Peak-to-Average Ratio		
Band: IV	Channel: 1513	Value:SubTest5: CCDF:3.59
Result: PASS	Voltage: VN	Temperature: TN



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

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Appendix C: 26dB Bandwidth and Occupied 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



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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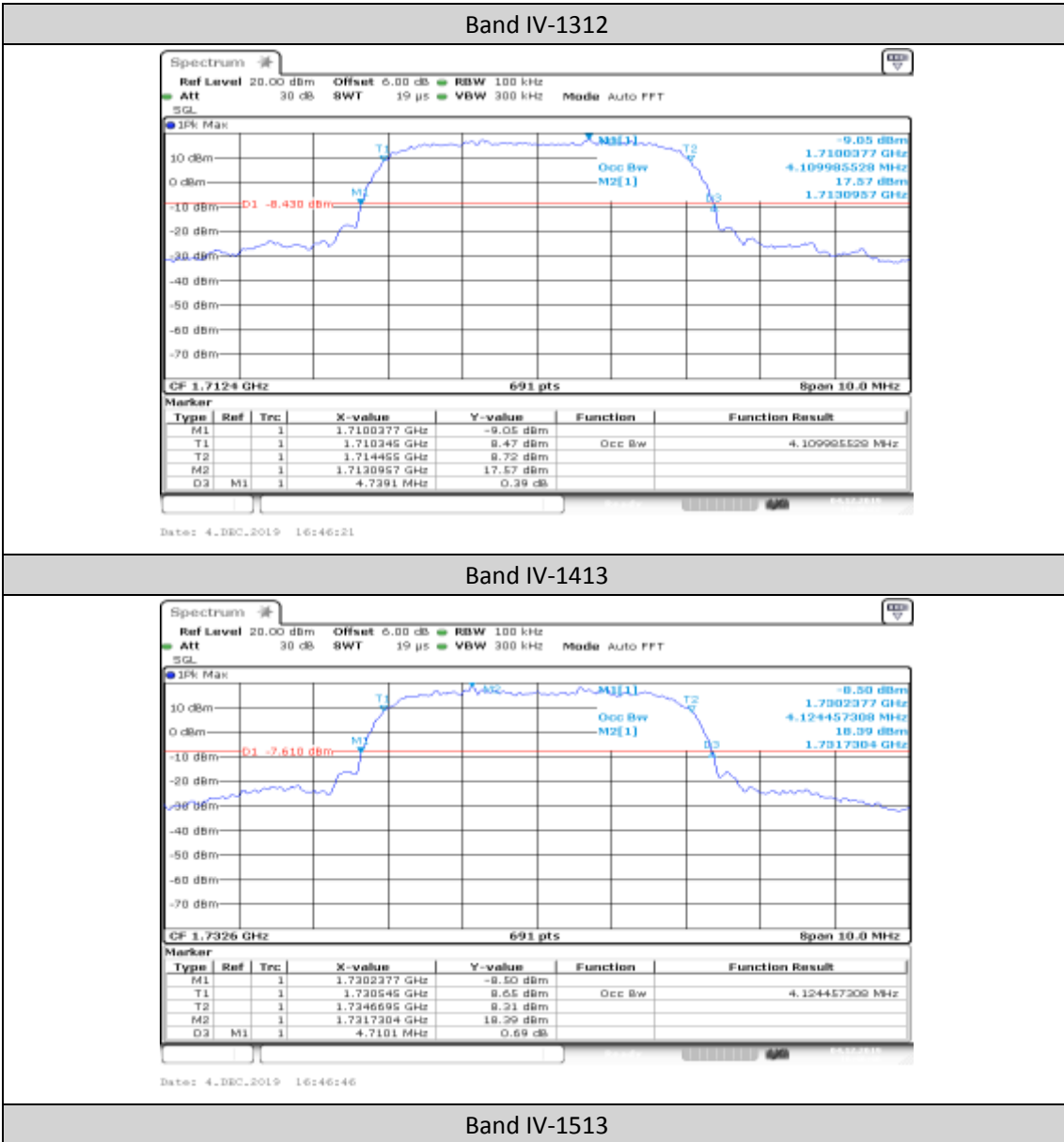
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Test Graphs

WCDMA:

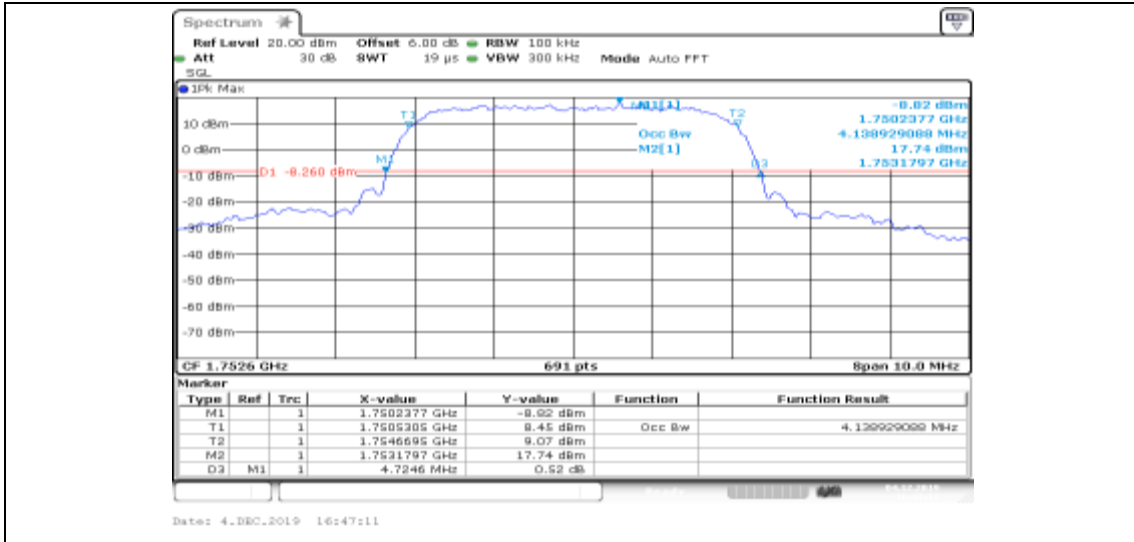


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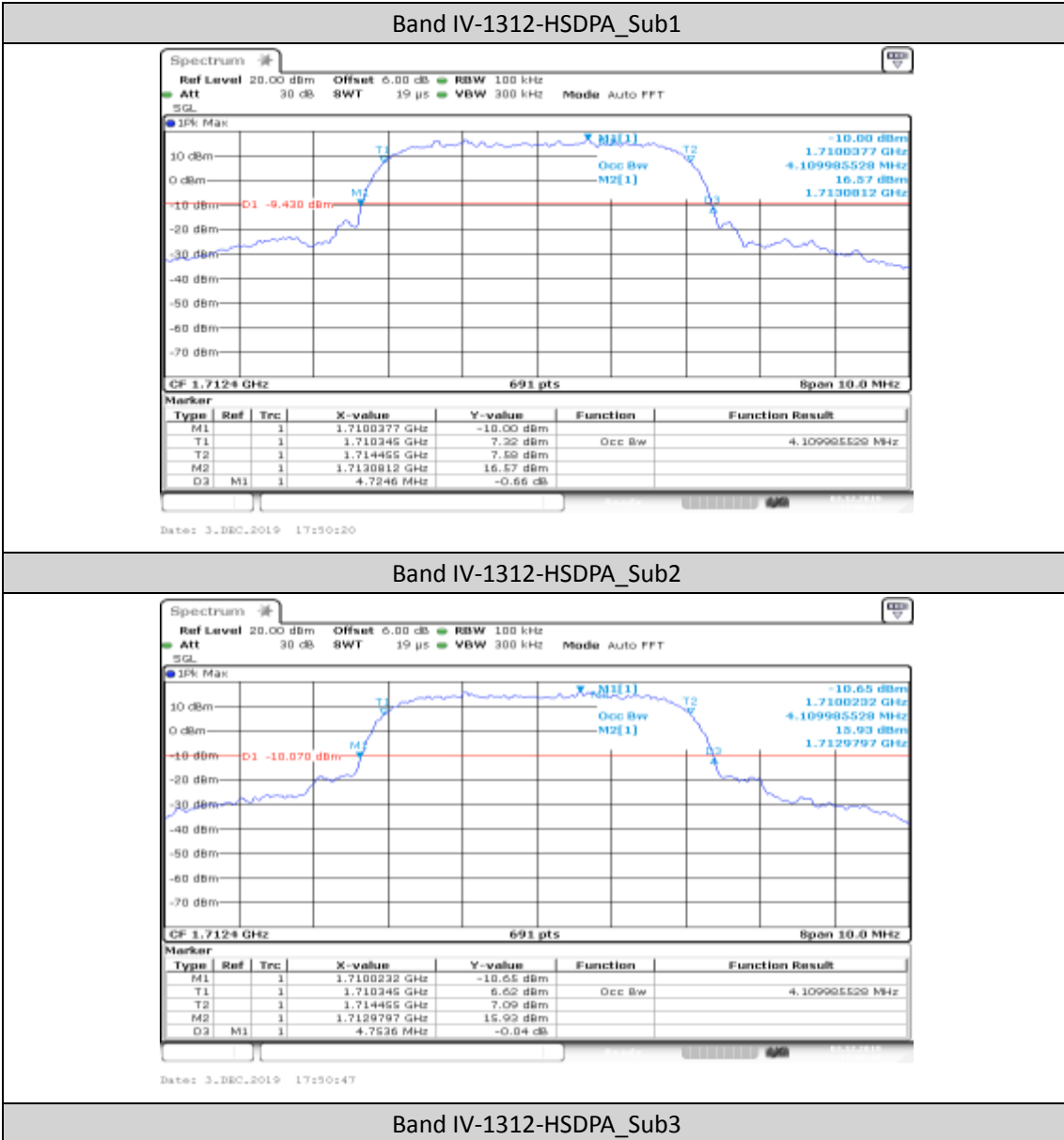
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HSDPA:



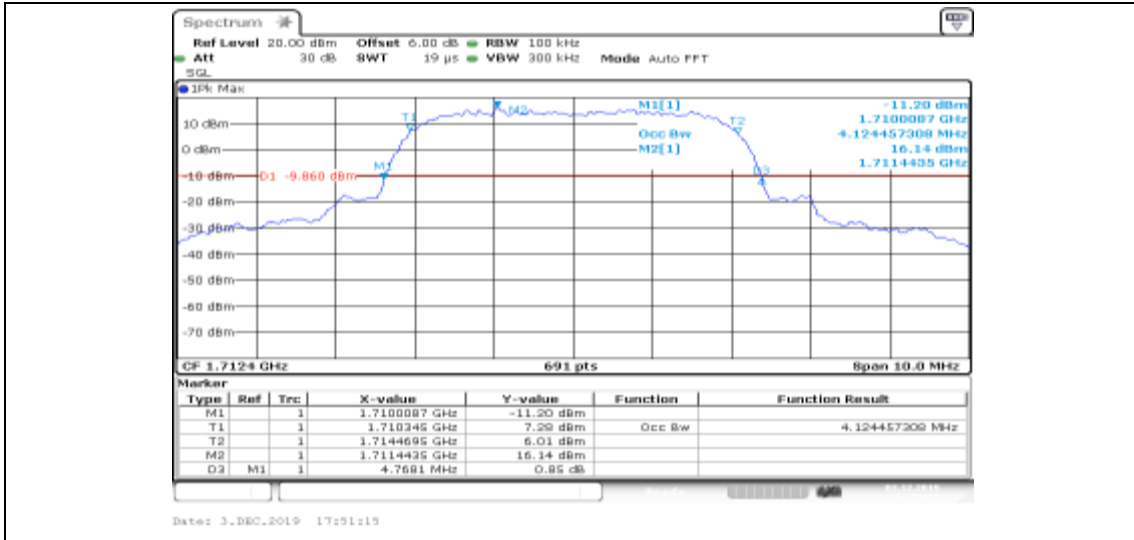
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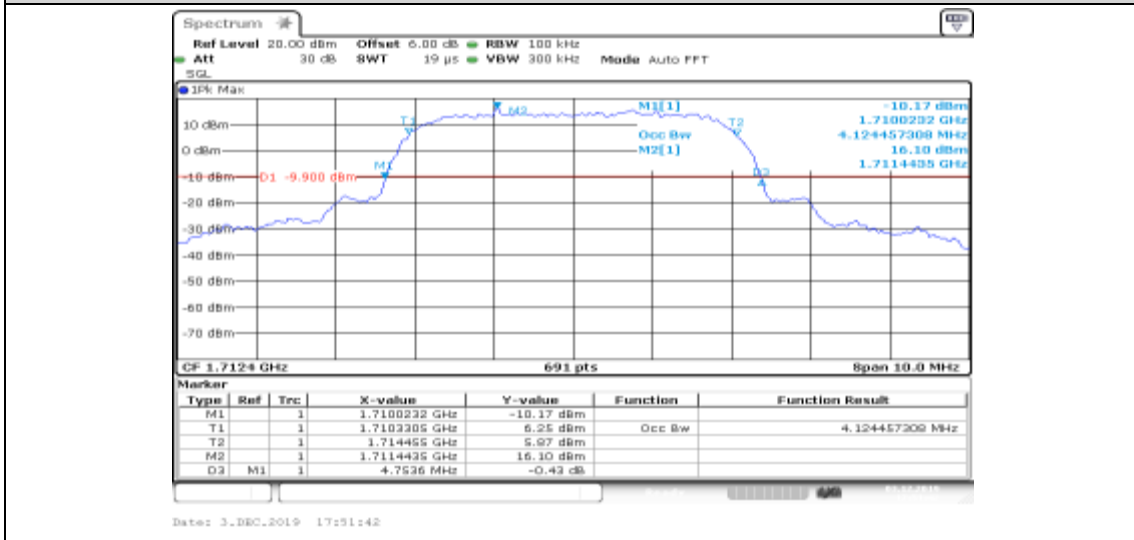
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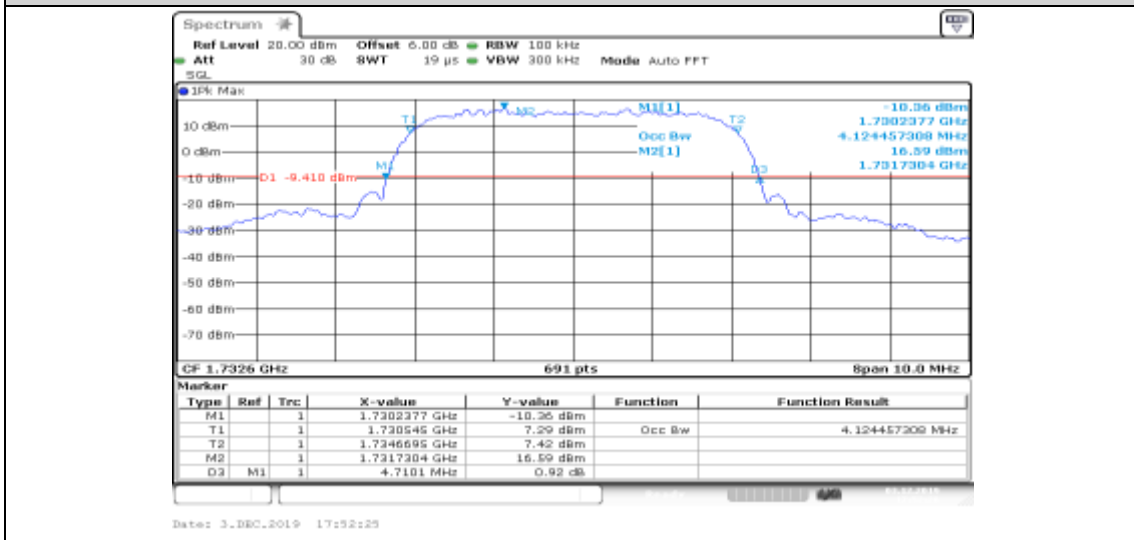
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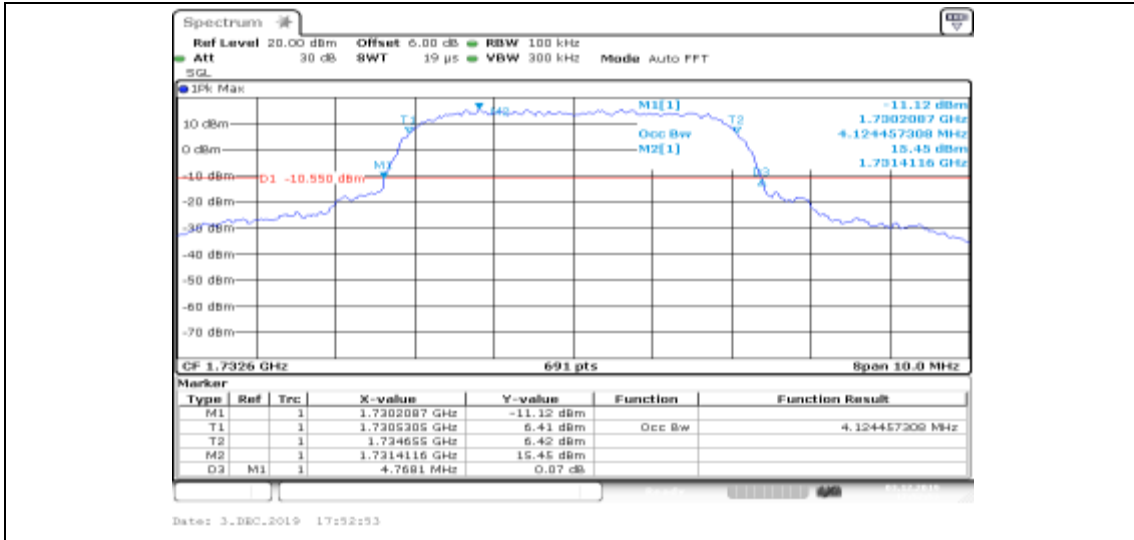
Band IV-1312-HSDPA_Sub4



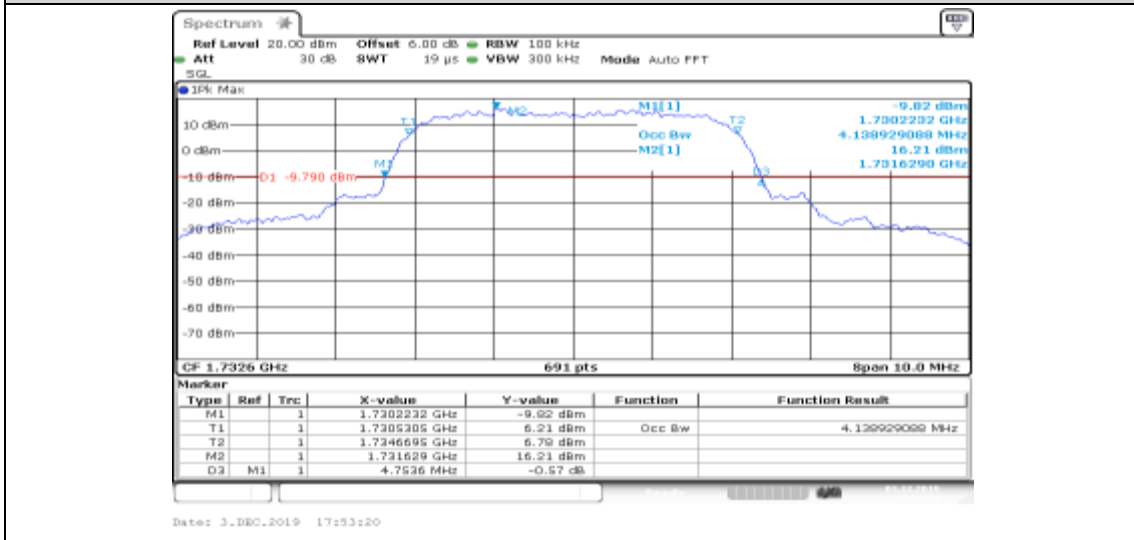
Band IV-1413-HSDPA_Sub1



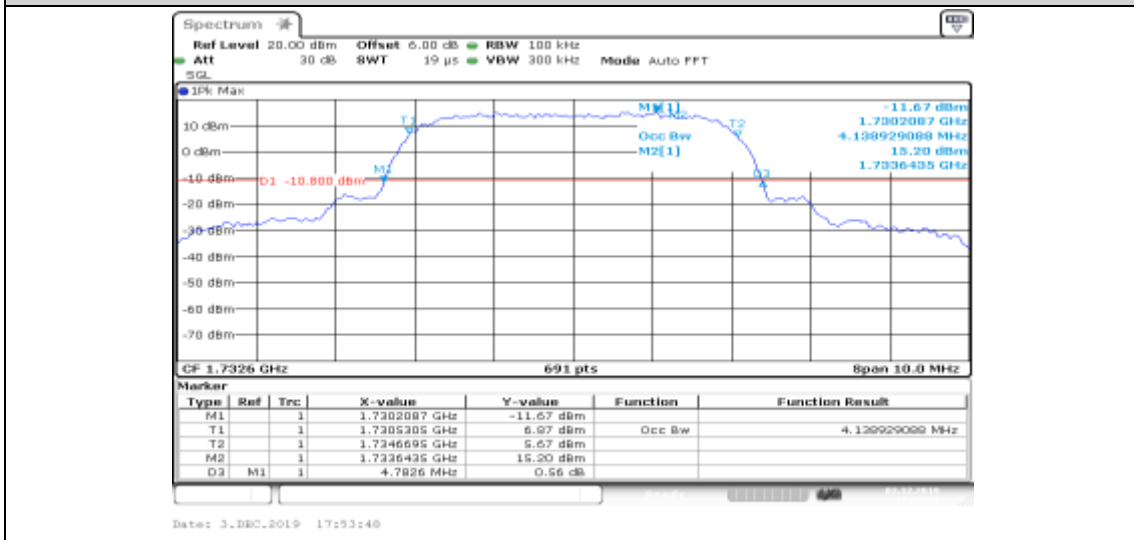
Band IV-1413-HSDPA_Sub2



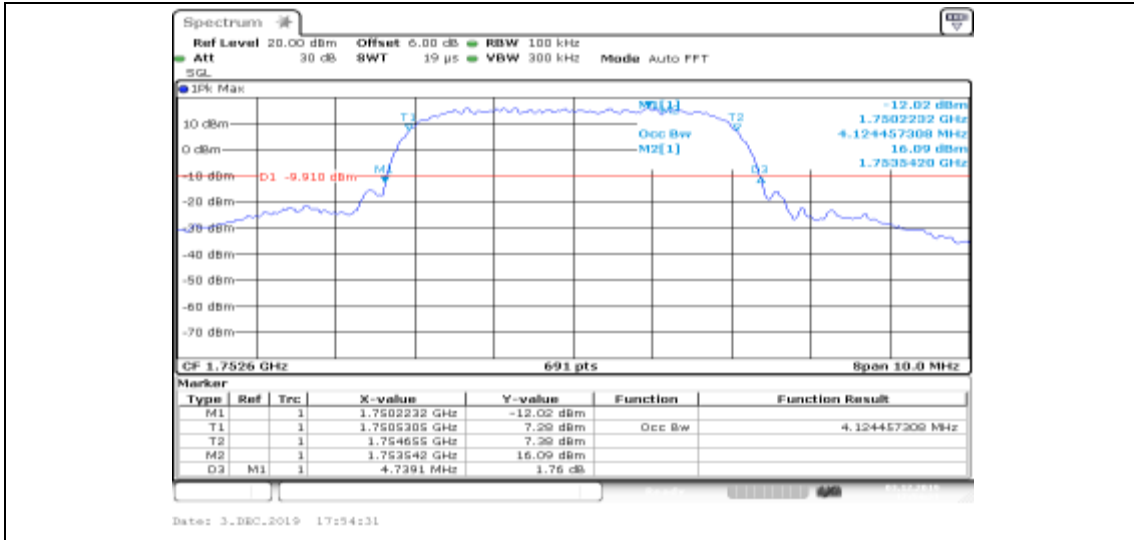
Band IV-1413-HSDPA_Sub3



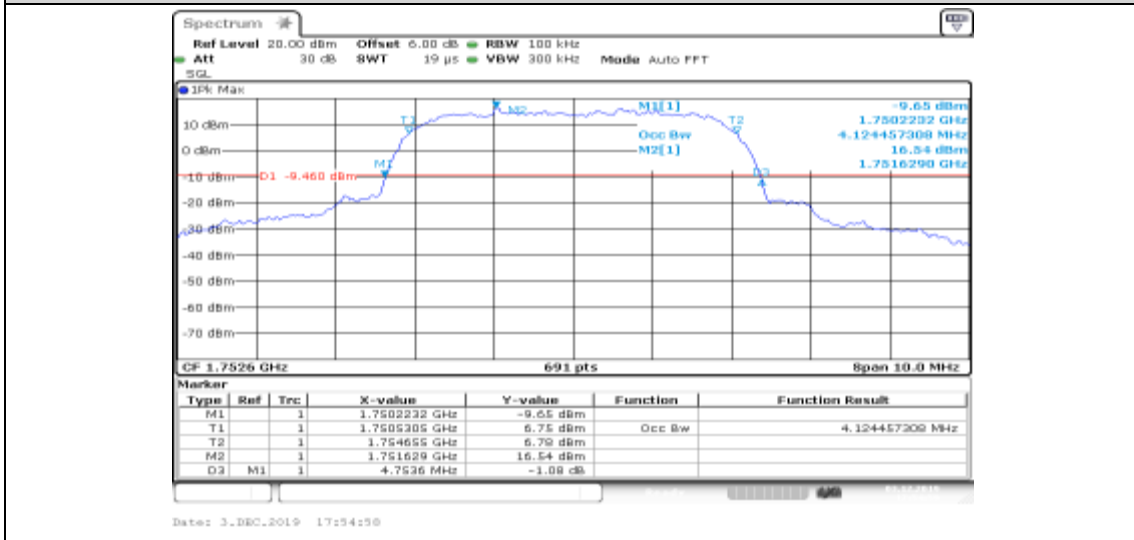
Band IV-1413-HSDPA_Sub4



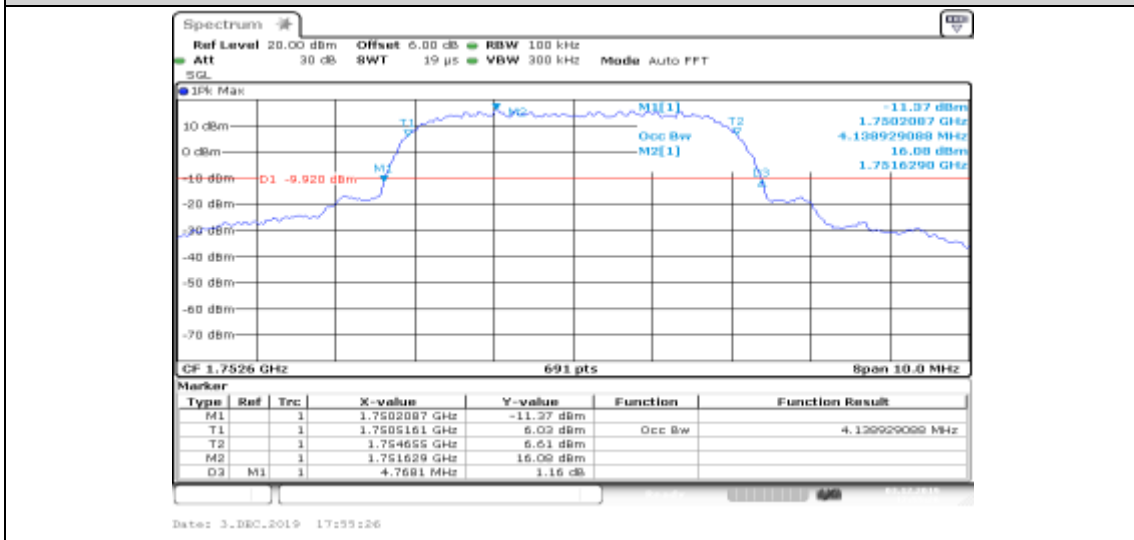
Band IV-1513-HSDPA_Sub1



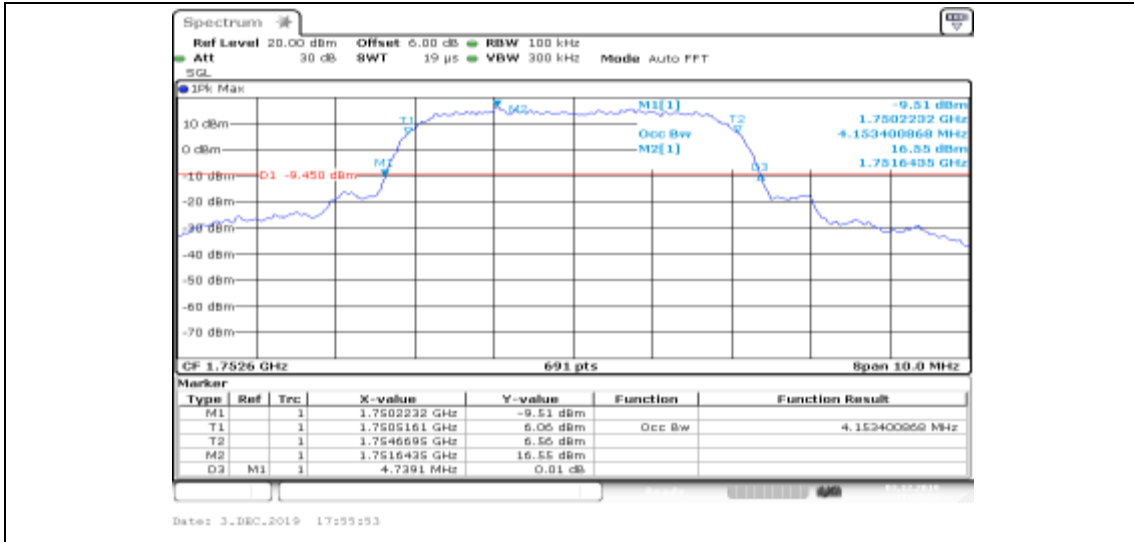
Band IV-1513-HSDPA_Sub2



Band IV-1513-HSDPA_Sub3



Band IV-1513-HSDPA_Sub4



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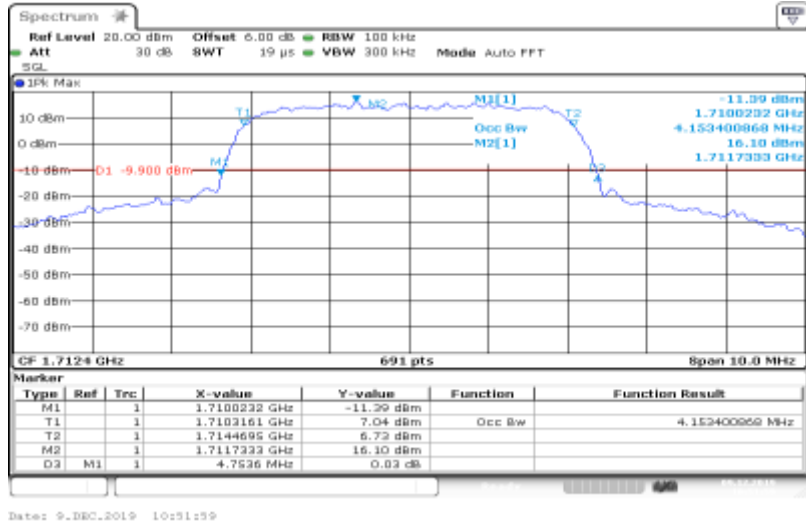
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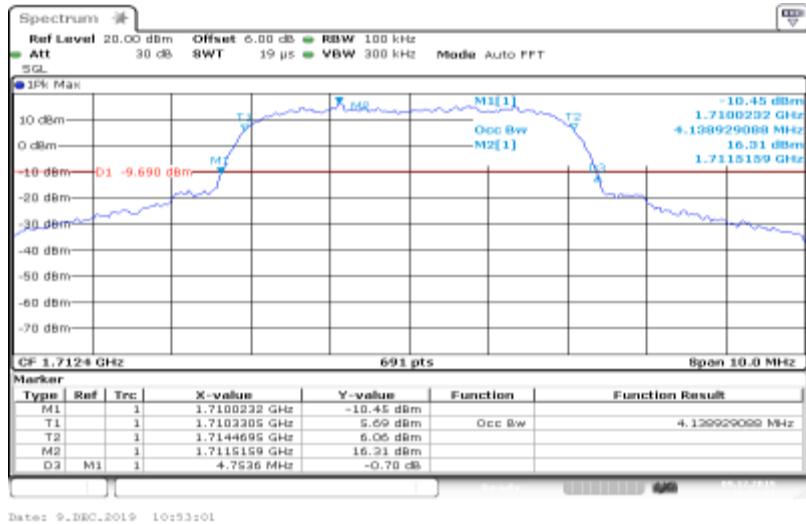
HSUPA:

Band IV-1312-HSUPA_Sub1



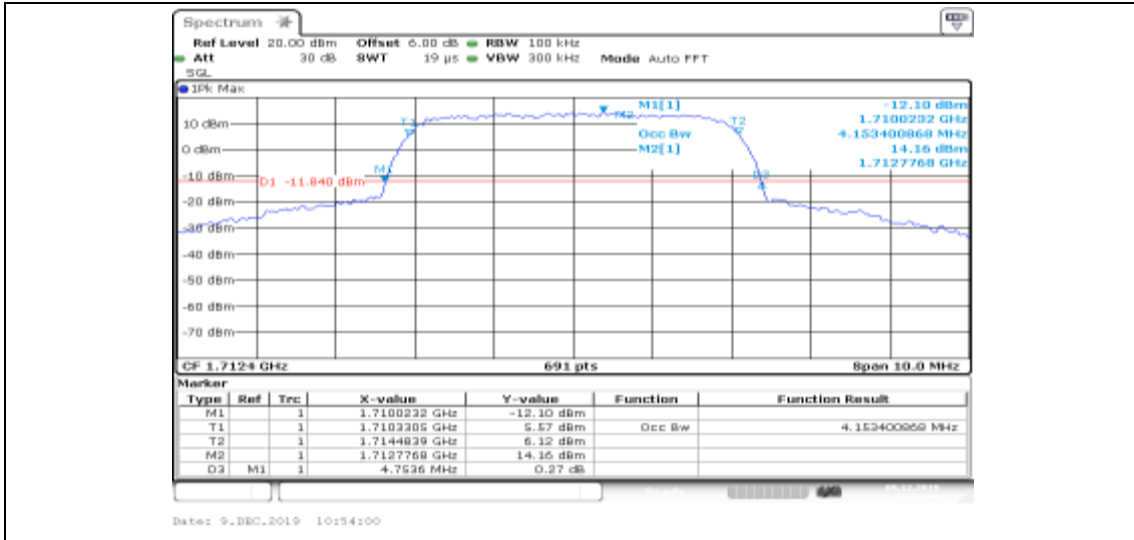
Date: 9-DEC-2019 10:51:59

Band IV-1312-HSUPA_Sub2

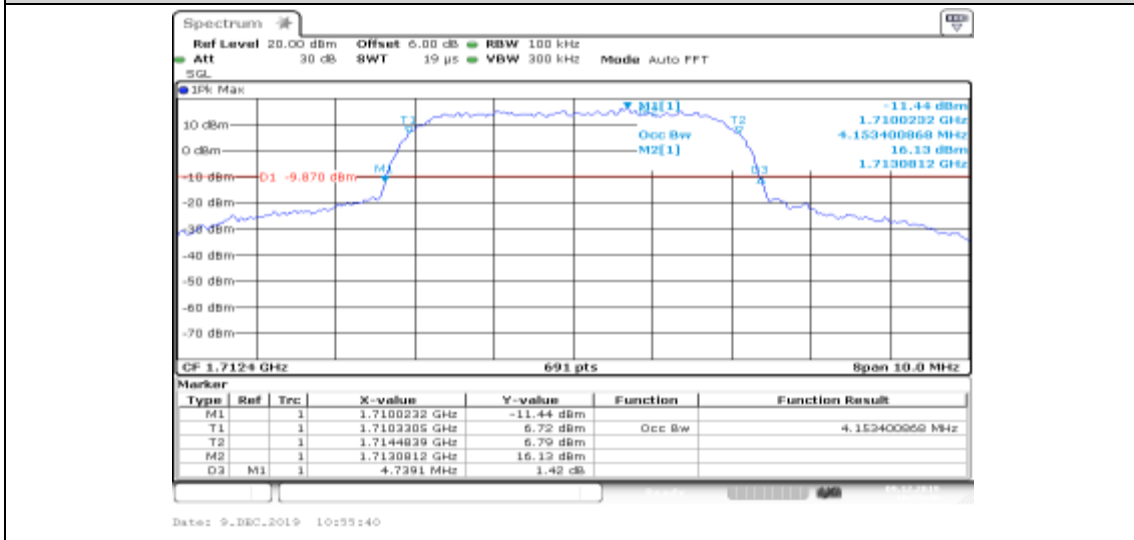


Date: 9-DEC-2019 10:53:01

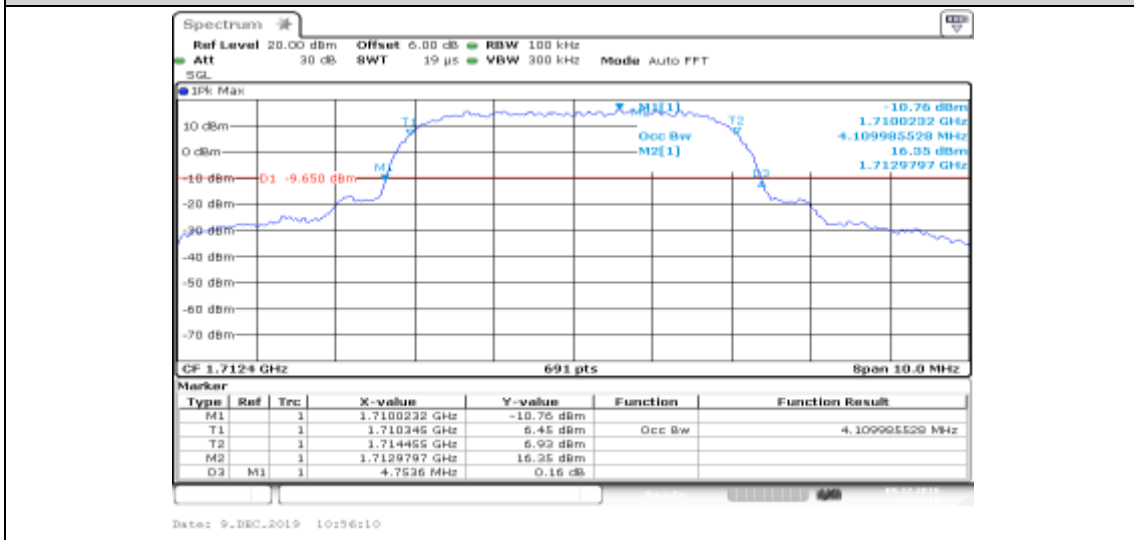
Band IV-1312-HSUPA_Sub3



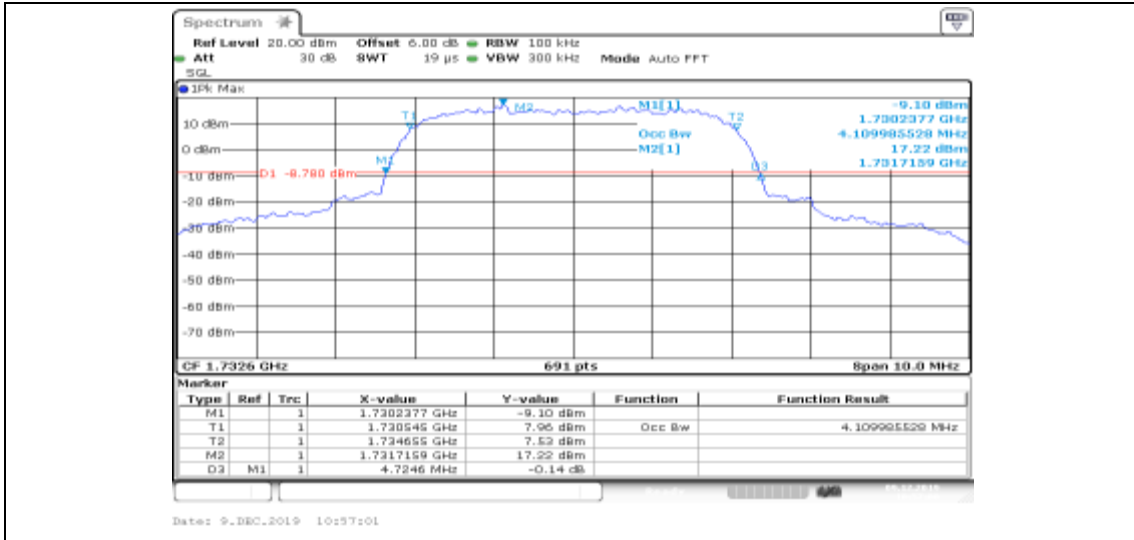
Band IV-1312-HSUPA_Sub4



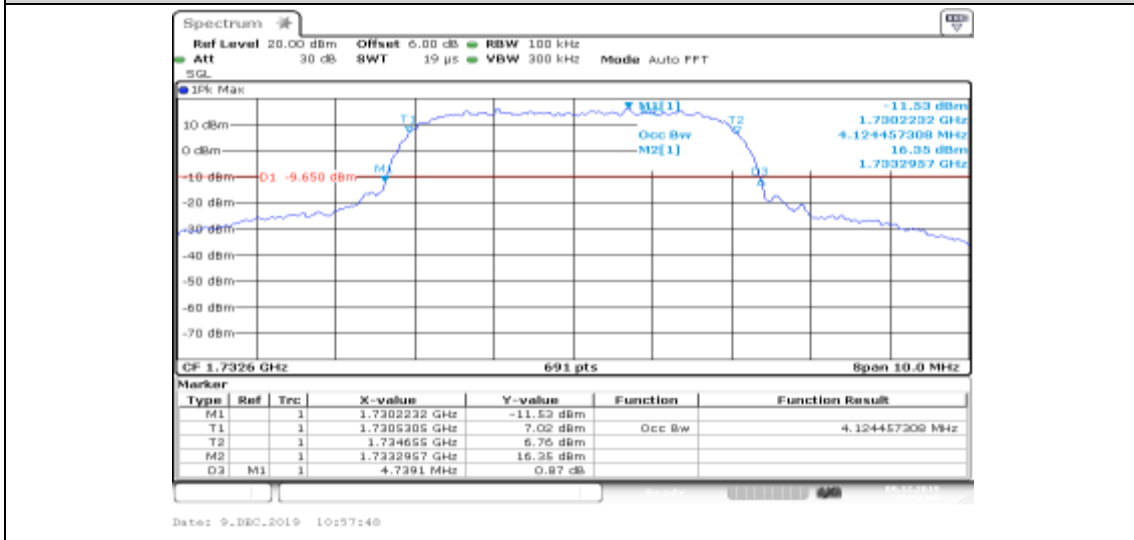
Band IV-1312-HSUPA_Sub5



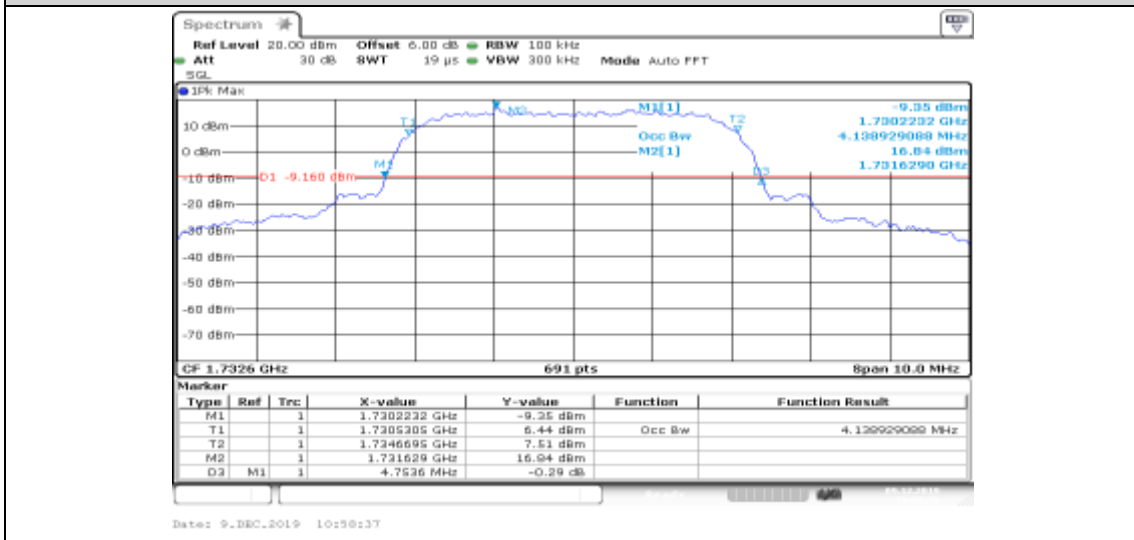
Band IV-1413-HSUPA_Sub1



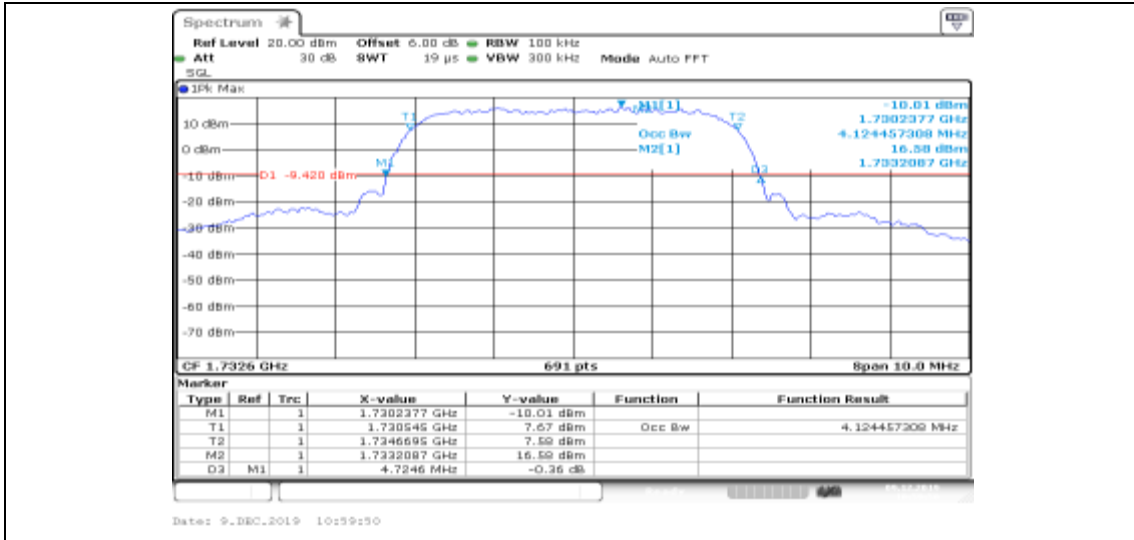
Band IV-1413-HSUPA_Sub2



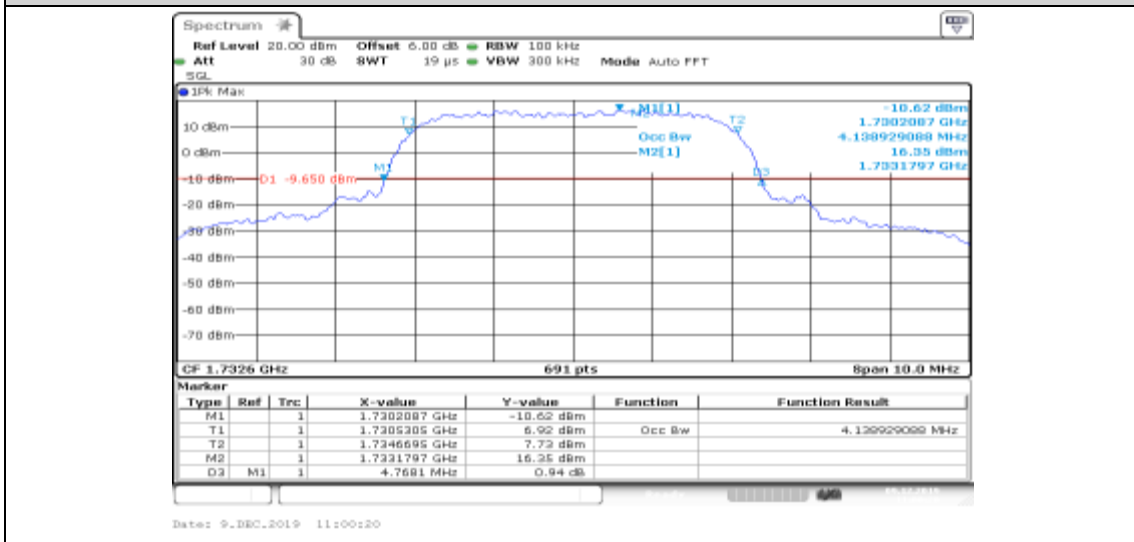
Band IV-1413-HSUPA_Sub3



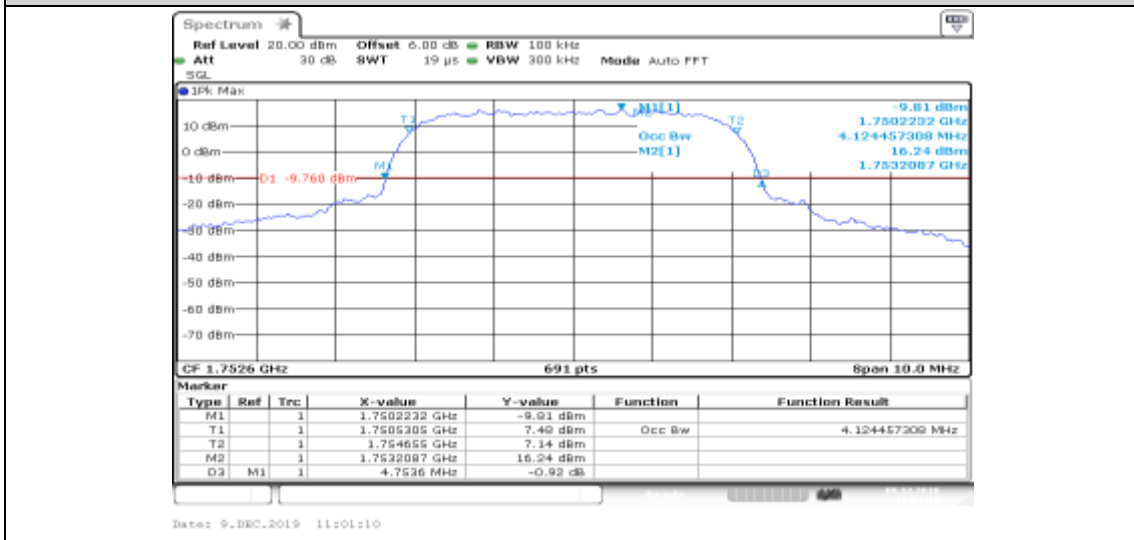
Band IV-1413-HSUPA_Sub4



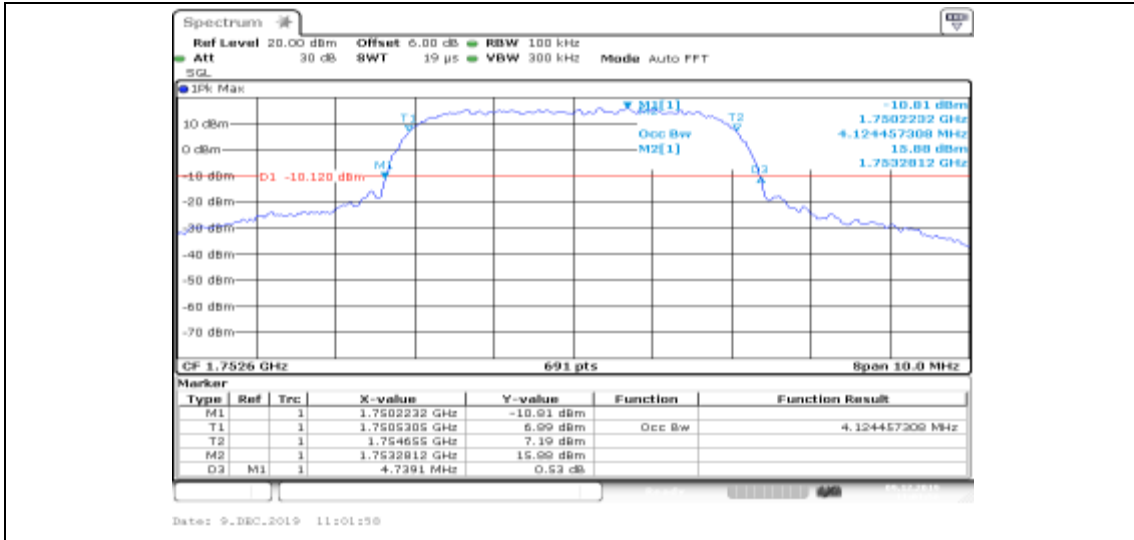
Band IV-1413-HSUPA_Sub5



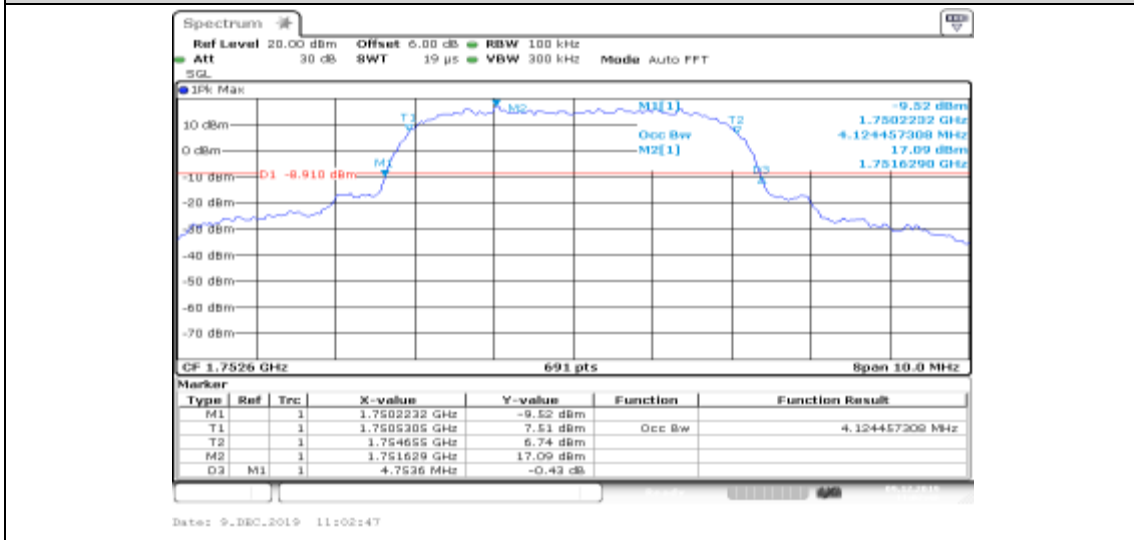
Band IV-1513-HSUPA_Sub1



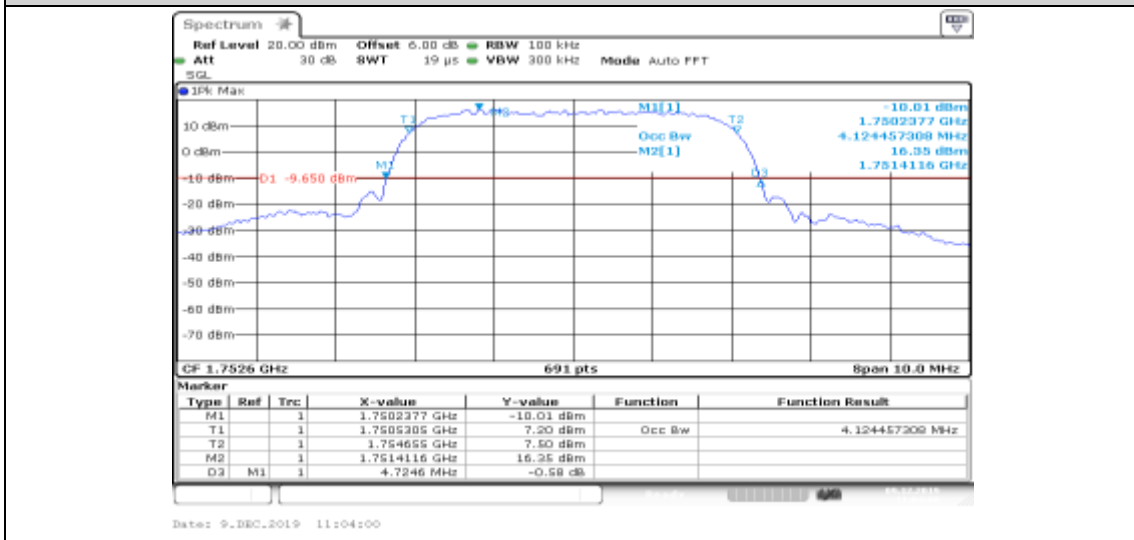
Band IV-1513-HSUPA_Sub2



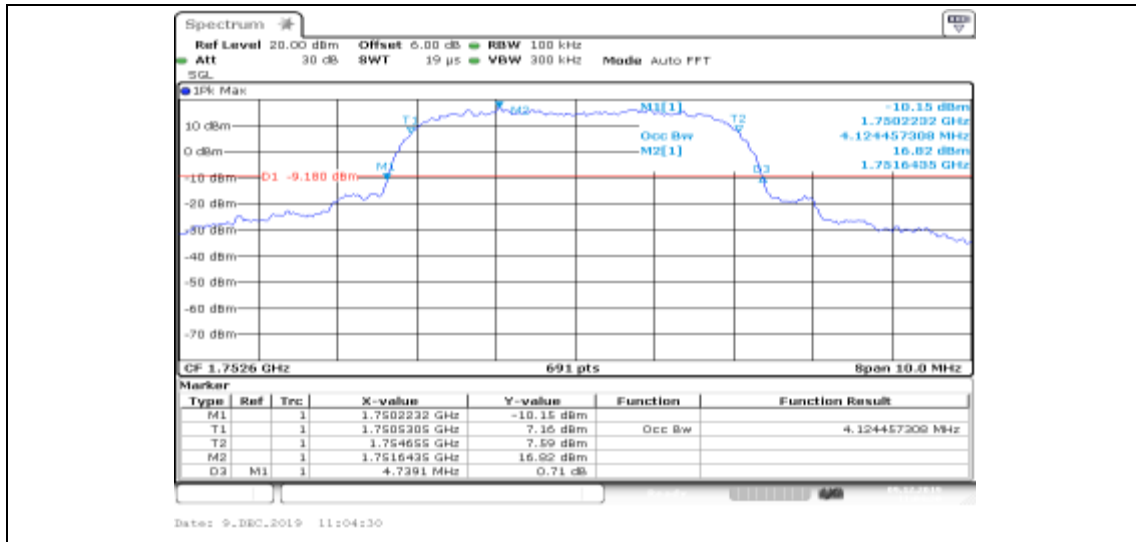
Band IV-1513-HSUPA_Sub3



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:

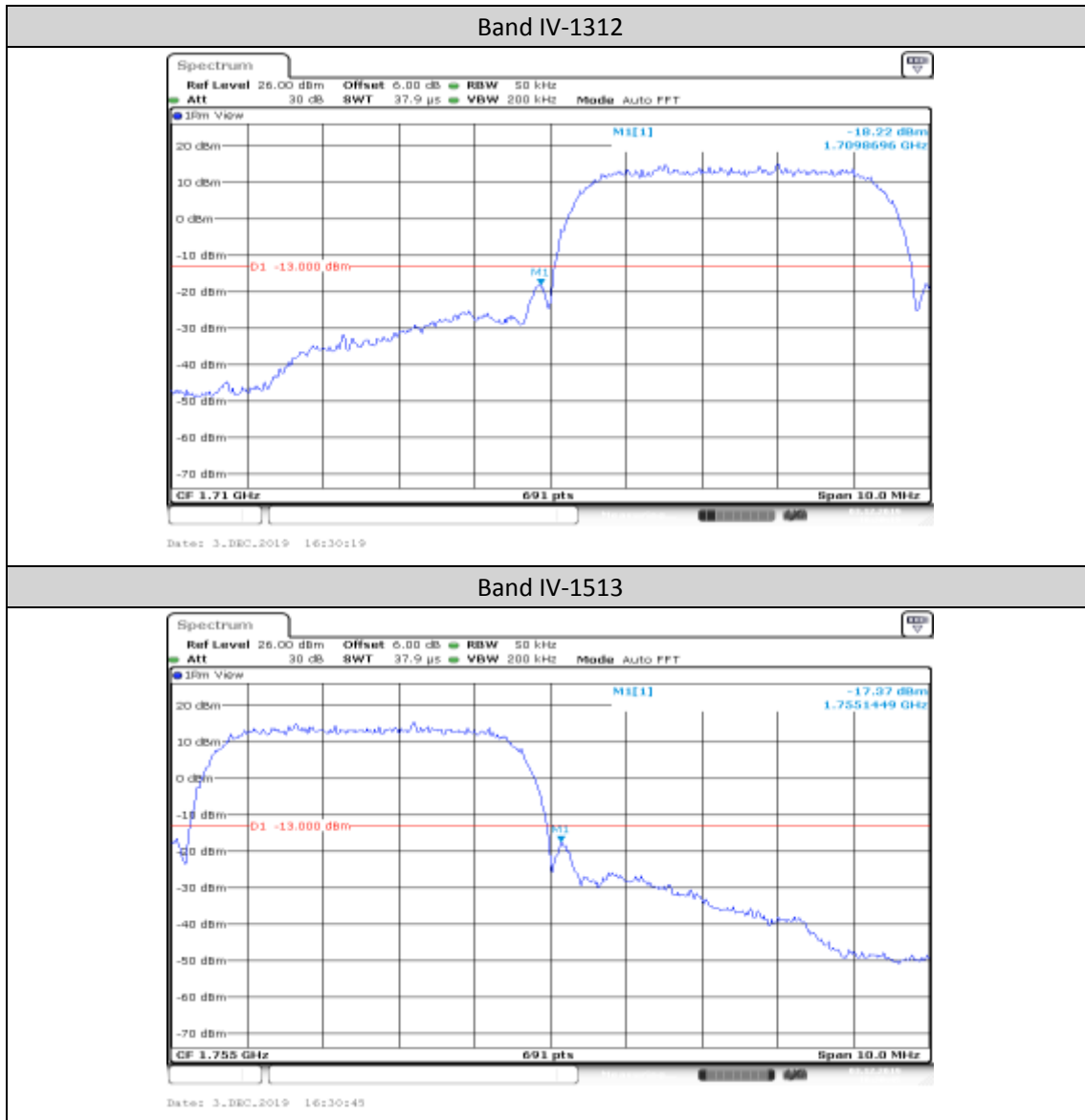
Band	Channel	SubTest	Value(dBm)	Limit(dBm)	Verdict
Band IV	1312	HSDPA_Sub0	-18.80	-13	PASS
Band IV	1312	HSDPA_Sub1	-18.26	-13	PASS
Band IV	1312	HSDPA_Sub2	-15.93	-13	PASS
Band IV	1312	HSDPA_Sub3	-16.48	-13	PASS
Band IV	1513	HSDPA_Sub0	-19.01	-13	PASS
Band IV	1513	HSDPA_Sub1	-18.52	-13	PASS
Band IV	1513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

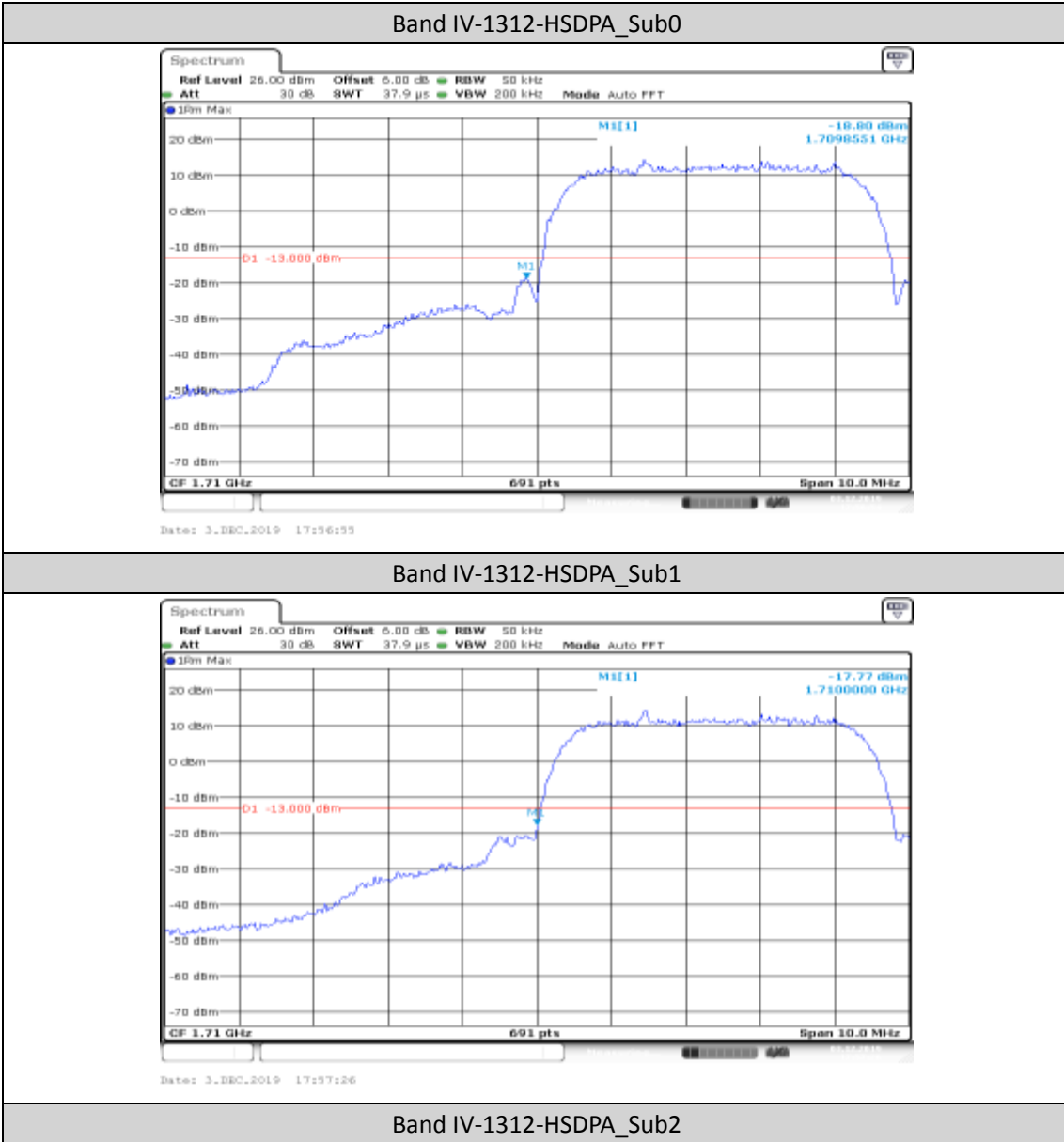


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HSDPA:



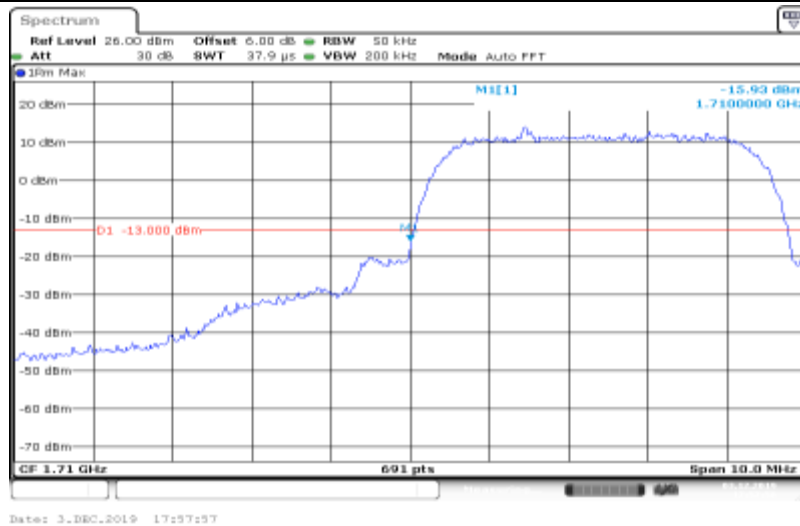
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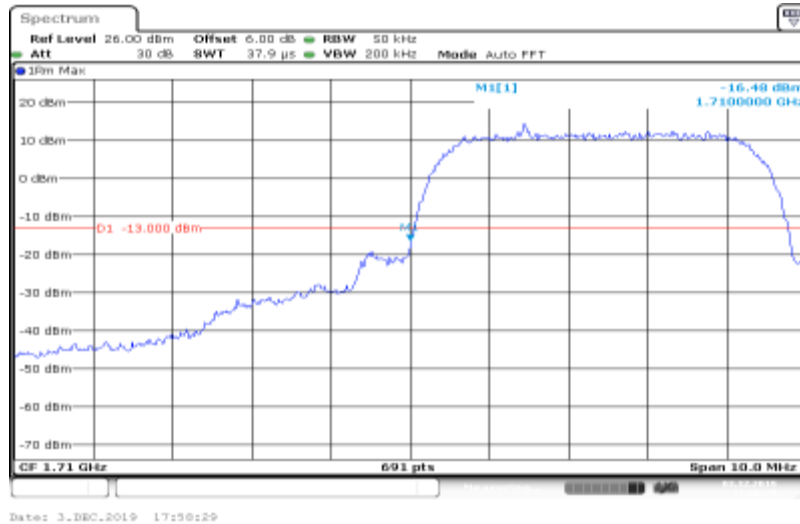
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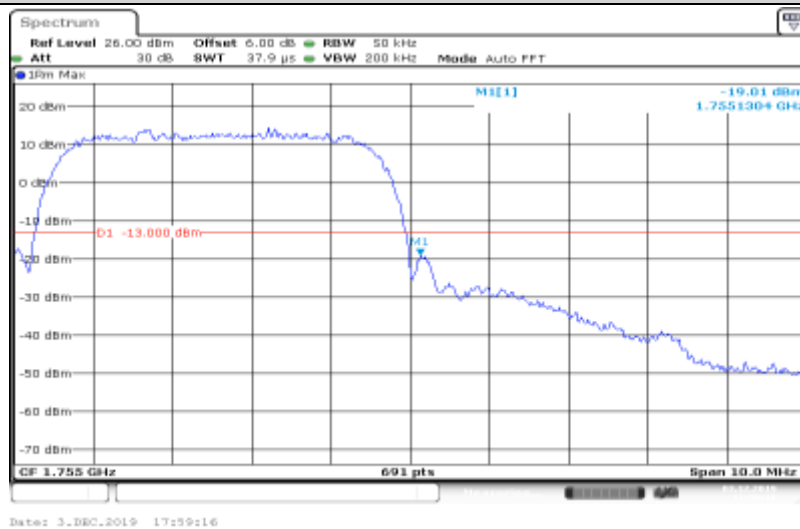
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cnca.cn](http://www.cnca.cn)



Band IV-1312-HSDPA_Sub3



Band IV-1513-HSDPA_Sub0

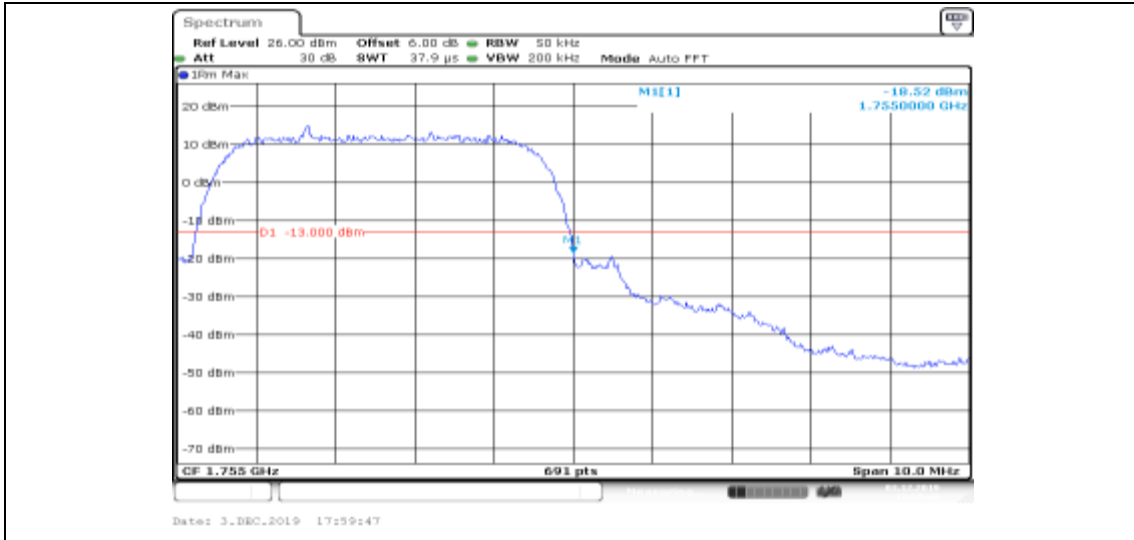


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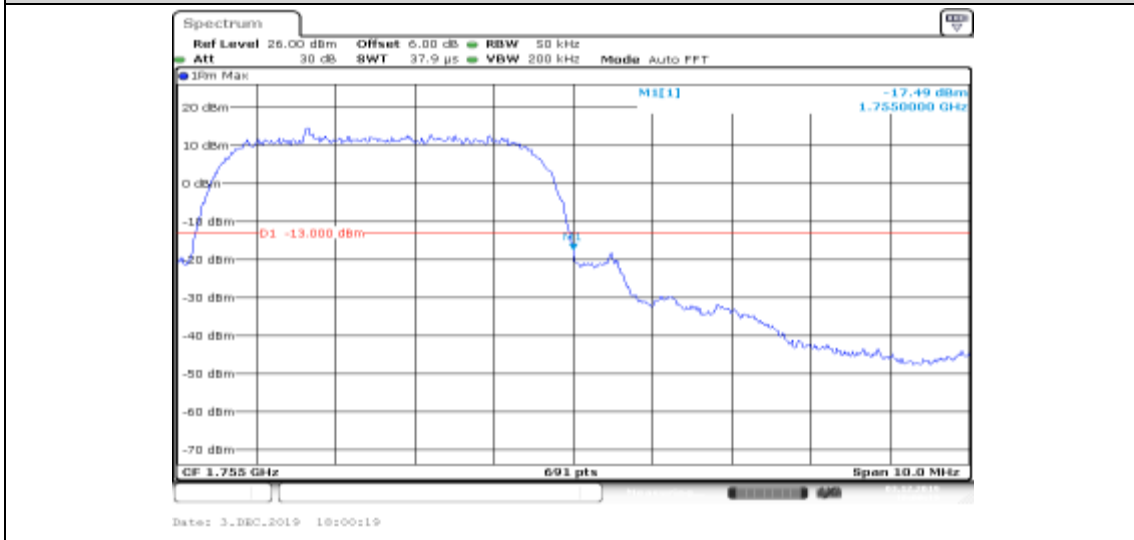
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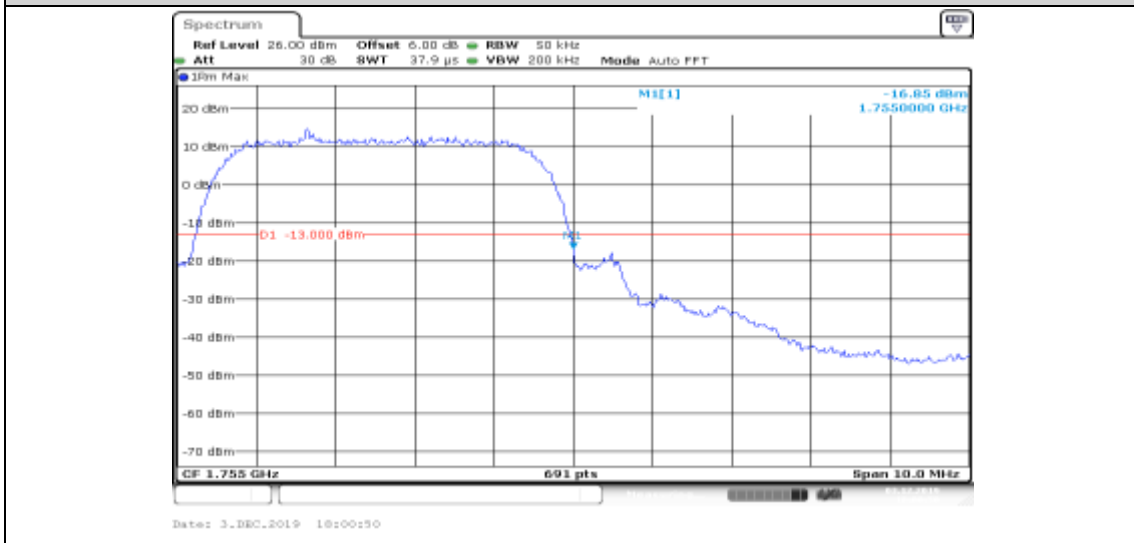
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Band IV-1513-HSDPA_Sub2



Band IV-1513-HSDPA_Sub3



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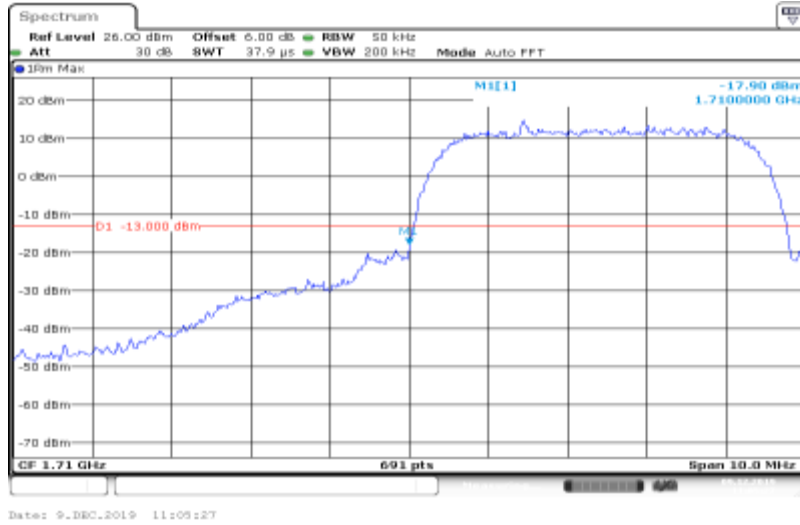
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China
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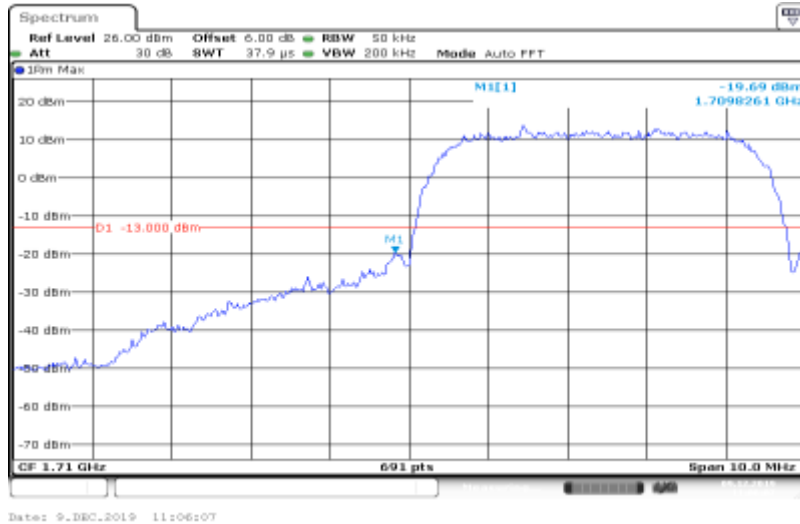
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : www.cnca.cn

HSUPA:

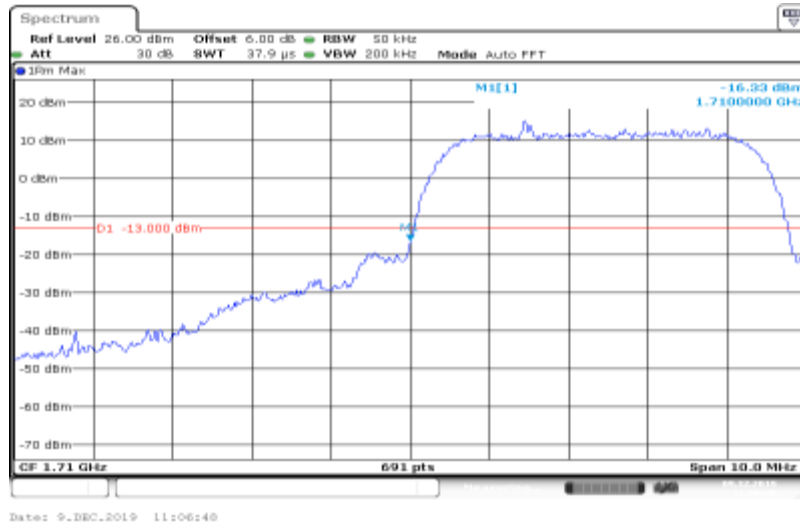
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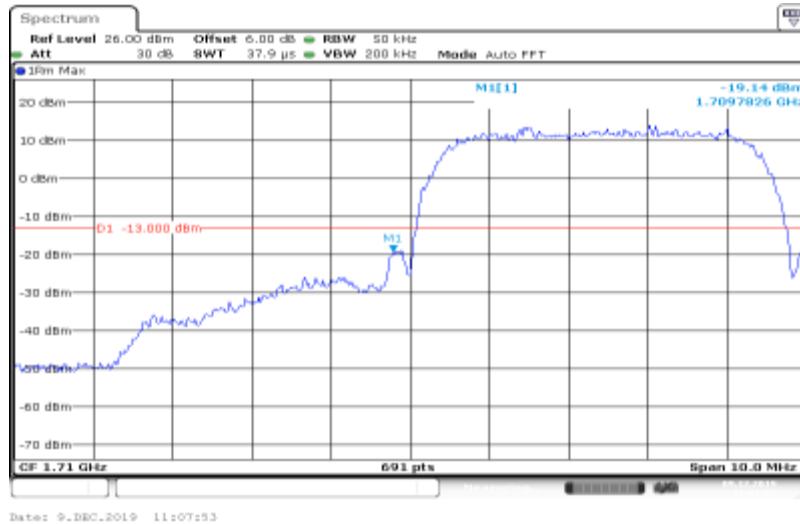
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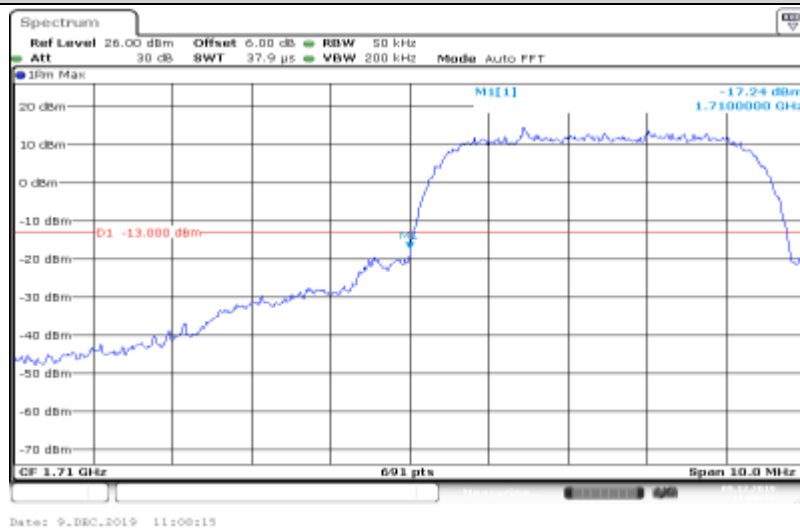
Band IV-1312-HSUPA_Sub3



Band IV-1312-HSUPA_Sub4



Band IV-1312-HSUPA_Sub5

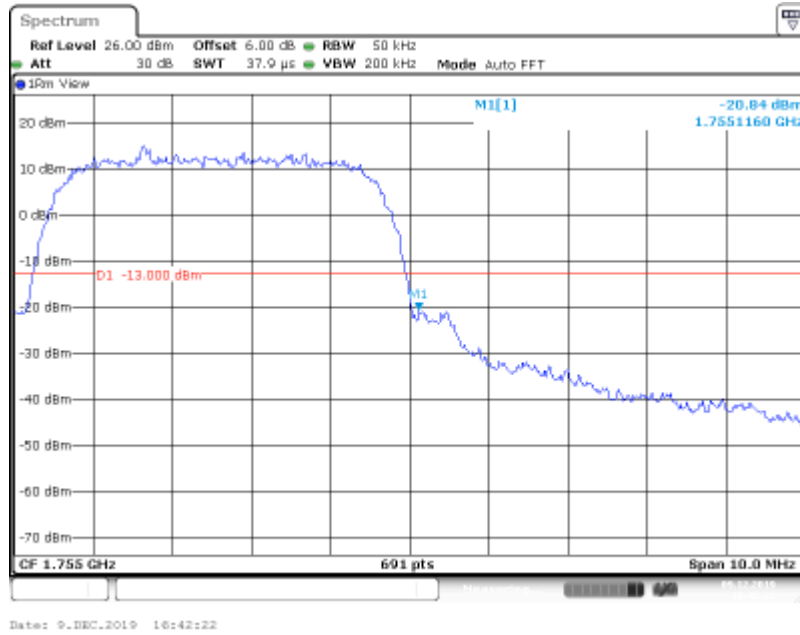


Band IV-1513-HSUPA_Sub1

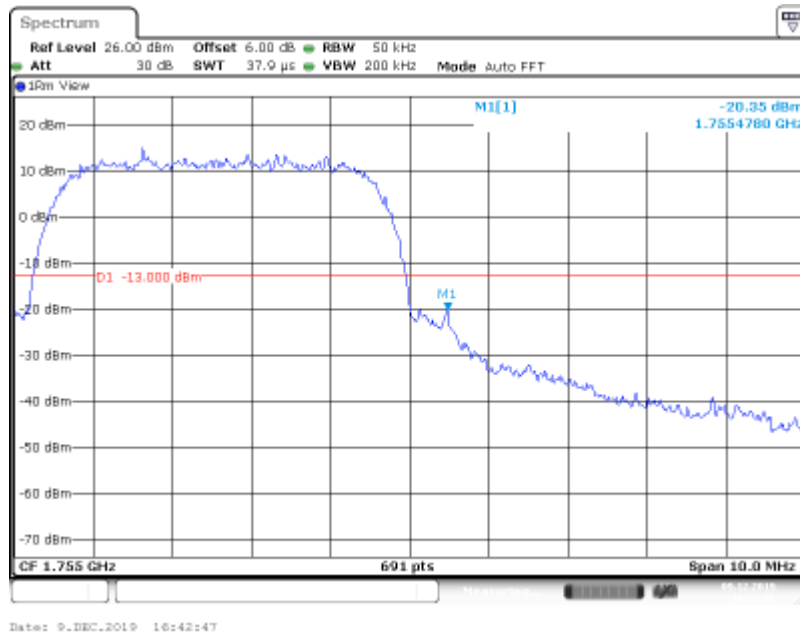
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Band IV-1513-HSUPA_Sub2



Band IV-1513-HSUPA_Sub3

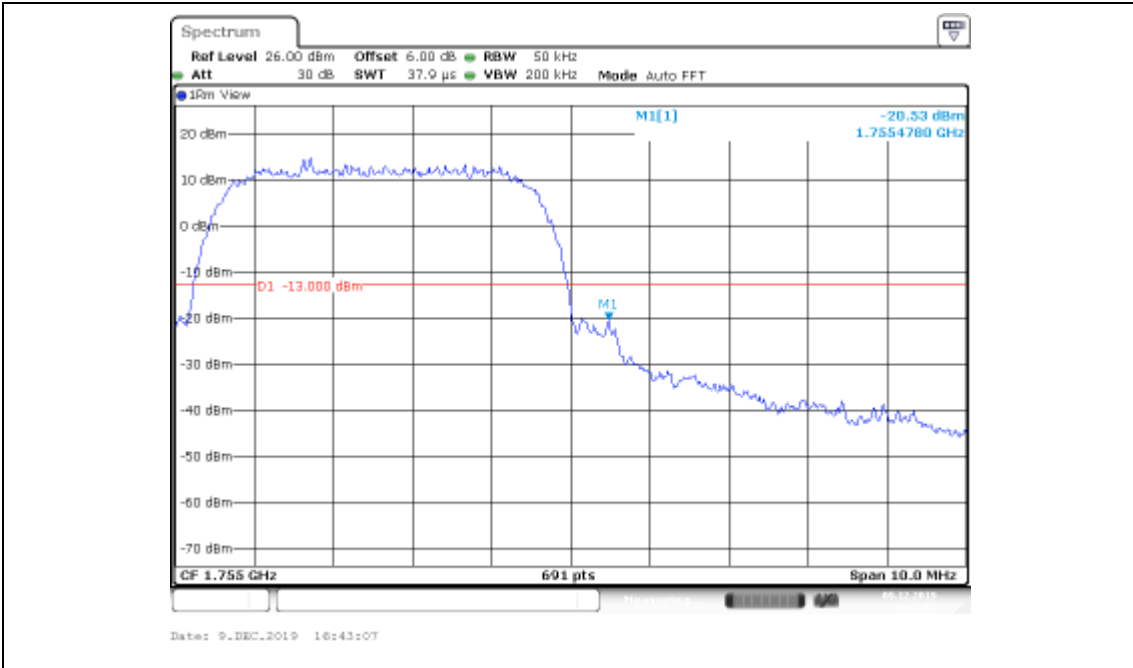
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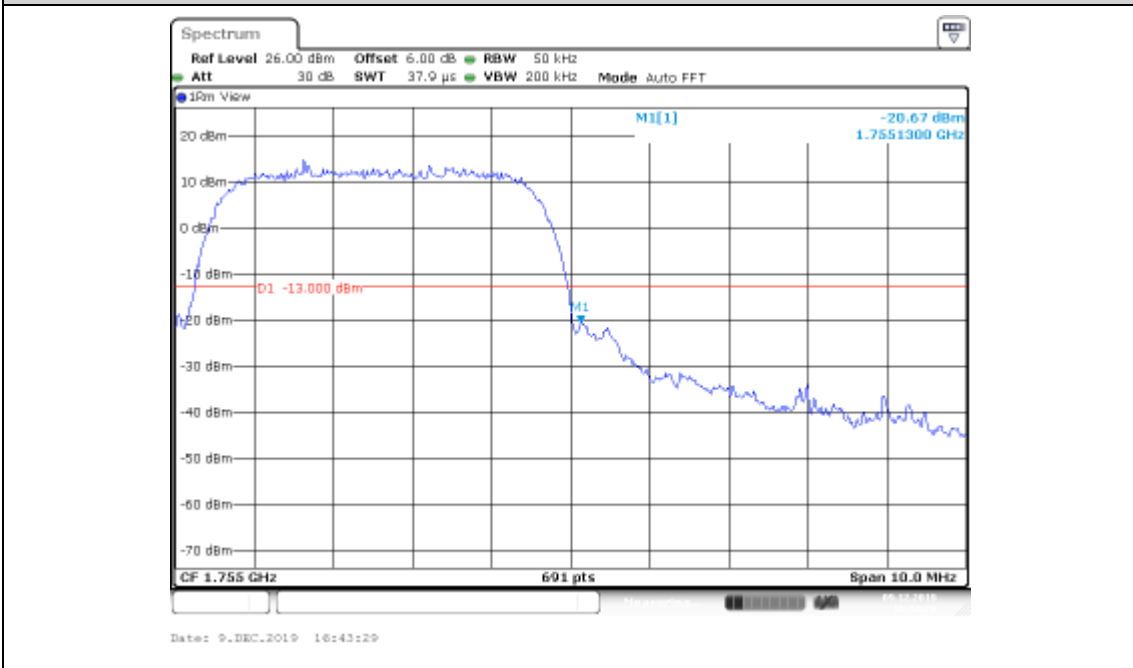
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Fax: (86)755-27521011

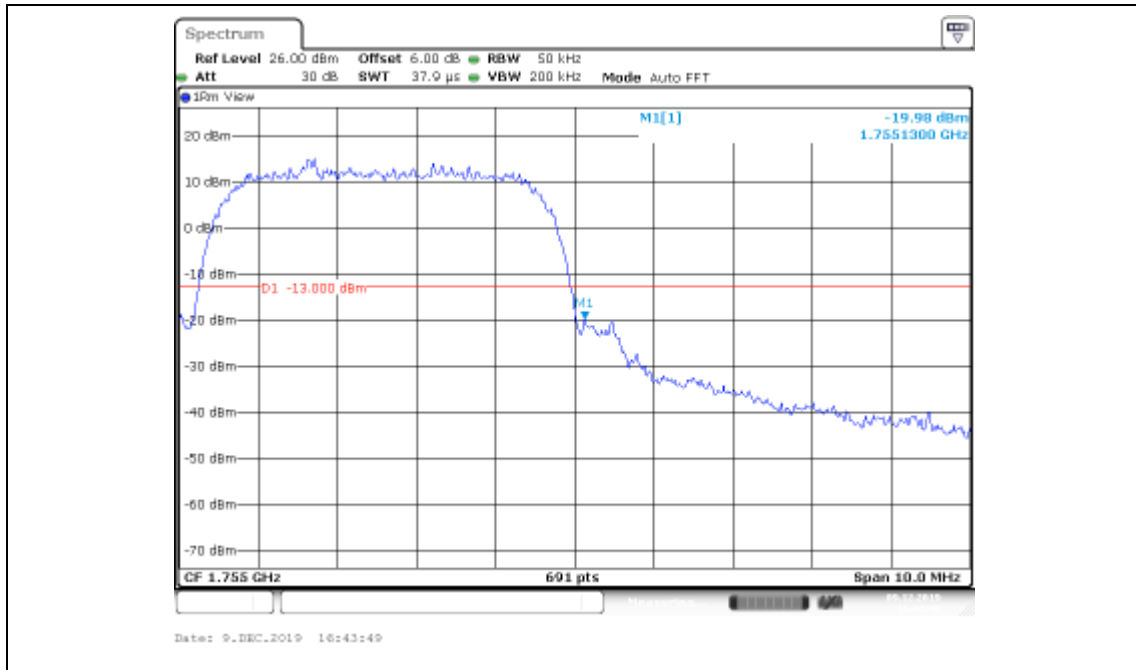
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Band IV-1513-HSUPA_Sub4



Band IV-1513-HSUPA_Sub5



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