

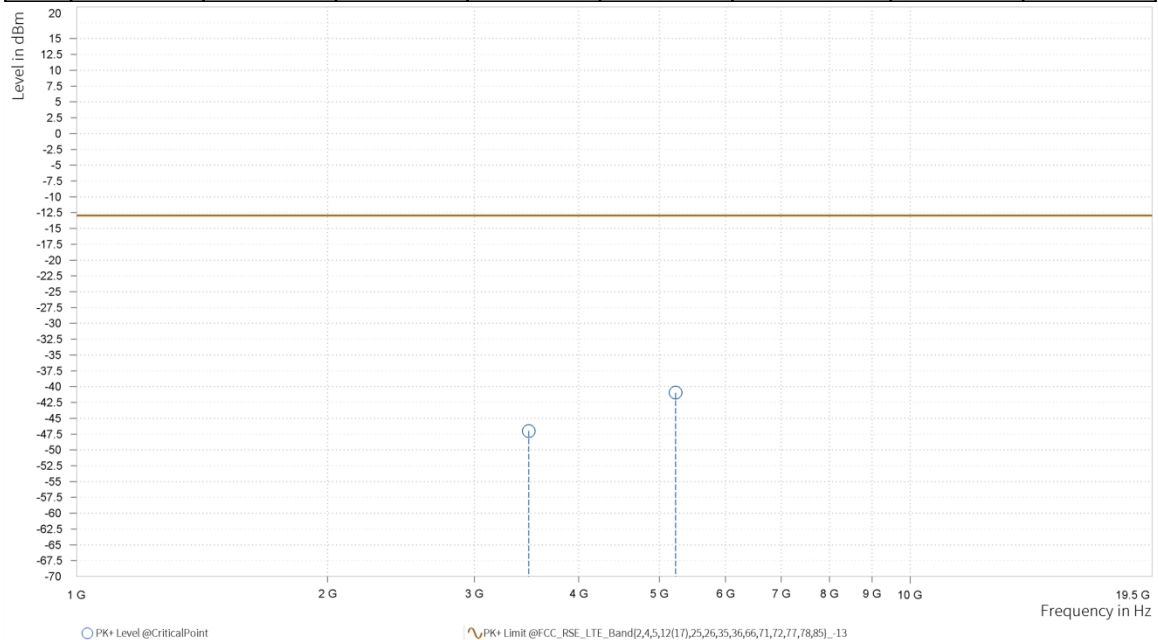


CH132322

CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,485.500	-47.02	-13.00	34.02	26.29	H	1	1.00
4	5,228.250	-40.94	-13.00	27.94	33.39	H	357.8	1.00

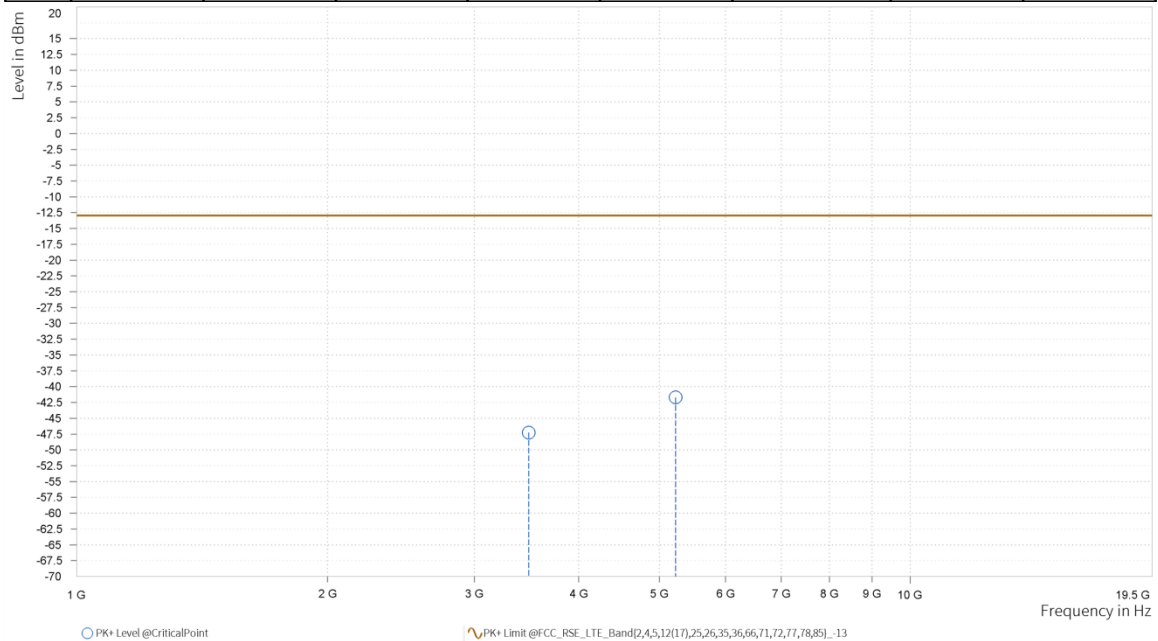




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,485.500	-47.27	-13.00	34.27	26.06	V	359	1.00
4	5,228.250	-41.69	-13.00	28.69	33.37	V	359	2.00



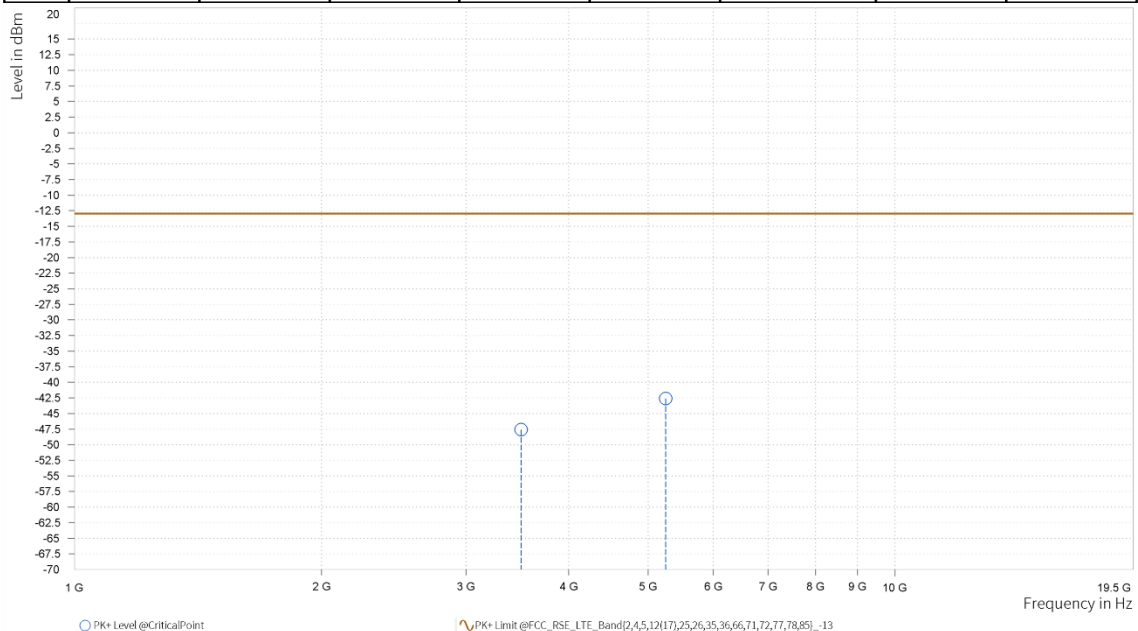


CH132647

CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 132647
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,500.500	-47.59	-13.00	34.59	26.66	H	122.6	2.00
4	5,250.750	-42.60	-13.00	29.60	31.66	H	0.9	2.00

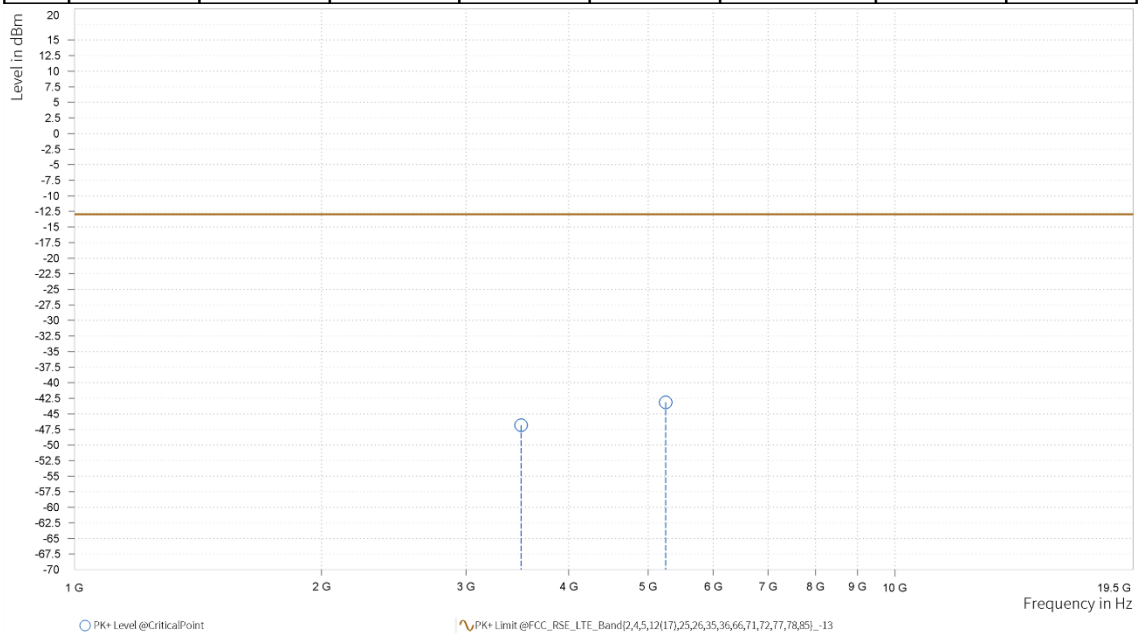




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 132647
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,500.500	-46.82	-13.00	33.82	26.46	V	119.1	2.00
4	5,250.750	-43.13	-13.00	30.13	31.61	V	1	1.00

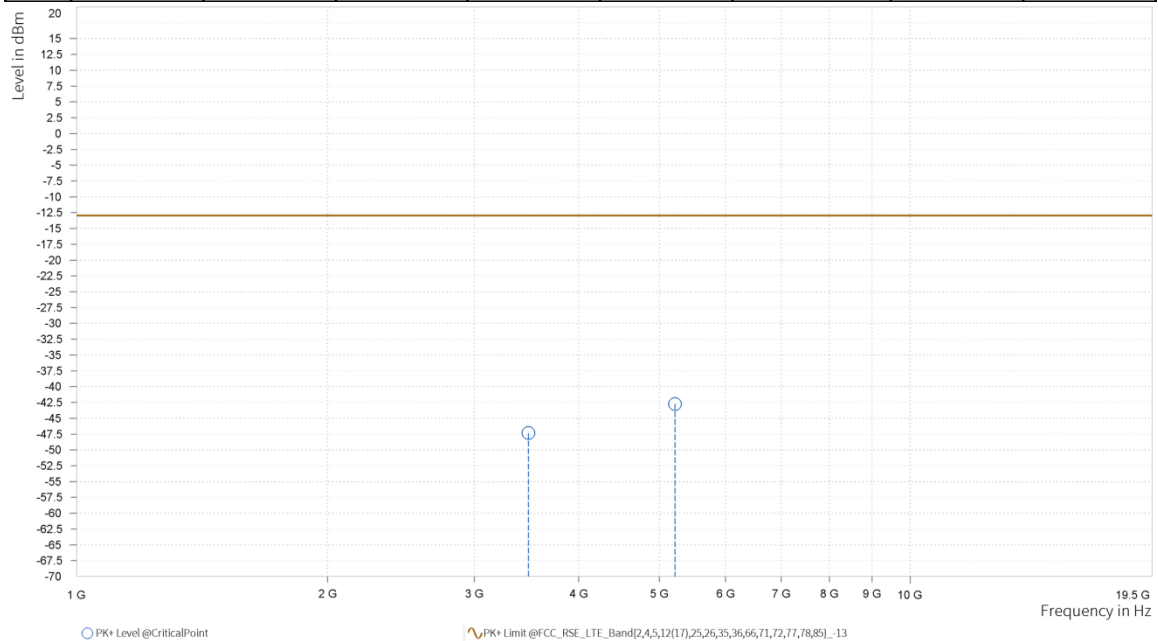




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,481.000	-47.33	-13.00	34.33	26.35	H	357.7	1.00
4	5,221.500	-42.74	-13.00	29.74	32.64	H	1	1.00

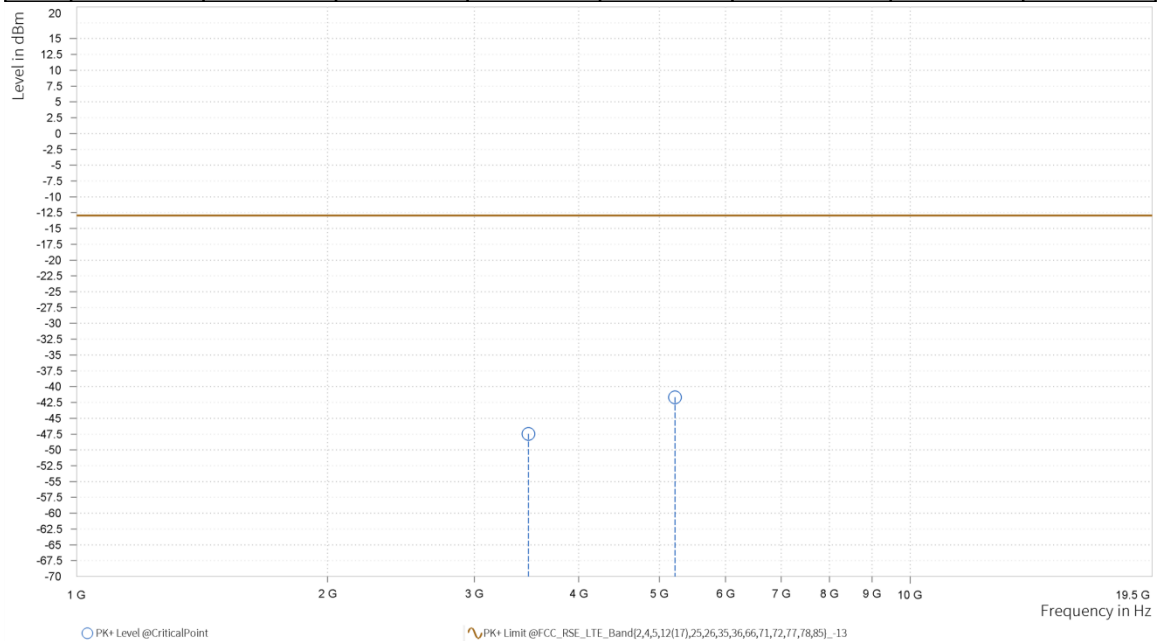




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,481.000	-47.46	-13.00	34.46	26.10	V	1	1.00
4	5,221.500	-41.68	-13.00	28.68	32.62	V	306.8	1.00

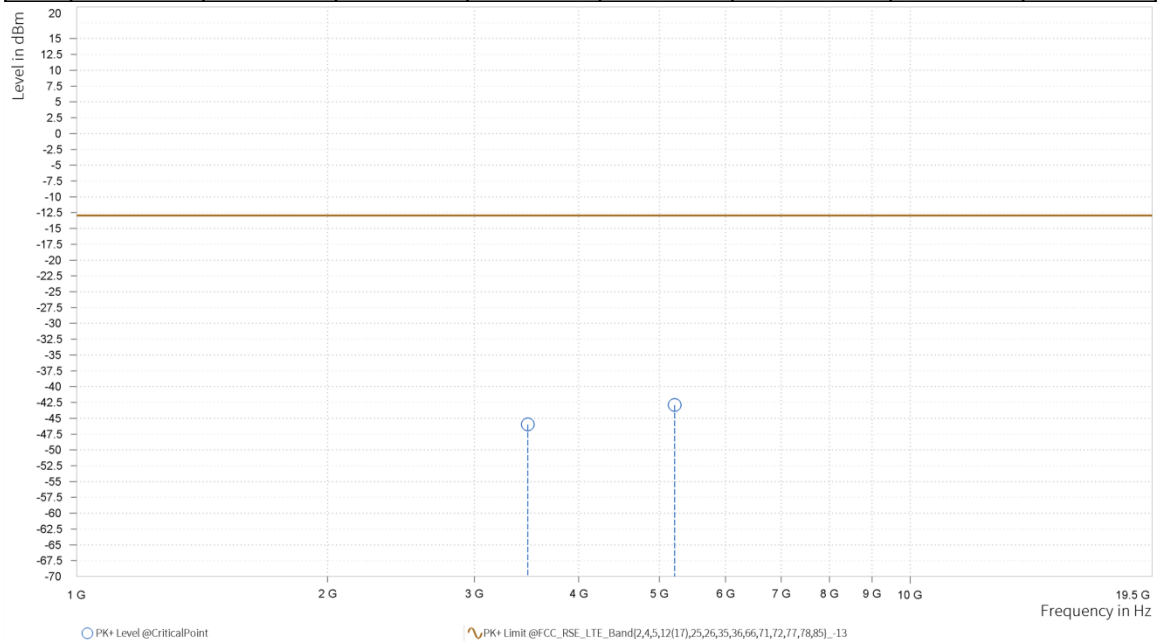




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,476.500	-45.99	-13.00	32.99	26.32	H	259	1.00
4	5,214.750	-42.91	-13.00	29.91	32.12	H	0.9	2.00

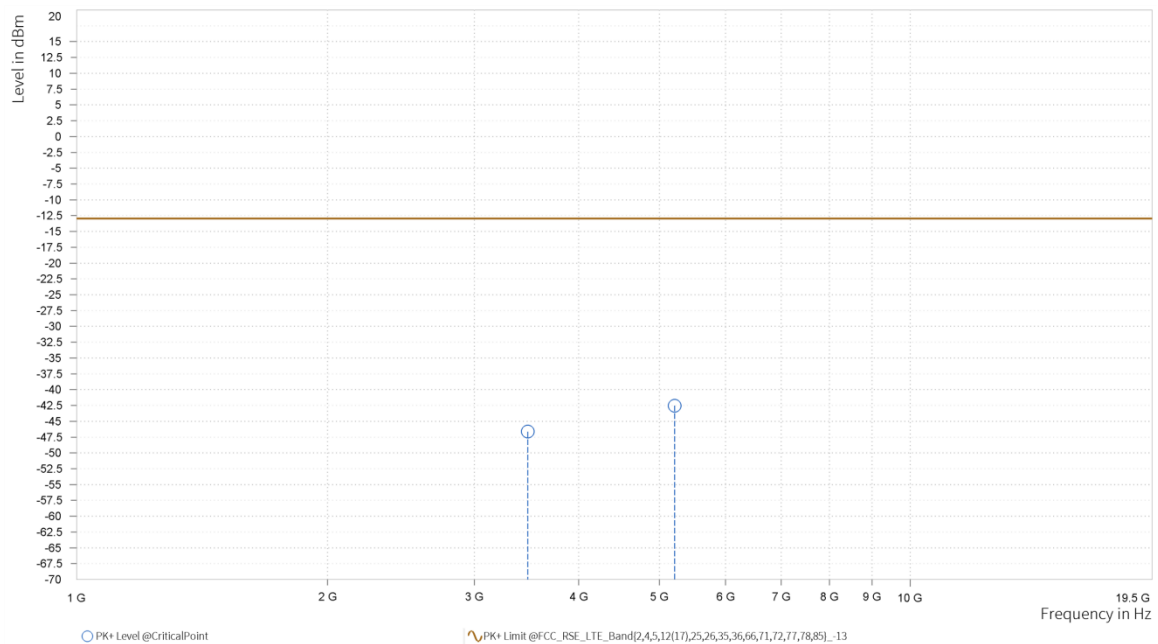




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,476.500	-46.63	-13.00	33.63	26.06	V	1	1.00
4	5,214.750	-42.53	-13.00	29.53	32.11	V	258.8	1.00

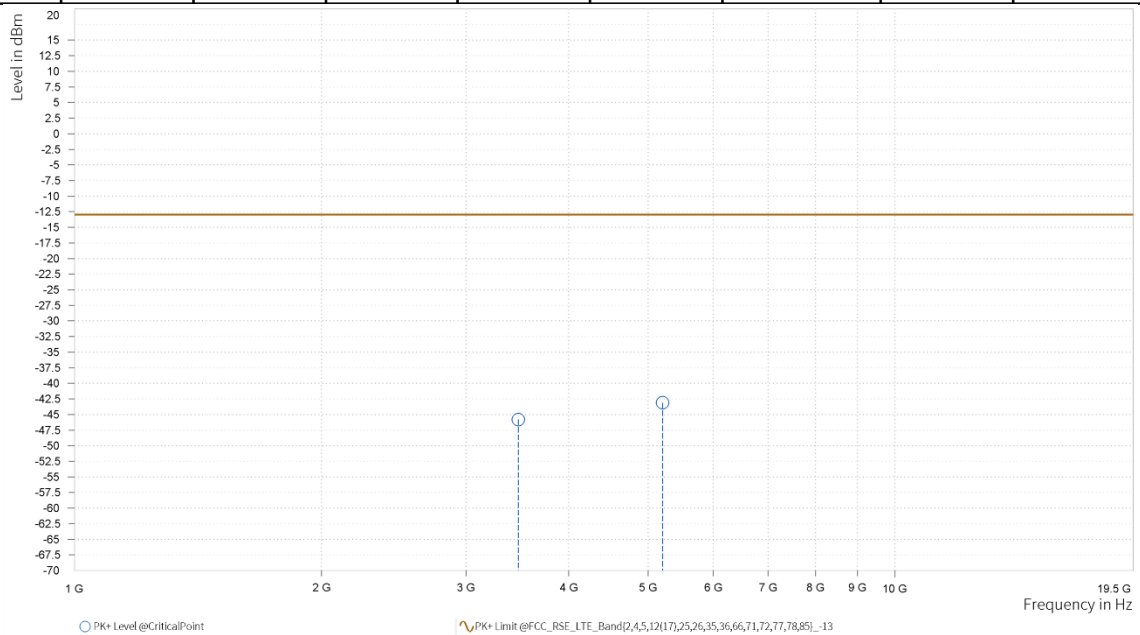




CHANNEL BANDWIDTH	20MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,472.000	-45.79	-13.00	32.79	26.27	H	359	2.00
4	5,208.000	-43.12	-13.00	30.12	31.90	H	359	1.00

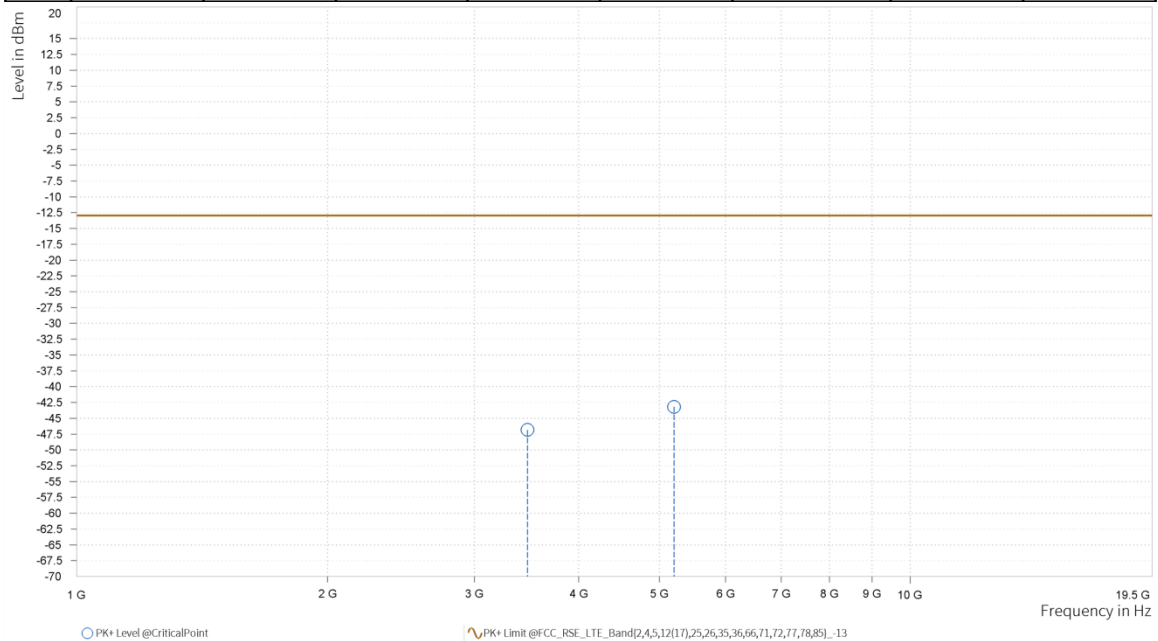




CHANNEL BANDWIDTH	20MHz / QPSK	MODE	TX channel 132322
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	DC 5V	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,472.000	-46.82	-13.00	33.82	26.00	V	252.9	1.00
4	5,208.000	-43.20	-13.00	30.20	31.87	V	0.9	2.00

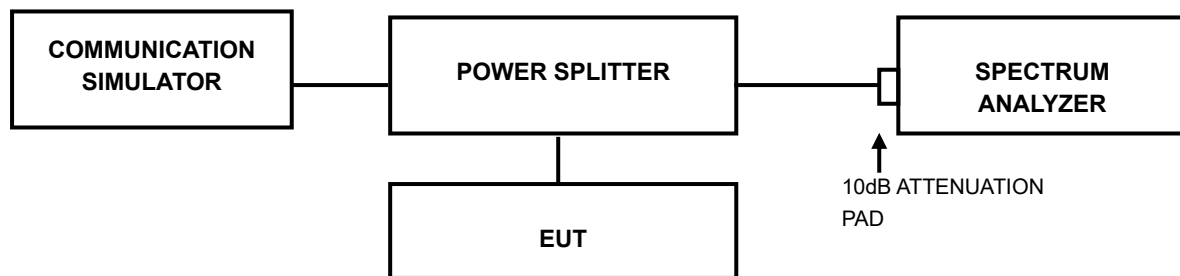


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth \geq 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%.

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.



4 INFORMATION ON THE TESTING LABORATORIES

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province, China

Accredited Test Lab Cert 6613.01

If you have any comments, please feel free to contact us at the following:

Suzhou EMC/RF Lab:

Tel: +86 (0557) 368 1008



5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

6 Appendix

LTE BAND41(INCLUDING LTE BAND38)

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Bandwidth	Modulation	Frequency (MHz)	RB Configuration	Result (dB)	Limit (dB)	Verdict
5MHz	QPSK	2498.5	1 RB low	3.2	13	PASS
5MHz	QPSK	2498.5	100% RB	11.06	13	PASS
5MHz	16QAM	2498.5	1 RB low	3.48	13	PASS
5MHz	16QAM	2498.5	100% RB	3.38	13	PASS
5MHz	64QAM	2498.5	1 RB low	3.86	13	PASS
5MHz	64QAM	2498.5	100% RB	6.92	13	PASS
5MHz	256QAM	2498.5	1 RB low	5.6	13	PASS
5MHz	256QAM	2498.5	100% RB	7.02	13	PASS
5MHz	QPSK	2593	1 RB low	4.42	13	PASS
5MHz	QPSK	2593	100% RB	3.34	13	PASS
5MHz	16QAM	2593	1 RB low	3.86	13	PASS
5MHz	16QAM	2593	100% RB	6.26	13	PASS
5MHz	64QAM	2593	1 RB low	4.42	13	PASS
5MHz	64QAM	2593	100% RB	6.26	13	PASS
5MHz	256QAM	2593	1 RB low	5.26	13	PASS
5MHz	256QAM	2593	100% RB	7.02	13	PASS
5MHz	QPSK	2687.5	1 RB low	3.66	13	PASS
5MHz	QPSK	2687.5	100% RB	4.94	13	PASS
5MHz	16QAM	2687.5	1 RB low	3.48	13	PASS
5MHz	16QAM	2687.5	100% RB	5.88	13	PASS
5MHz	64QAM	2687.5	1 RB low	4.34	13	PASS
5MHz	64QAM	2687.5	100% RB	3.28	13	PASS
5MHz	256QAM	2687.5	1 RB low	3.36	13	PASS
5MHz	256QAM	2687.5	100% RB	5.42	13	PASS
10MHz	QPSK	2501	1 RB low	4.14	13	PASS
10MHz	QPSK	2501	100% RB	5.34	13	PASS
10MHz	16QAM	2501	1 RB low	2.36	13	PASS
10MHz	16QAM	2501	100% RB	6.82	13	PASS
10MHz	64QAM	2501	1 RB low	2.36	13	PASS
10MHz	64QAM	2501	100% RB	7.02	13	PASS
10MHz	256QAM	2501	1 RB low	3.96	13	PASS
10MHz	256QAM	2501	100% RB	6.16	13	PASS
10MHz	QPSK	2593	1 RB low	3.78	13	PASS
10MHz	QPSK	2593	100% RB	5.54	13	PASS
10MHz	16QAM	2593	1 RB low	3.38	13	PASS
10MHz	16QAM	2593	100% RB	4.66	13	PASS
10MHz	64QAM	2593	1 RB low	4.52	13	PASS
10MHz	64QAM	2593	100% RB	5.5	13	PASS
10MHz	256QAM	2593	1 RB low	4.1	13	PASS
10MHz	256QAM	2593	100% RB	6.46	13	PASS



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10MHz	QPSK	2685	1 RB low	4.42	13	PASS
10MHz	QPSK	2685	100% RB	9.94	13	PASS
10MHz	16QAM	2685	1 RB low	3.2	13	PASS
10MHz	16QAM	2685	100% RB	5.34	13	PASS
10MHz	64QAM	2685	1 RB low	4.52	13	PASS
10MHz	64QAM	2685	100% RB	7.02	13	PASS
10MHz	256QAM	2685	1 RB low	5.16	13	PASS
10MHz	256QAM	2685	100% RB	6.92	13	PASS
15MHz	QPSK	2503.5	1 RB low	2.36	13	PASS
15MHz	QPSK	2503.5	100% RB	5.36	13	PASS
15MHz	16QAM	2503.5	1 RB low	3.86	13	PASS
15MHz	16QAM	2503.5	100% RB	6.54	13	PASS
15MHz	64QAM	2503.5	1 RB low	3.12	13	PASS
15MHz	64QAM	2503.5	100% RB	7.58	13	PASS
15MHz	256QAM	2503.5	1 RB low	2.46	13	PASS
15MHz	256QAM	2503.5	100% RB	6.26	13	PASS
15MHz	QPSK	2593	1 RB low	2.84	13	PASS
15MHz	QPSK	2593	100% RB	5.22	13	PASS
15MHz	16QAM	2593	1 RB low	5.66	13	PASS
15MHz	16QAM	2593	100% RB	6.54	13	PASS
15MHz	64QAM	2593	1 RB low	4	13	PASS
15MHz	64QAM	2593	100% RB	6.36	13	PASS
15MHz	256QAM	2593	1 RB low	3.1	13	PASS
15MHz	256QAM	2593	100% RB	5.98	13	PASS
15MHz	QPSK	2682.5	1 RB low	3.68	13	PASS
15MHz	QPSK	2682.5	100% RB	5.6	13	PASS
15MHz	16QAM	2682.5	1 RB low	2.74	13	PASS
15MHz	16QAM	2682.5	100% RB	5.88	13	PASS
15MHz	64QAM	2682.5	1 RB low	5.46	13	PASS
15MHz	64QAM	2682.5	100% RB	6.16	13	PASS
15MHz	256QAM	2682.5	1 RB low	3.2	13	PASS
15MHz	256QAM	2682.5	100% RB	6.36	13	PASS
20MHz	QPSK	2506	1 RB low	2.46	13	PASS
20MHz	QPSK	2506	100% RB	4.38	13	PASS
20MHz	16QAM	2506	1 RB low	2.54	13	PASS
20MHz	16QAM	2506	100% RB	6.16	13	PASS
20MHz	64QAM	2506	1 RB low	1.6	13	PASS
20MHz	64QAM	2506	100% RB	5.6	13	PASS
20MHz	256QAM	2506	1 RB low	3.96	13	PASS
20MHz	256QAM	2506	100% RB	6.92	13	PASS
20MHz	QPSK	2593	1 RB low	3.48	13	PASS
20MHz	QPSK	2593	100% RB	5.04	13	PASS
20MHz	16QAM	2593	1 RB low	2.44	13	PASS
20MHz	16QAM	2593	100% RB	6.26	13	PASS
20MHz	64QAM	2593	1 RB low	3.4	13	PASS
20MHz	64QAM	2593	100% RB	6.92	13	PASS
20MHz	256QAM	2593	1 RB low	4.12	13	PASS
20MHz	256QAM	2593	100% RB	7.48	13	PASS
20MHz	QPSK	2680	1 RB low	3.66	13	PASS
20MHz	QPSK	2680	100% RB	5.22	13	PASS
20MHz	16QAM	2680	1 RB low	3.24	13	PASS
20MHz	16QAM	2680	100% RB	6.26	13	PASS
20MHz	64QAM	2680	1 RB low	3.58	13	PASS
20MHz	64QAM	2680	100% RB	7.48	13	PASS

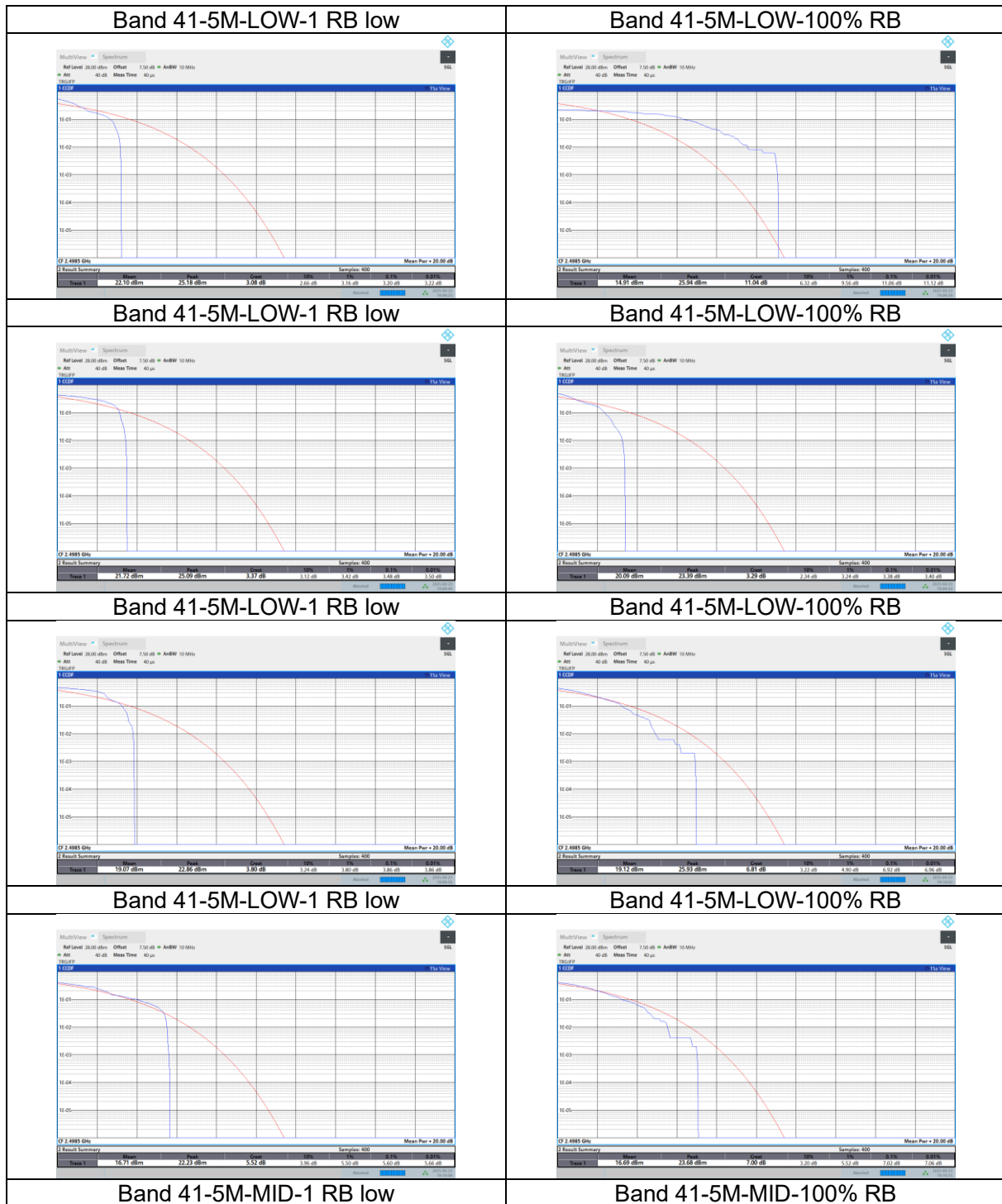


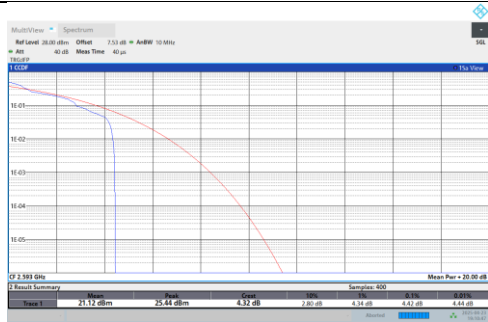
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20MHz	256QAM	2680	1 RB low	4.32	13	PASS
20MHz	256QAM	2680	100% RB	5.6	13	PASS

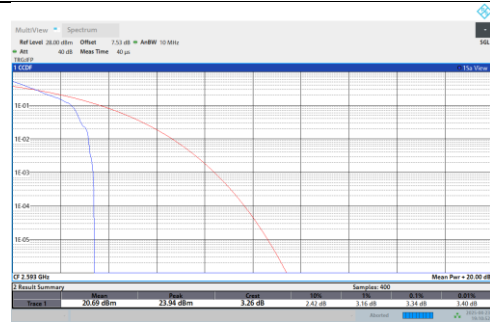


Test Graphs

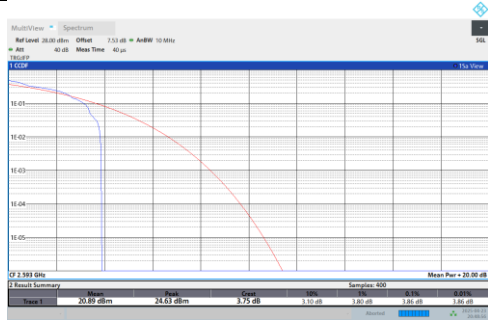




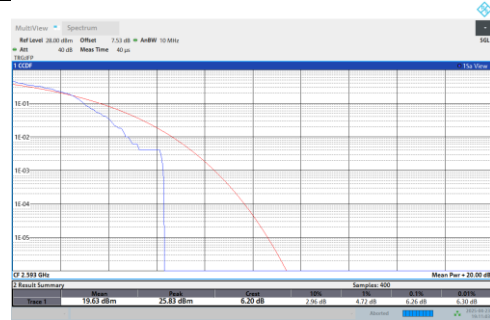
Band 41-5M-MID-1 RB low



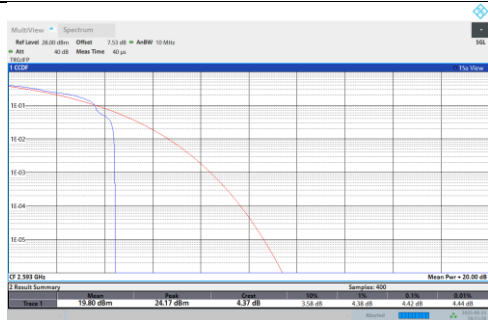
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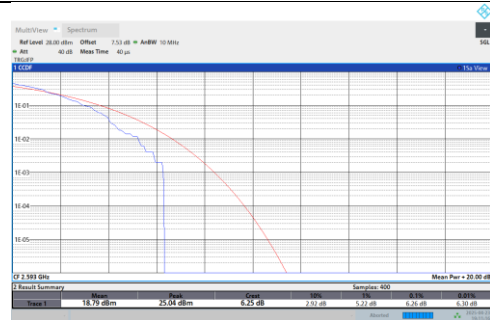
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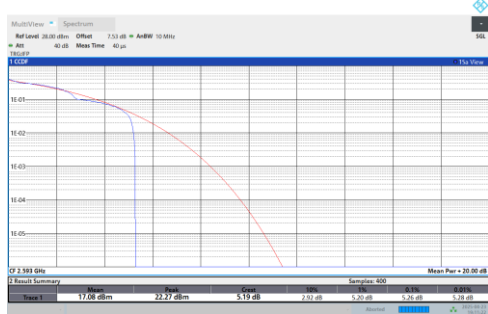
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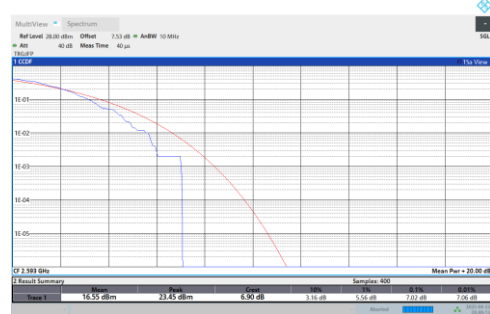
Band 41-5M-MID-1 RB low



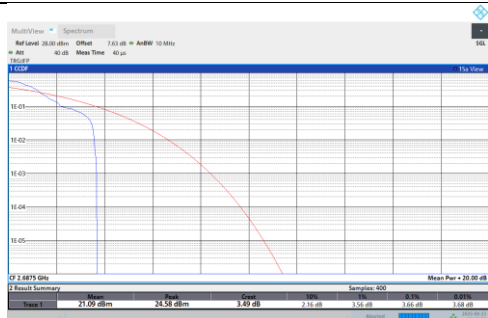
Band 41-5M-MID-100% RB



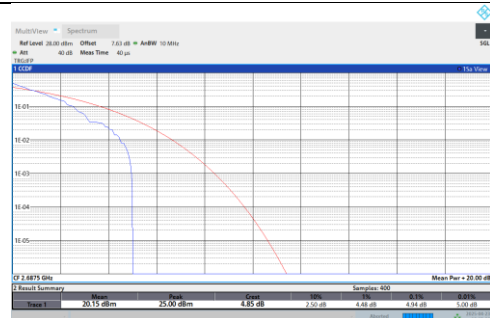
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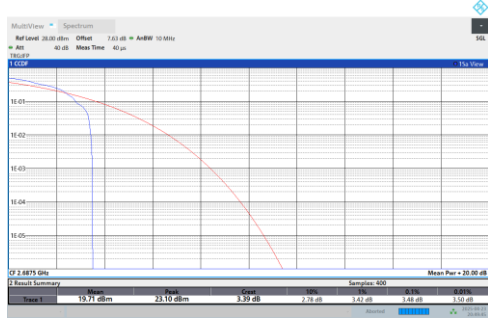
Band 41-5M-HIGH-100% RB



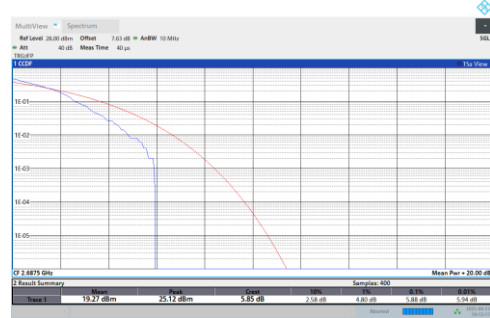
Band 41-5M-HIGH-1 RB low



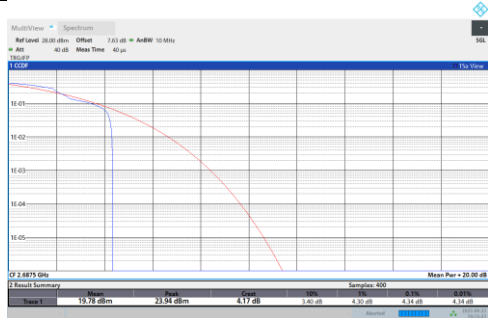
Band 41-5M-HIGH-100% RB



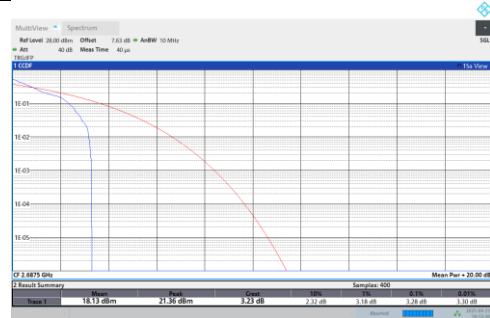
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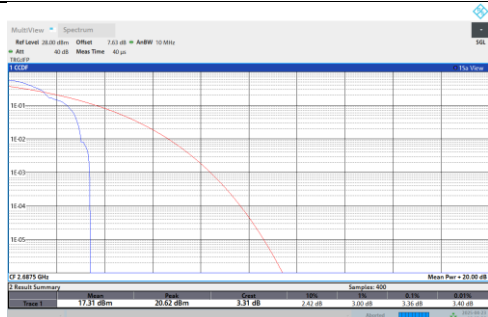
Band 41-5M-HIGH-100% RB



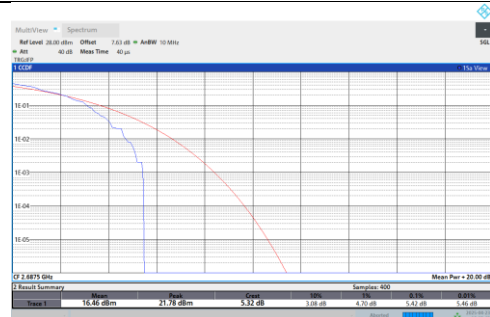
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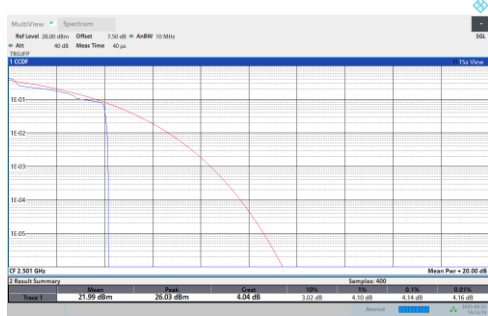
Band 41-5M-HIGH-100% RB



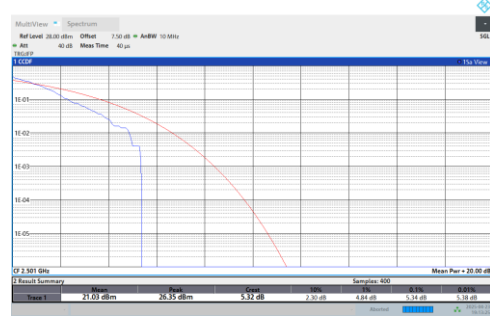
Band 41-10M-LOW-1 RB low



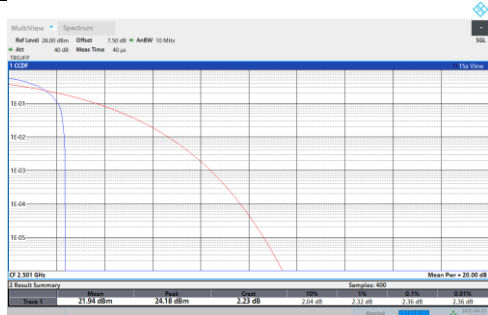
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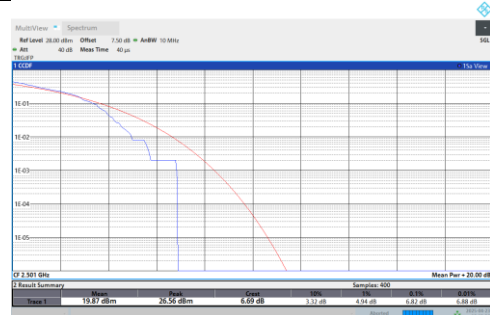
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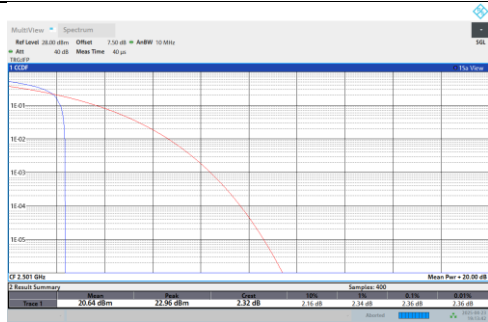
Band 41-10M-LOW-100% RB



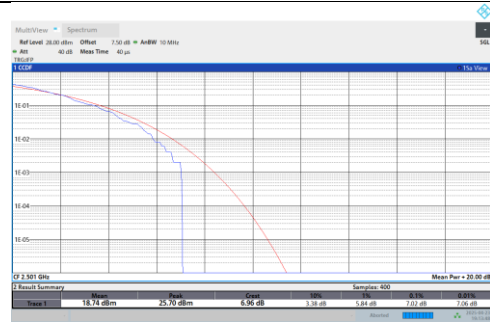
Band 41-10M-LOW-1 RB low



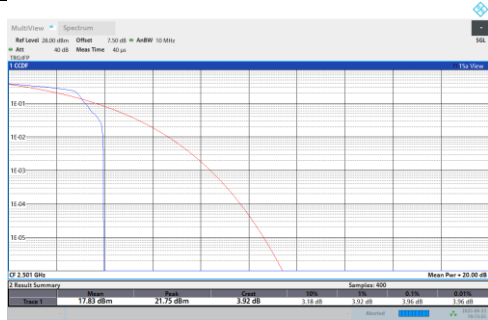
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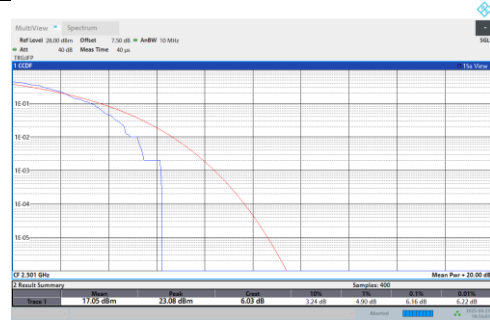
Band 41-10M-LOW-1 RB low



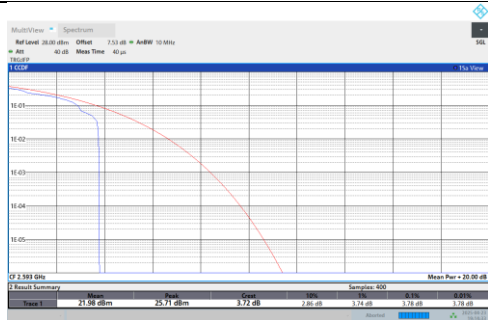
Band 41-10M-LOW-100% RB



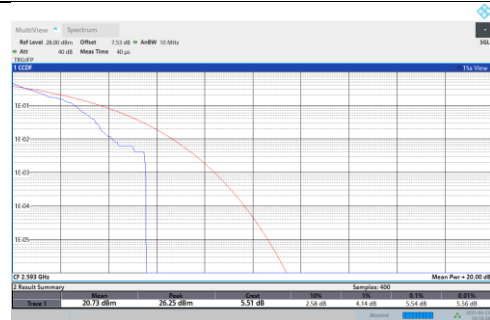
Band 41-10M-MID-1 RB low



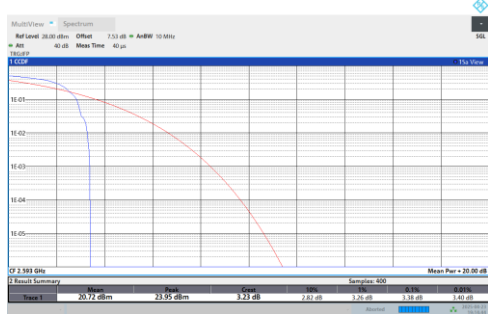
Band 41-10M-MID-100% RB



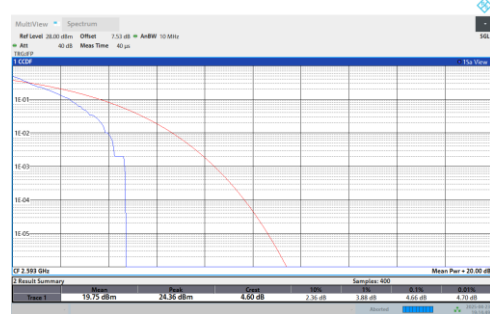
Band 41-10M-MID-1 RB low



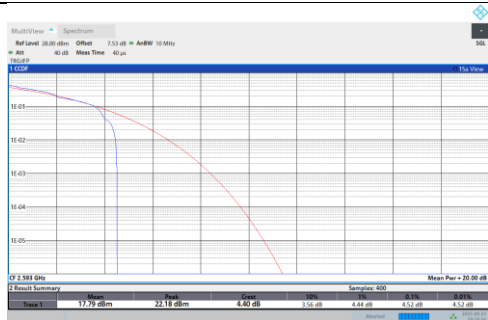
Band 41-10M-MID-100% RB



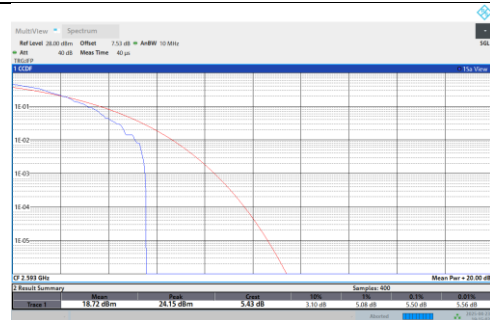
Band 41-10M-MID-1 RB low



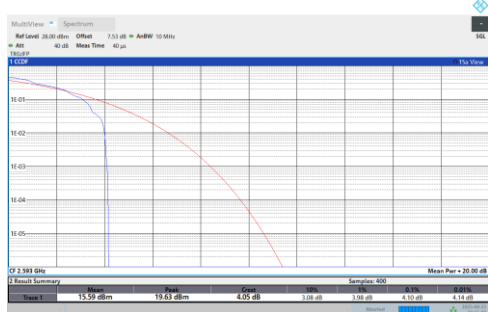
Band 41-10M-MID-100% RB



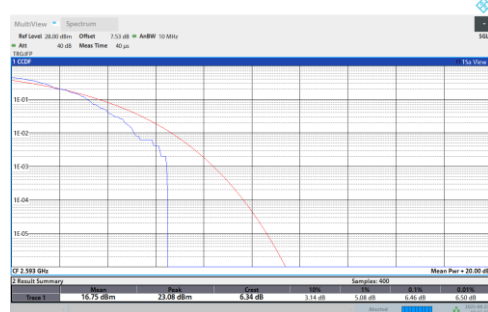
Band 41-10M-MID-1 RB low



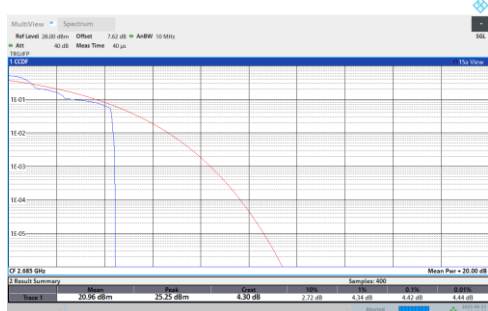
Band 41-10M-MID-100% RB



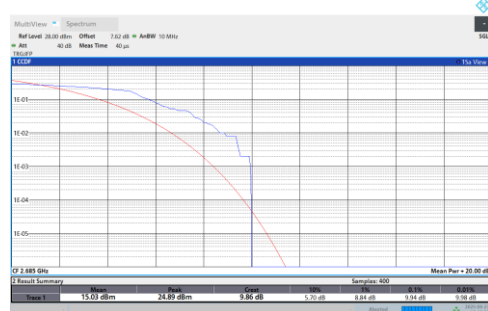
Band 41-10M-HIGH-1 RB low



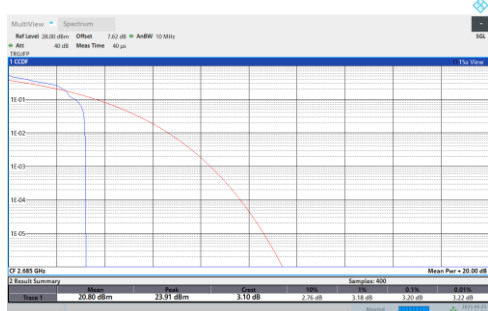
Band 41-10M-HIGH-100% RB



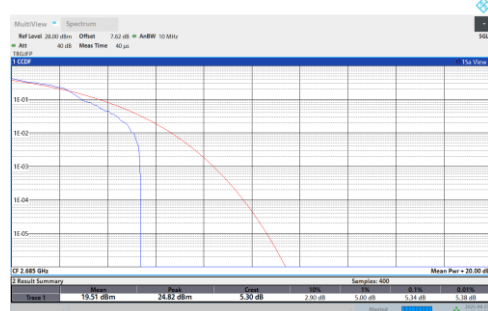
Band 41-10M-HIGH-1 RB low



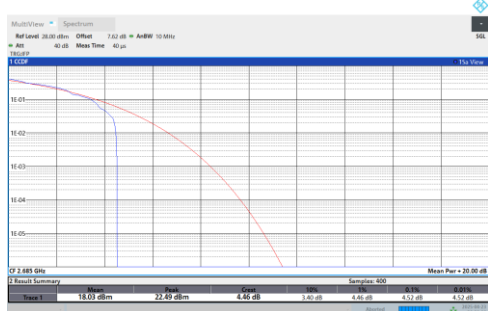
Band 41-10M-HIGH-100% RB



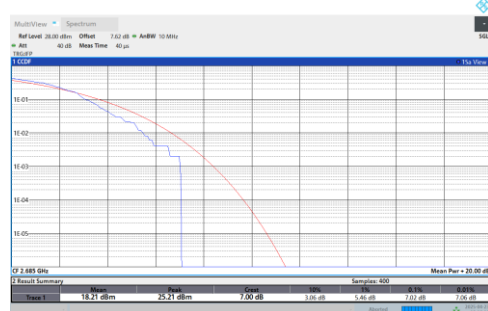
Band 41-10M-HIGH-1 RB low



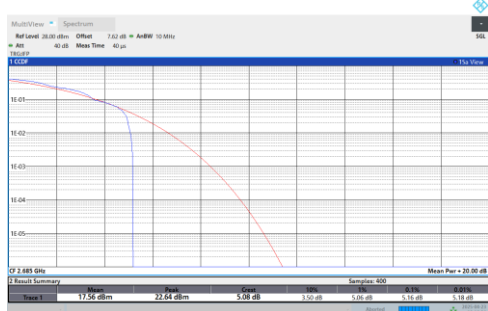
Band 41-10M-HIGH-100% RB



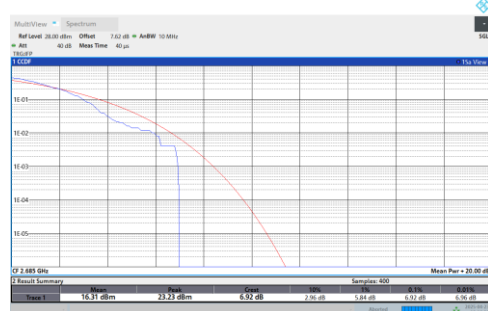
Band 41-10M-HIGH-1 RB low



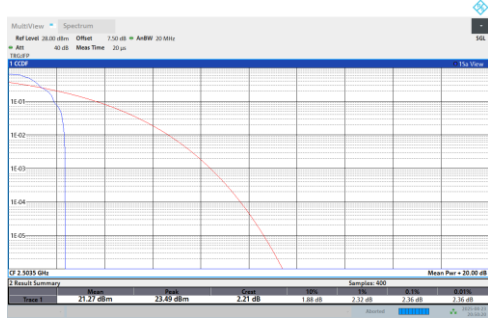
Band 41-10M-HIGH-100% RB



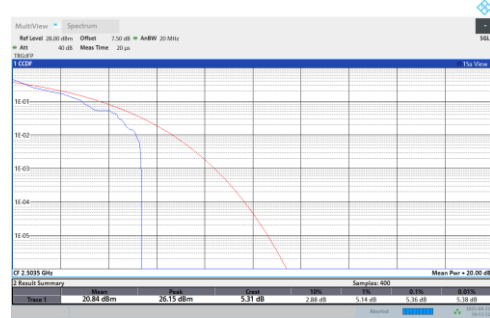
Band 41-15M-LOW-1 RB low



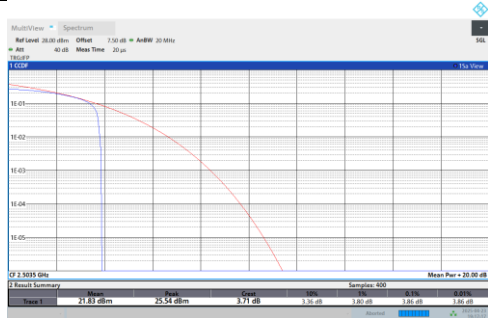
Band 41-15M-LOW-100% RB



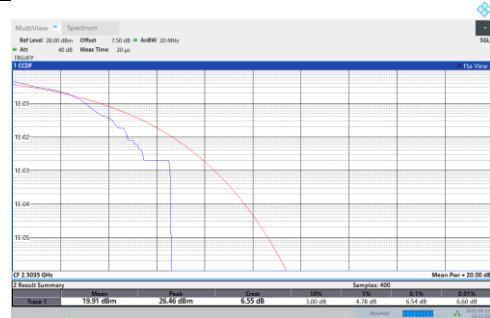
Band 41-15M-LOW-1 RB low



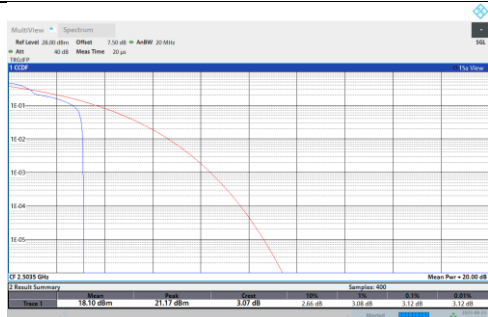
Band 41-15M-LOW-100% RB



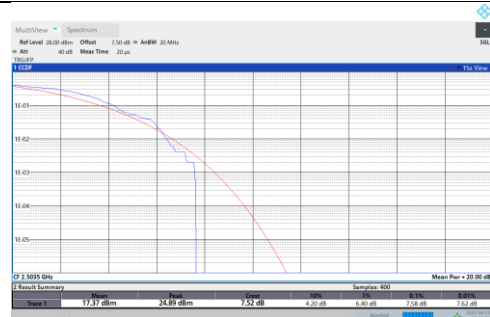
Band 41-15M-LOW-1 RB low



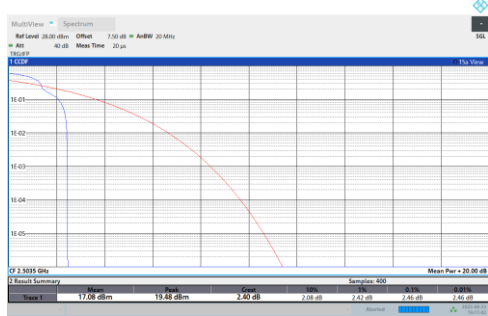
Band 41-15M-LOW-100% RB



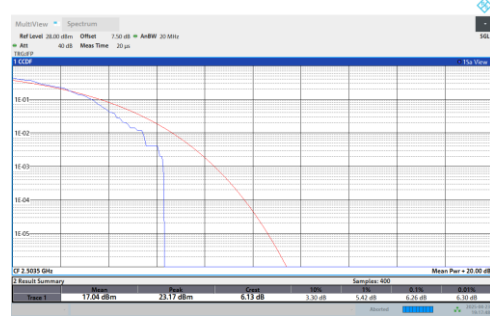
Band 41-15M-LOW-1 RB low



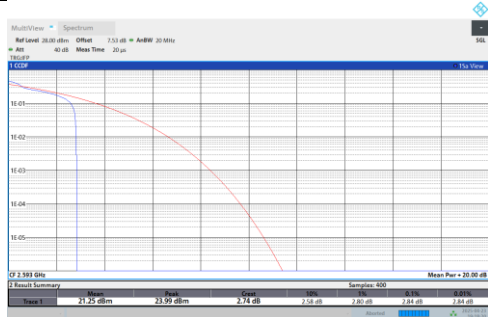
Band 41-15M-LOW-100% RB



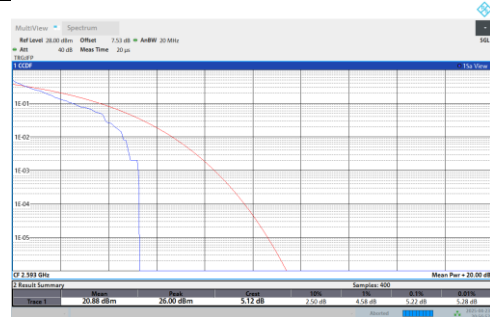
Band 41-15M-MID-1 RB low



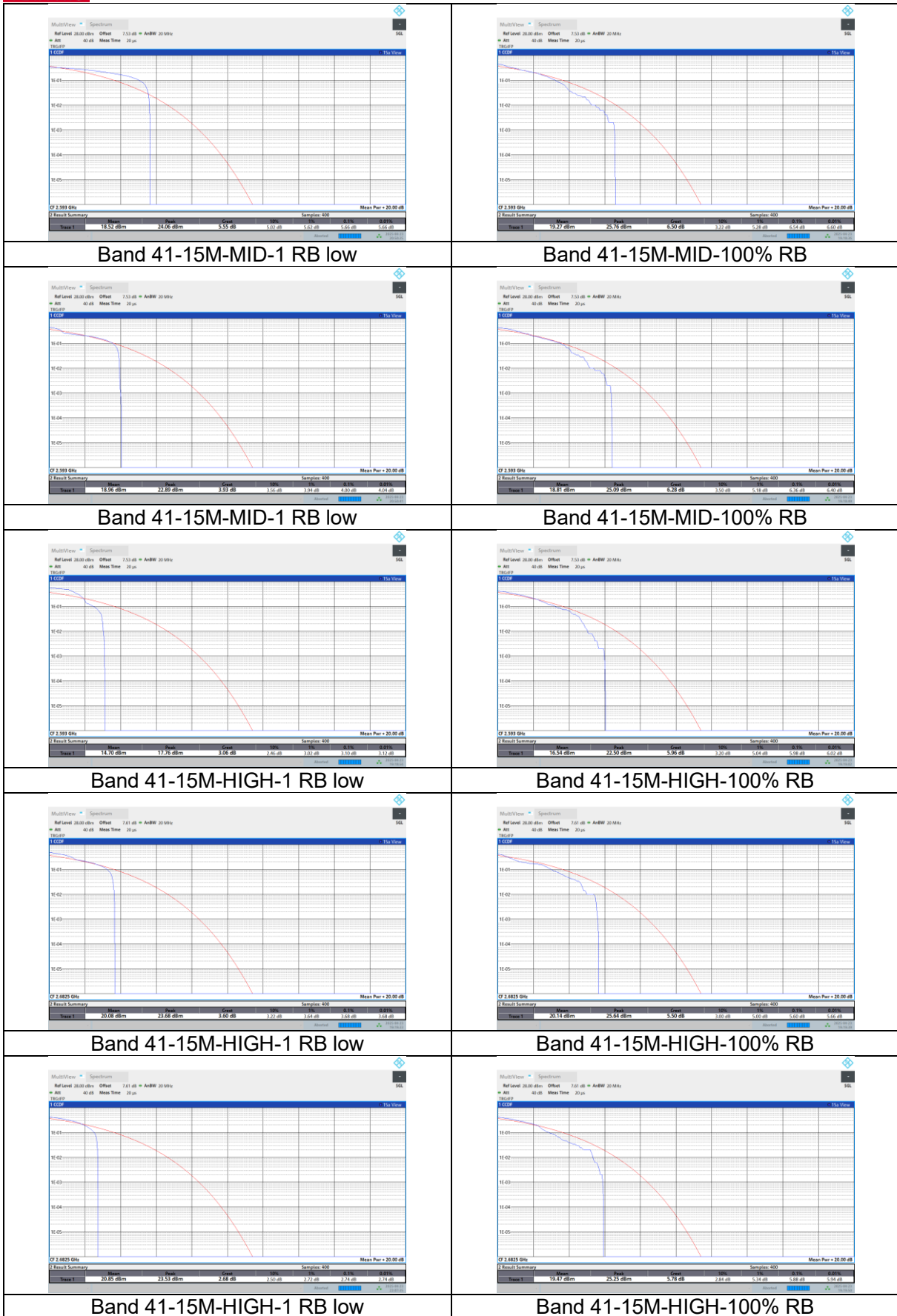
Band 41-15M-MID-100% RB

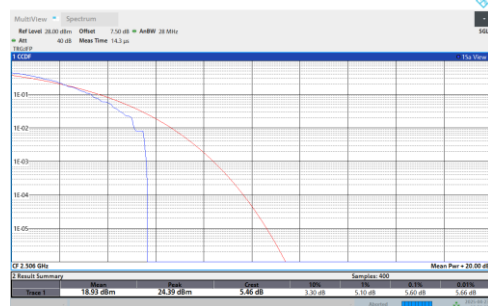
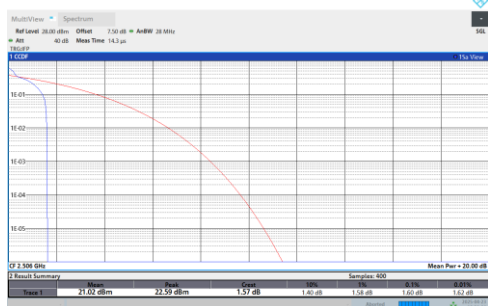
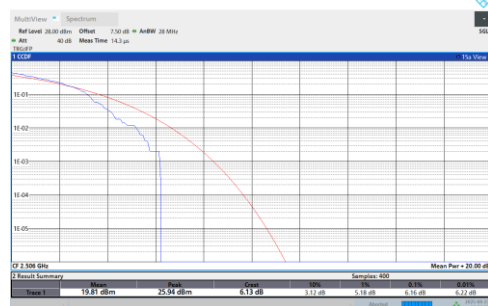
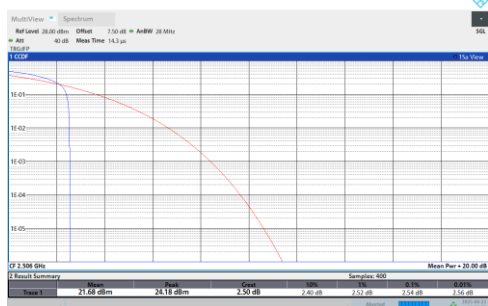
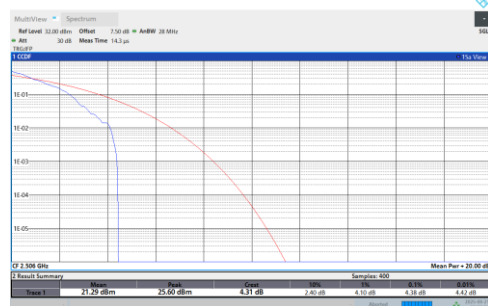
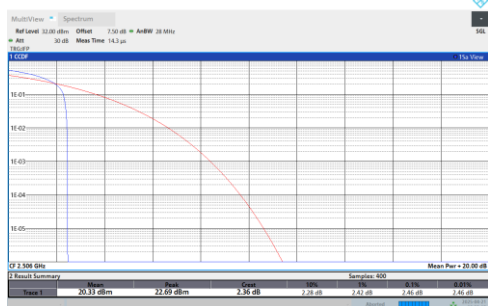
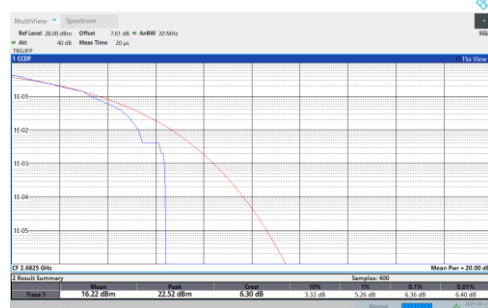
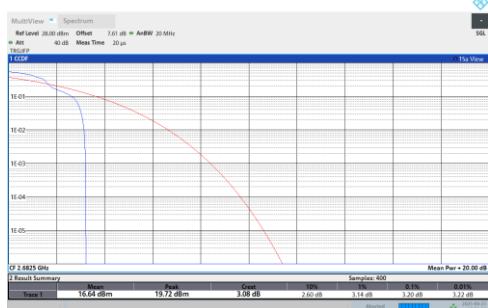
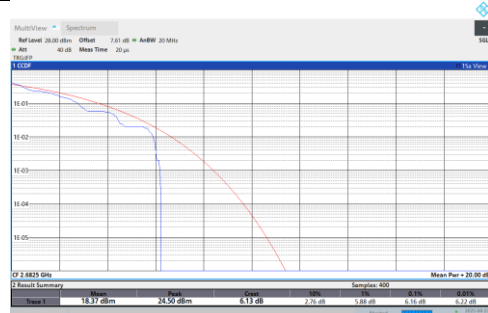
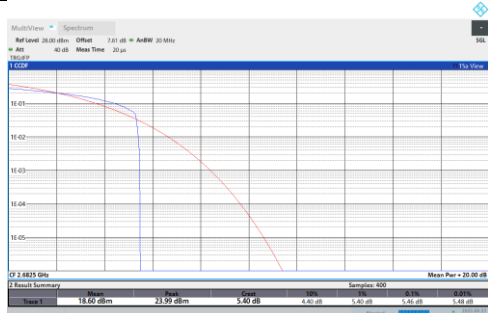
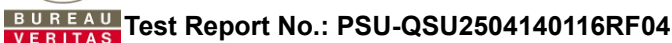


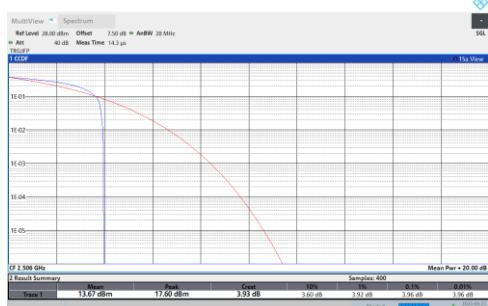
Band 41-15M-MID-1 RB low



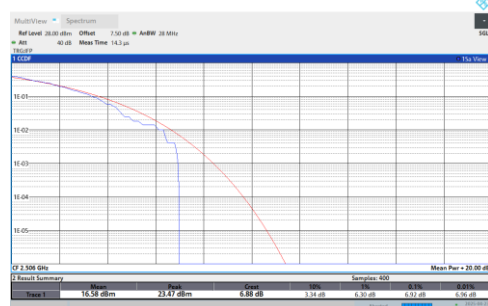
Band 41-15M-MID-100% RB



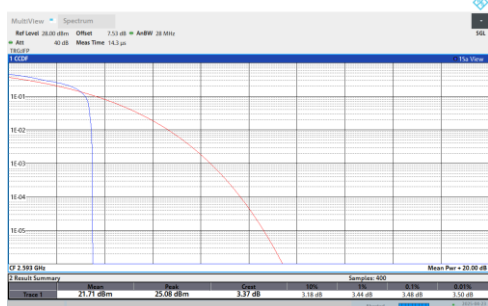




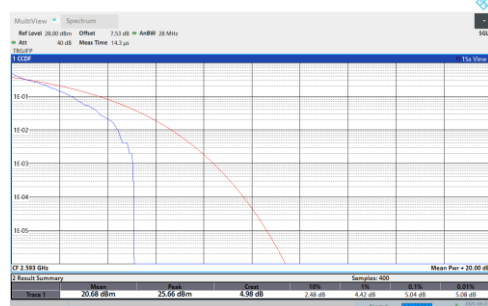
Band 41-20M-MID-1 RB low



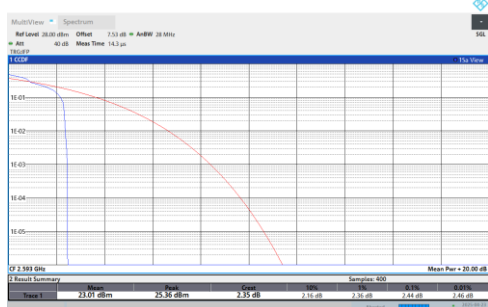
Band 41-20M-MID-100% RB



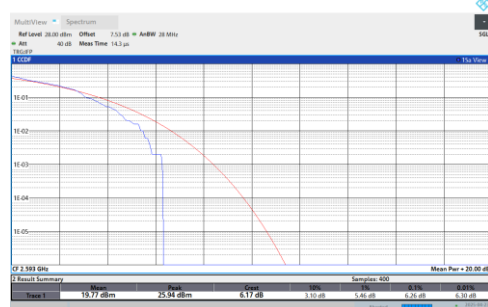
Band 41-20M-MID-1 RB low



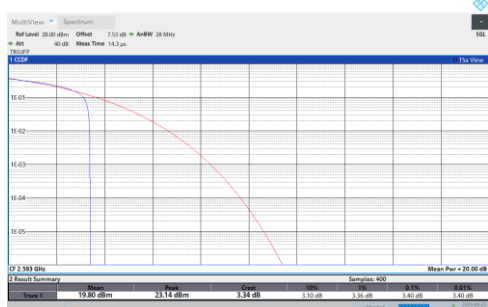
Band 41-20M-MID-100% RB



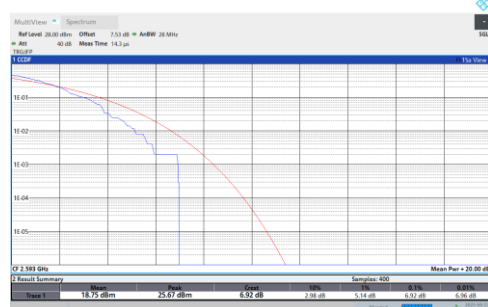
Band 41-20M-MID-1 RB low



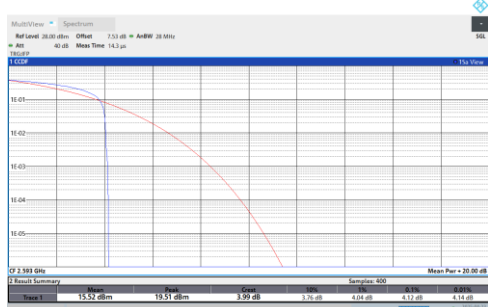
Band 41-20M-MID-100% RB



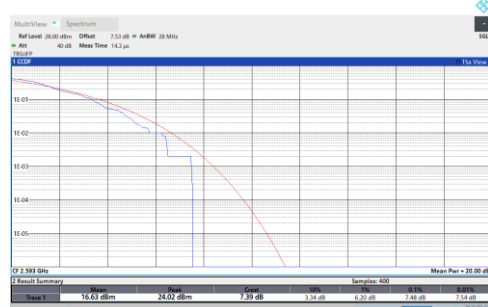
Band 41-20M-MID-1 RB low



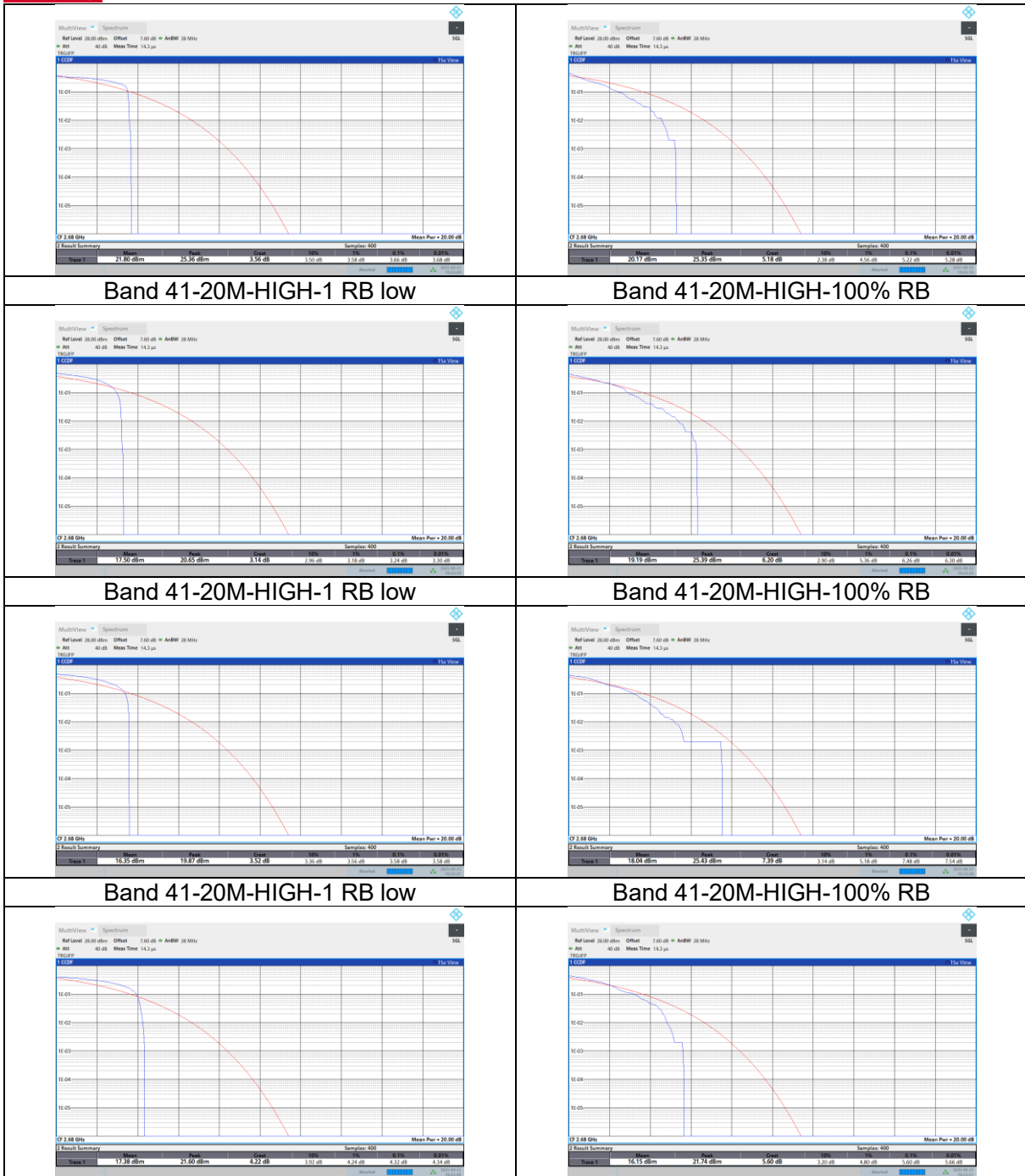
Band 41-20M-MID-100% RB



Band 41-20M-HIGH-1 RB low



Band 41-20M-HIGH-100% RB





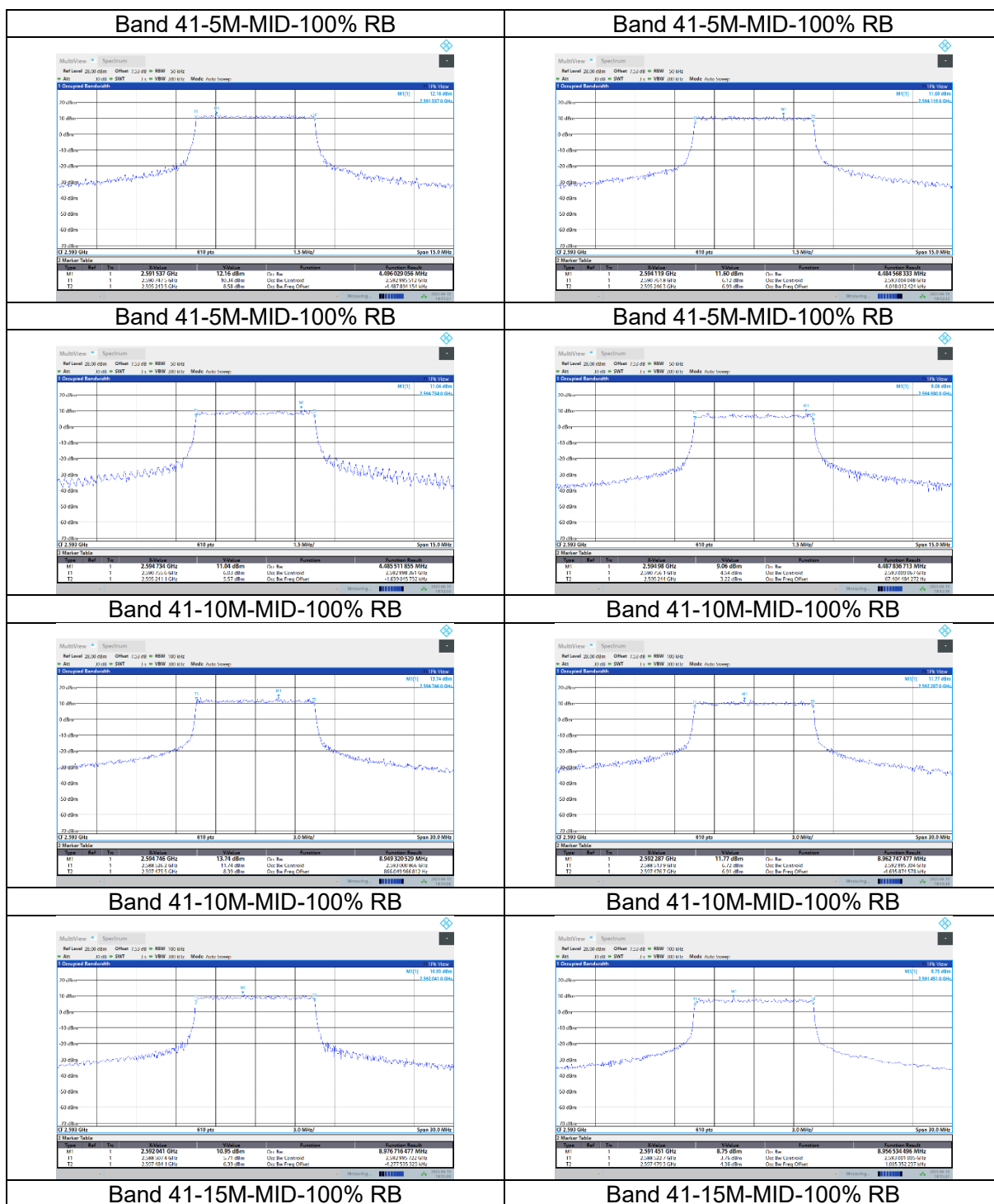
26DB BANDWIDTH AND OCCUPIED BANDWIDTH

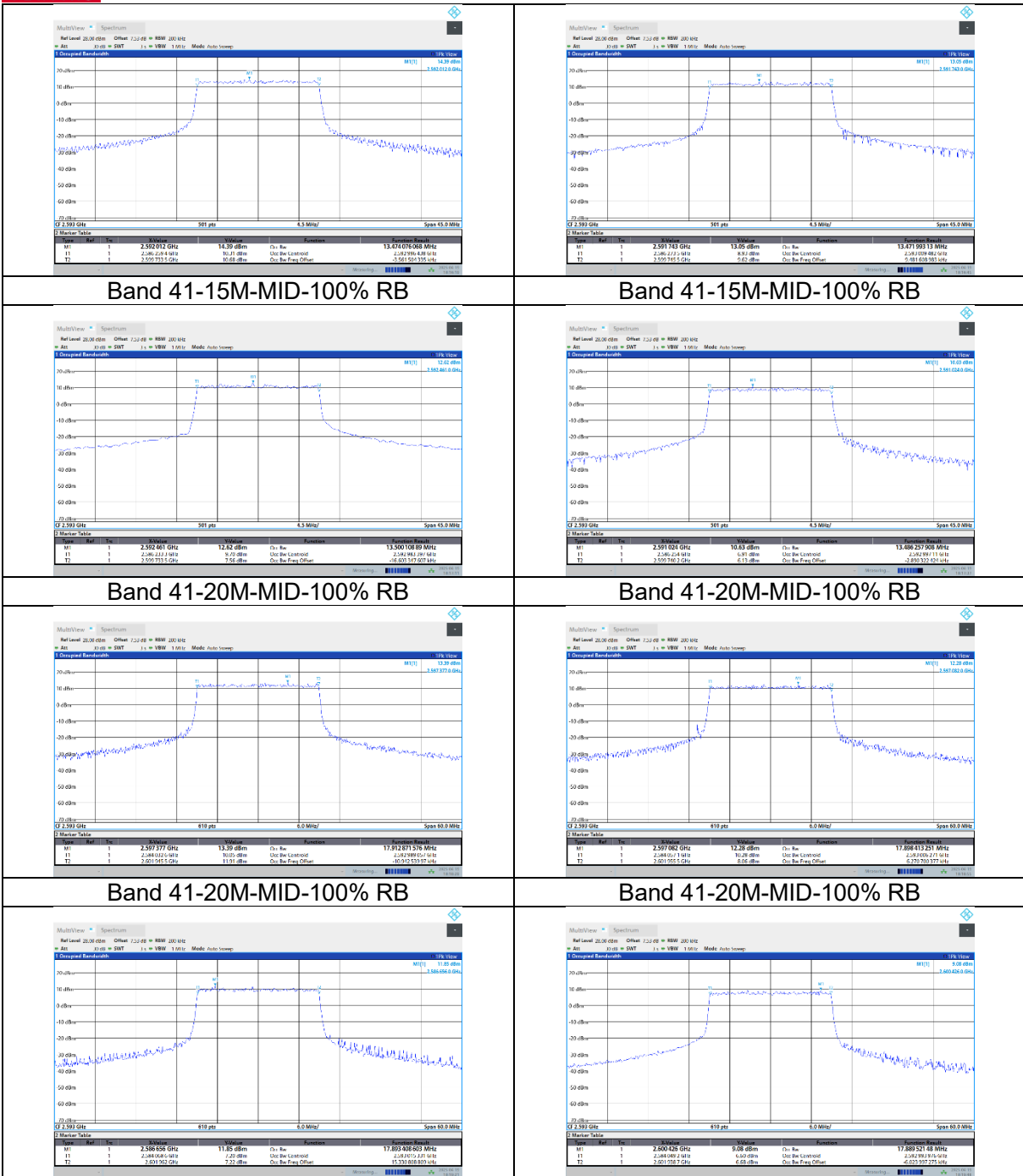
Occupied Bandwidth

Test Result

Bandwidth	Modulation	Frequency (MHz)	RB Configuration	Occupied Bandwidth(MHz)	Verdict
5MHz	QPSK	2593	100% RB	4.496	PASS
5MHz	16QAM	2593	100% RB	4.485	PASS
5MHz	64QAM	2593	100% RB	4.486	PASS
5MHz	256QAM	2593	100% RB	4.488	PASS
10MHz	QPSK	2593	100% RB	8.949	PASS
10MHz	16QAM	2593	100% RB	8.963	PASS
10MHz	64QAM	2593	100% RB	8.977	PASS
10MHz	256QAM	2593	100% RB	8.957	PASS
15MHz	QPSK	2593	100% RB	13.474	PASS
15MHz	16QAM	2593	100% RB	13.472	PASS
15MHz	64QAM	2593	100% RB	13.5	PASS
15MHz	256QAM	2593	100% RB	13.486	PASS
20MHz	QPSK	2593	100% RB	17.913	PASS
20MHz	16QAM	2593	100% RB	17.898	PASS
20MHz	64QAM	2593	100% RB	17.893	PASS
20MHz	256QAM	2593	100% RB	17.89	PASS

Test Graphs







26dB Bandwidth

Test Result

Bandwidth	Modulation	Frequency (MHz)	RB Configuration	26dB Bandwidth(MHz)	Verdict
5MHz	QPSK	2593	100% RB	5.035	PASS
5MHz	16QAM	2593	100% RB	4.975	PASS
5MHz	64QAM	2593	100% RB	4.930	PASS
5MHz	256QAM	2593	100% RB	4.915	PASS
10MHz	QPSK	2593	100% RB	9.740	PASS
10MHz	16QAM	2593	100% RB	9.770	PASS
10MHz	64QAM	2593	100% RB	9.770	PASS
10MHz	256QAM	2593	100% RB	9.650	PASS
15MHz	QPSK	2593	100% RB	14.835	PASS
15MHz	16QAM	2593	100% RB	14.790	PASS
15MHz	64QAM	2593	100% RB	14.835	PASS
15MHz	256QAM	2593	100% RB	14.790	PASS
20MHz	QPSK	2593	100% RB	19.421	PASS
20MHz	16QAM	2593	100% RB	19.241	PASS
20MHz	64QAM	2593	100% RB	19.241	PASS
20MHz	256QAM	2593	100% RB	19.241	PASS



Test Graphs

