



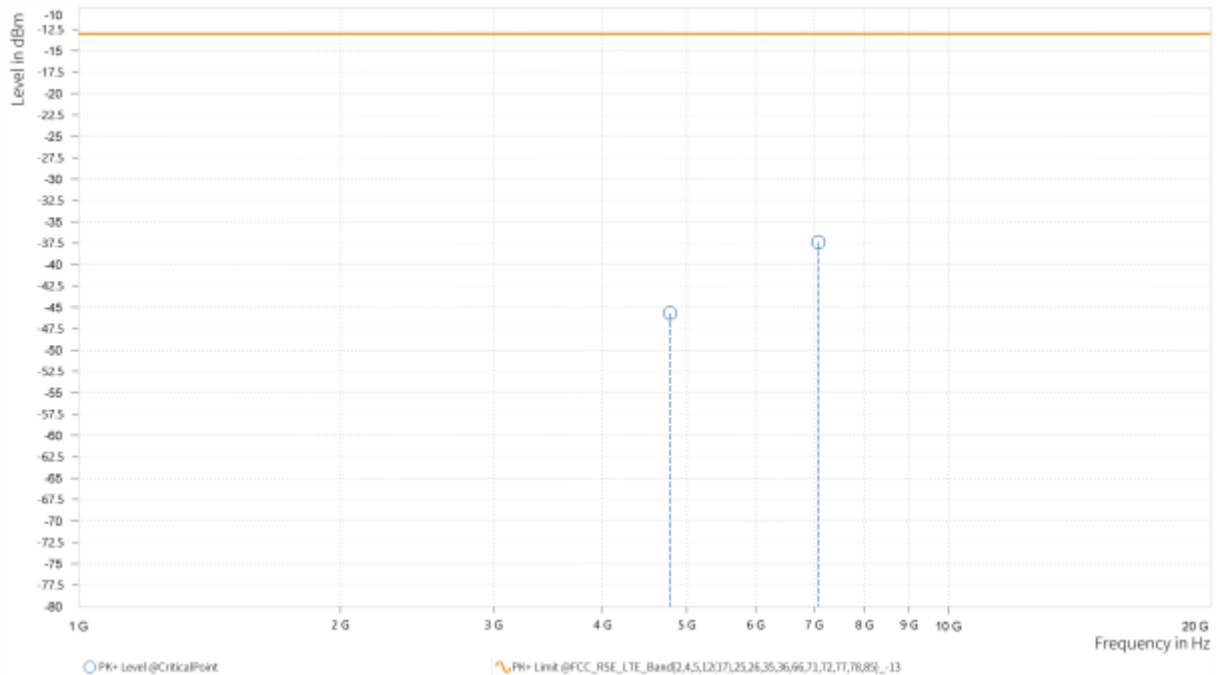
BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

MODE	TX channel 19100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
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]
2	4,782.500	-45.68	-13.00	32.68	15.93	V	1	1
2	7,081.500	-37.38	-13.00	24.38	22.91	V	359.1	1

Spectrum Overview



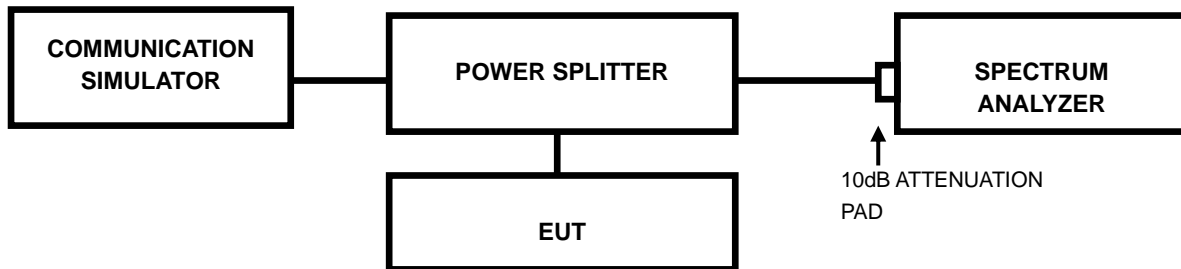


3.7 PEAK TO AVERAGE RATIO

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%.



**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF05

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.



**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF05

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF05

5 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.

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

Suzhou EMC/RF Lab:

Tel: +86 (0557) 368 1008



Test Report No.: W7L-P23100008RF05

6 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.



BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

7 APPENDIX

GSM 1900

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

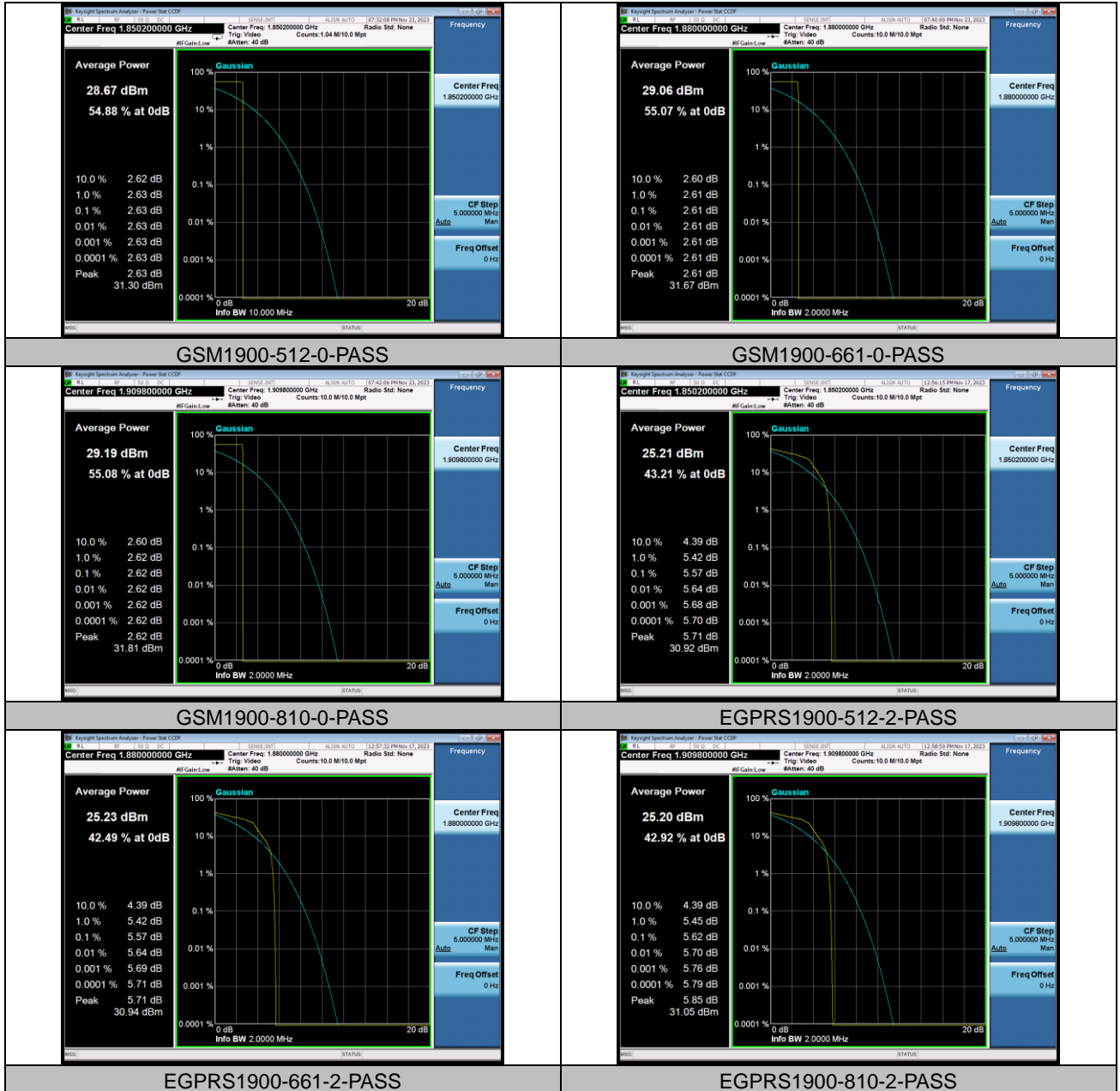
Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM1900	512	2.63	13	PASS
GSM1900	661	2.61	13	PASS
GSM1900	810	2.62	13	PASS
EGPRS1900	512	5.57	13	PASS
EGPRS1900	661	5.57	13	PASS
EGPRS1900	810	5.62	13	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs





BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

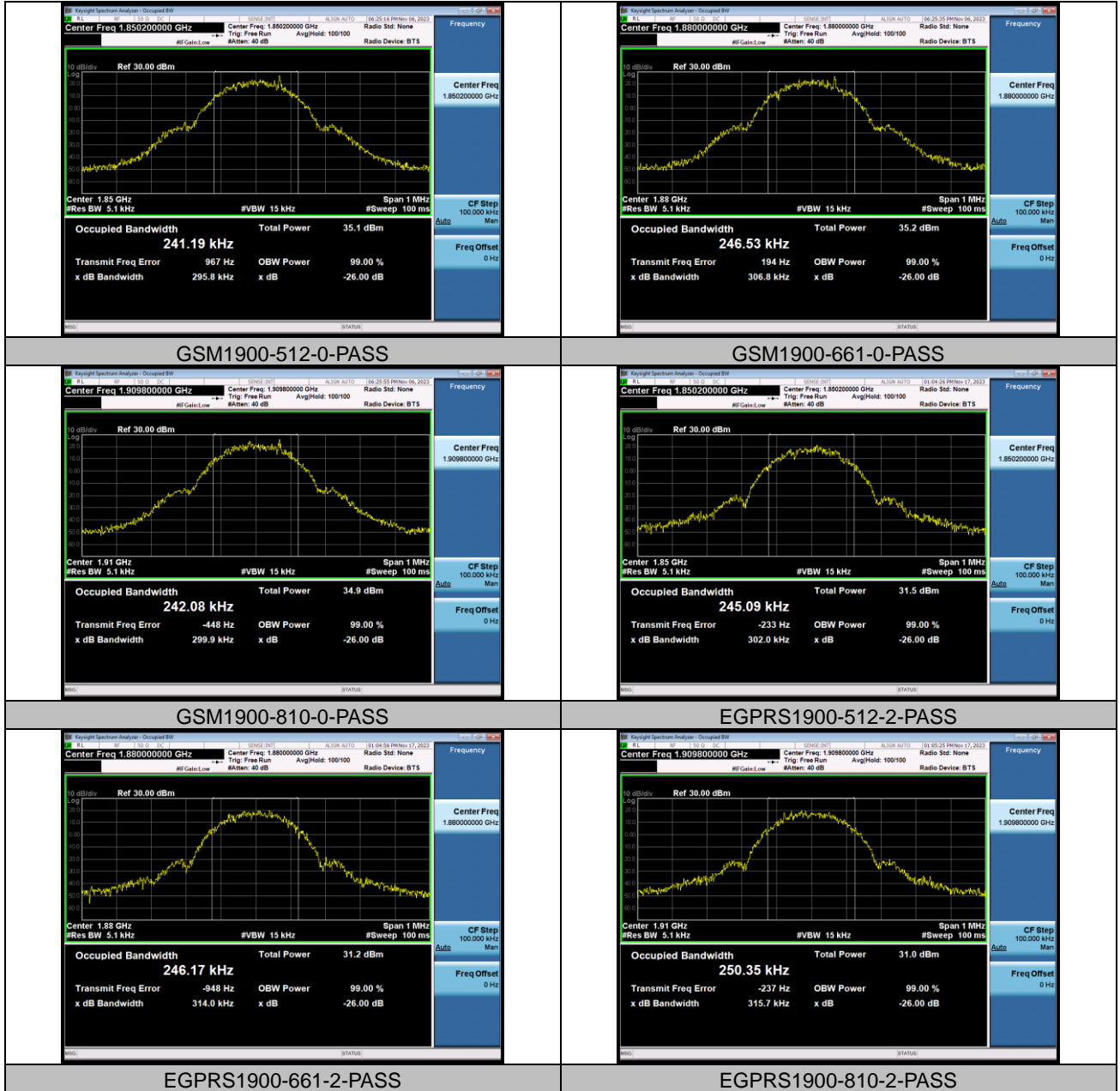
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM1900	512	0.24119	0.2958	---	PASS
GSM1900	661	0.24653	0.3068	---	PASS
GSM1900	810	0.24208	0.2999	---	PASS
EGPRS1900	512	0.24509	0.3020	---	PASS
EGPRS1900	661	0.24617	0.3140	---	PASS
EGPRS1900	810	0.25035	0.3157	---	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs



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

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

Tel: +86(0557) 368 1008



BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

BAND EDGE

Test Result

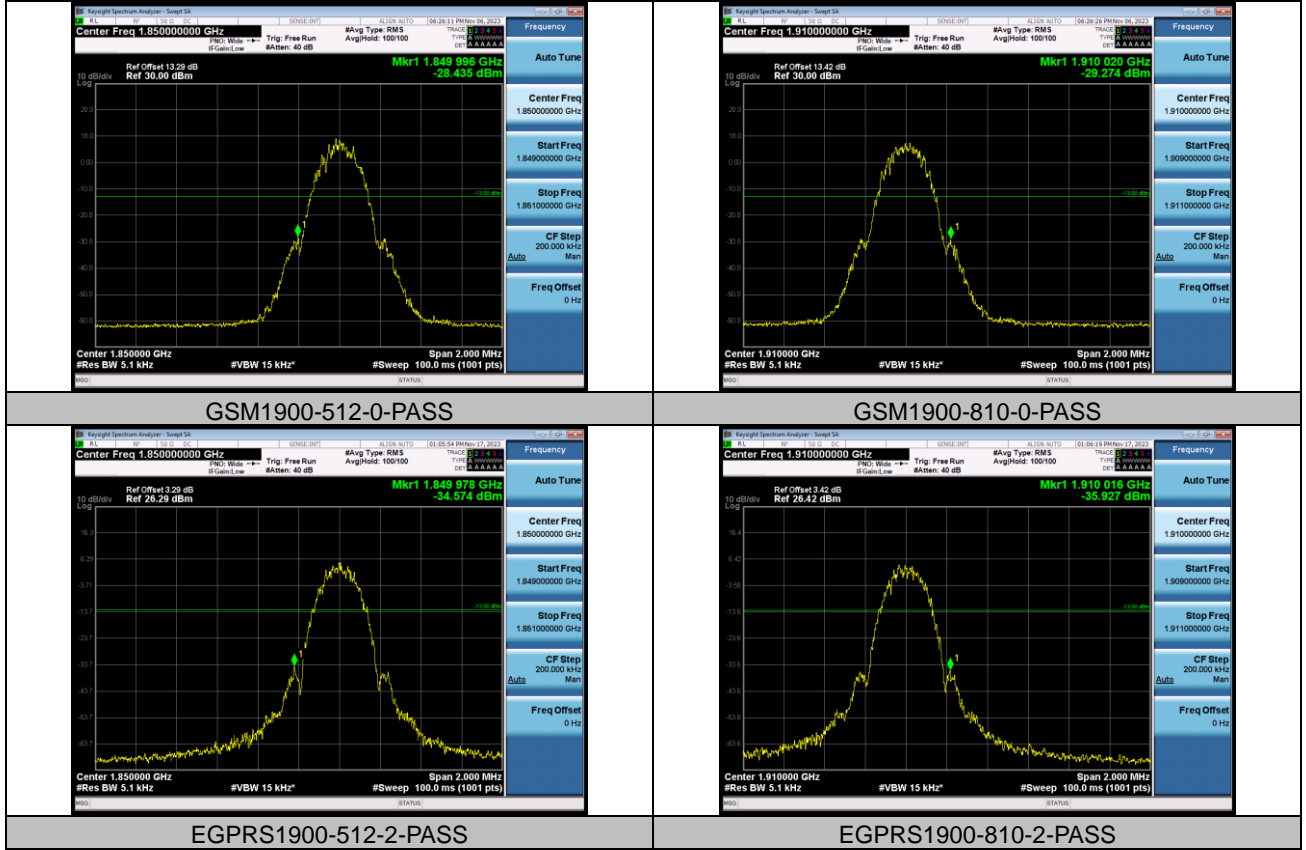
Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM1900	512	1850.00	-28.44	-13	PASS
GSM1900	810	1910.02	-29.27	-13	PASS
EGPRS1900	512	1849.98	-34.57	-13	PASS
EGPRS1900	810	1910.02	-35.93	-13	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs



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

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

Tel: +86(0557) 368 1008



BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

CONDUCTED SPURIOUS EMISSION

Test Result

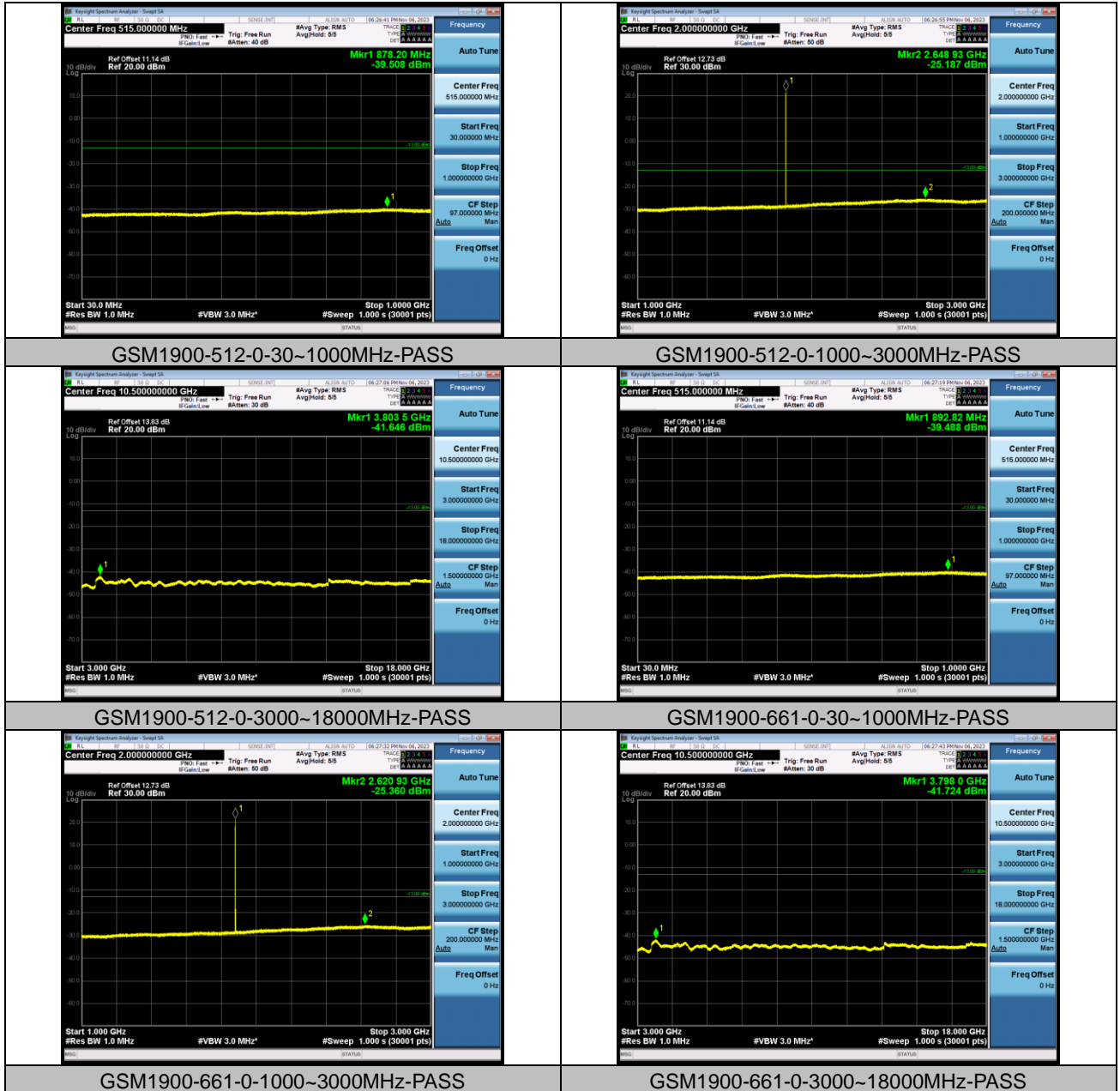
Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM1900	512	30~1000MHz	878.2	-39.51	-13	PASS
GSM1900	512	1000~3000MHz	2648.93	-25.19	-13	PASS
GSM1900	512	3000~18000MHz	3803.5	-41.65	-13	PASS
GSM1900	661	30~1000MHz	892.82	-39.49	-13	PASS
GSM1900	661	1000~3000MHz	2620.93	-25.36	-13	PASS
GSM1900	661	3000~18000MHz	3798	-41.72	-13	PASS
GSM1900	810	30~1000MHz	881.82	-39.6	-13	PASS
GSM1900	810	1000~3000MHz	2620.33	-25.25	-13	PASS
GSM1900	810	3000~18000MHz	3803	-41.89	-13	PASS
EGPRS1900	512	30~1000MHz	880.14	-49.83	-13	PASS
EGPRS1900	512	1000~18000MHz	3740.97	-53.54	-13	PASS
EGPRS1900	661	30~1000MHz	900.25	-49.73	-13	PASS
EGPRS1900	661	1000~18000MHz	3814.63	-53.49	-13	PASS
EGPRS1900	810	30~1000MHz	878.39	-49.85	-13	PASS
EGPRS1900	810	1000~18000MHz	3757.97	-53.35	-13	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs



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

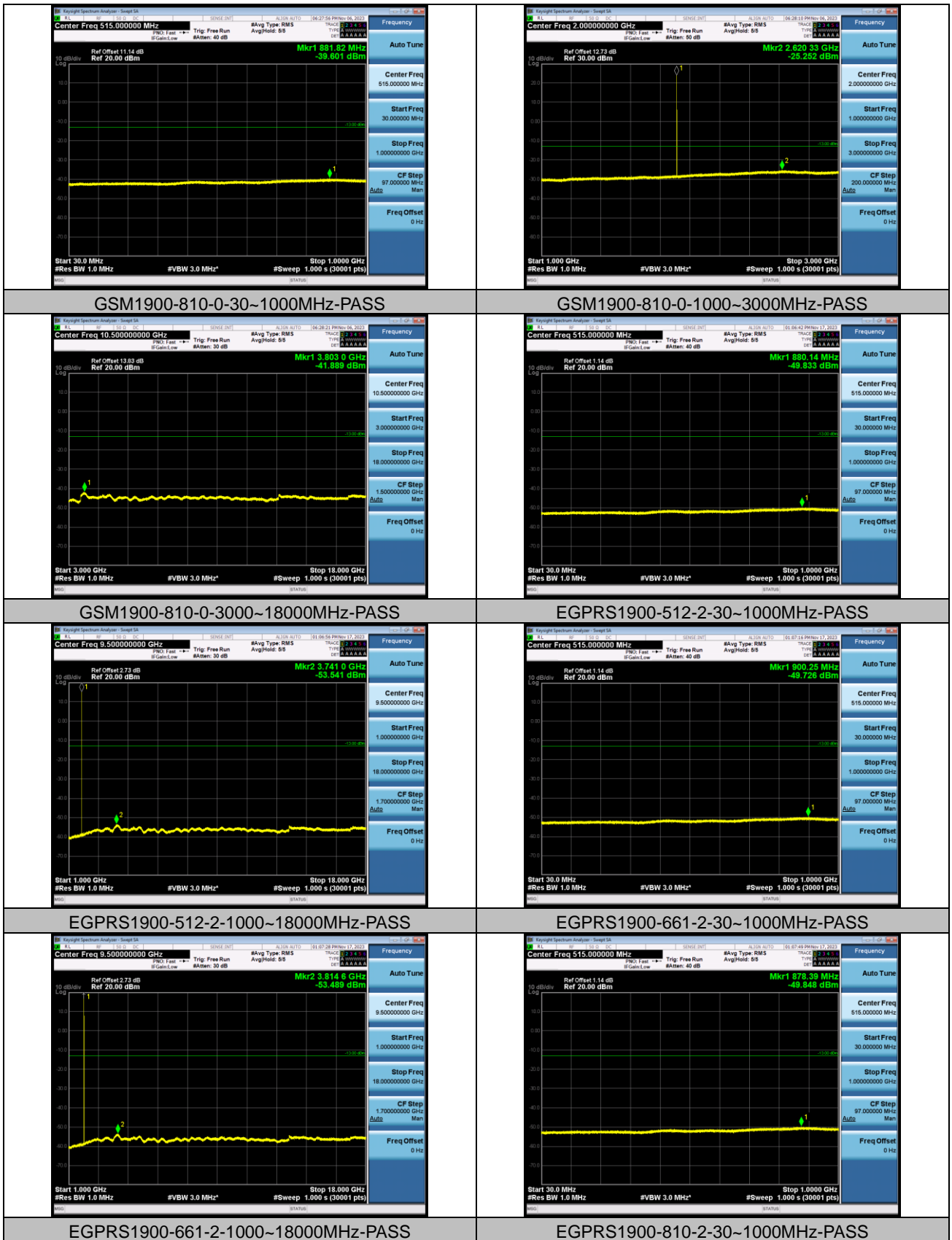
Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Tel: +86(0557) 368 1008



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05



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

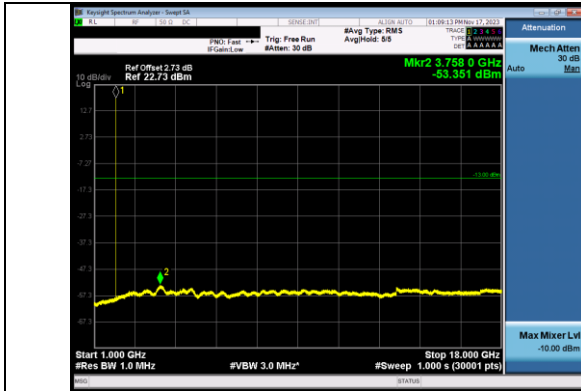
Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Tel: +86(0557) 368 1008



BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05



EGPRS1900-810-2-1000~18000MHz-PASS



FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	VN	NT	15.92	0.008604	±2.5	PASS
GSM1900	512	VL	NT	22.50	0.012161	±2.5	PASS
GSM1900	512	VH	NT	34.61	0.018706	±2.5	PASS
GSM1900	661	VN	NT	16.27	0.008654	±2.5	PASS
GSM1900	661	VL	NT	16.43	0.008739	±2.5	PASS
GSM1900	661	VH	NT	19.11	0.010165	±2.5	PASS
GSM1900	810	VN	NT	22.05	0.011546	±2.5	PASS
GSM1900	810	VL	NT	19.57	0.010247	±2.5	PASS
GSM1900	810	VH	NT	21.21	0.011106	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	NV	-30	15.98	0.008637	±2.5	PASS
GSM1900	512	NV	-20	15.05	0.008134	±2.5	PASS
GSM1900	512	NV	-10	1.32	0.000713	±2.5	PASS
GSM1900	512	NV	0	21.11	0.011410	±2.5	PASS
GSM1900	512	NV	10	29.80	0.016106	±2.5	PASS
GSM1900	512	NV	20	29.99	0.016209	±2.5	PASS
GSM1900	512	NV	30	19.34	0.010453	±2.5	PASS
GSM1900	512	NV	40	10.11	0.005464	±2.5	PASS
GSM1900	512	NV	50	20.53	0.011096	±2.5	PASS
GSM1900	661	NV	-30	17.37	0.009239	±2.5	PASS
GSM1900	661	NV	-20	16.69	0.008878	±2.5	PASS
GSM1900	661	NV	-10	15.14	0.008053	±2.5	PASS
GSM1900	661	NV	0	25.34	0.013479	±2.5	PASS
GSM1900	661	NV	10	24.41	0.012984	±2.5	PASS
GSM1900	661	NV	20	10.98	0.005840	±2.5	PASS
GSM1900	661	NV	30	11.75	0.006250	±2.5	PASS
GSM1900	661	NV	40	17.92	0.009532	±2.5	PASS
GSM1900	661	NV	50	14.95	0.007952	±2.5	PASS
GSM1900	810	NV	-30	18.24	0.009551	±2.5	PASS
GSM1900	810	NV	-20	20.70	0.010839	±2.5	PASS
GSM1900	810	NV	-10	28.51	0.014928	±2.5	PASS
GSM1900	810	NV	0	14.27	0.007472	±2.5	PASS
GSM1900	810	NV	10	15.92	0.008336	±2.5	PASS
GSM1900	810	NV	20	0.45	0.000236	±2.5	PASS
GSM1900	810	NV	30	19.63	0.010279	±2.5	PASS
GSM1900	810	NV	40	28.38	0.014860	±2.5	PASS
GSM1900	810	NV	50	15.43	0.008079	±2.5	PASS



Test Report No.: W7L-P23100008RF05

WCDMA-B2

PEAK-TO-AVERAGE RATIO

Test Result

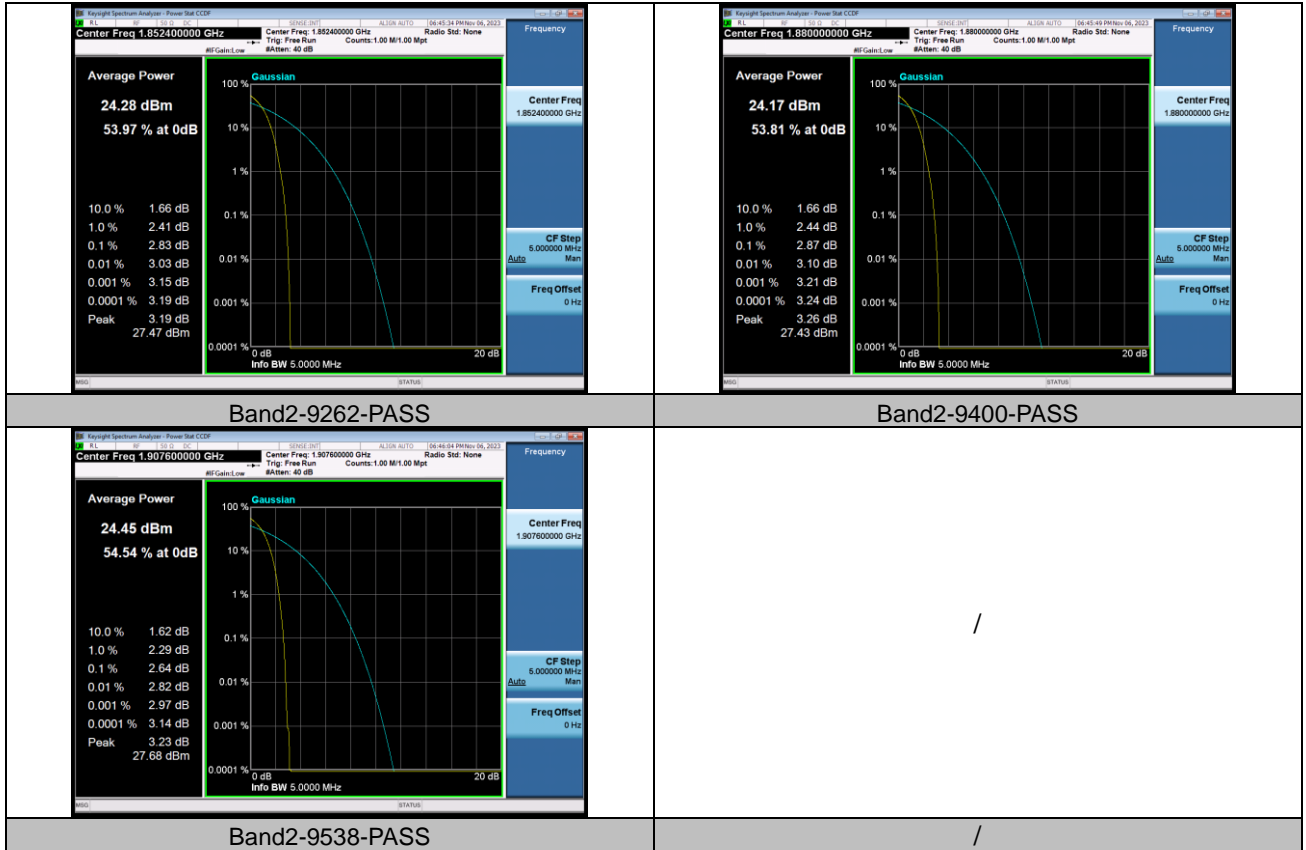
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	2.83	13	PASS
Band2	9400	2.87	13	PASS
Band2	9538	2.64	13	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs





BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

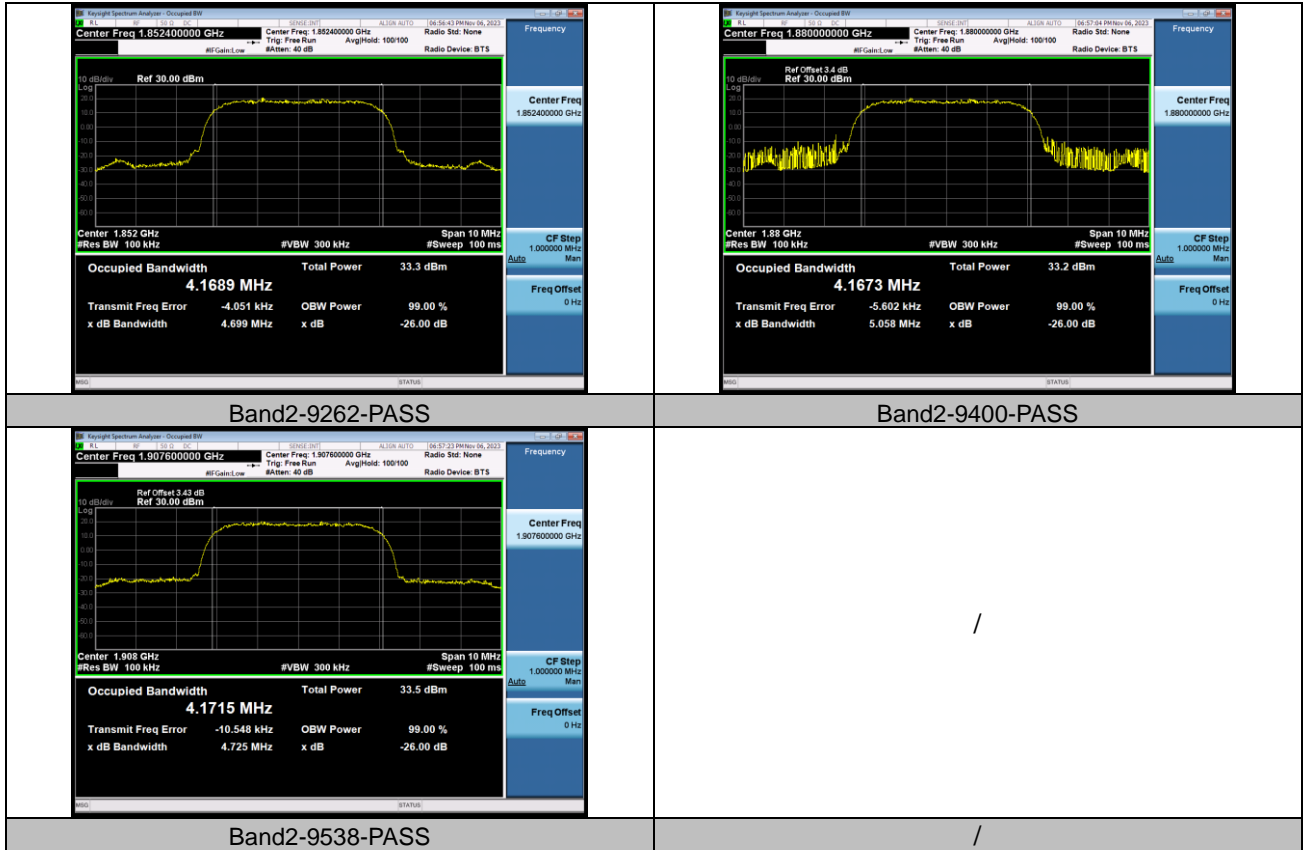
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(kHz)	Verdict
Band2	9262	4.1689	4.699	---	PASS
Band2	9400	4.1673	5.058	---	PASS
Band2	9538	4.1715	4.725	---	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs





BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

BAND EDGE

Test Result

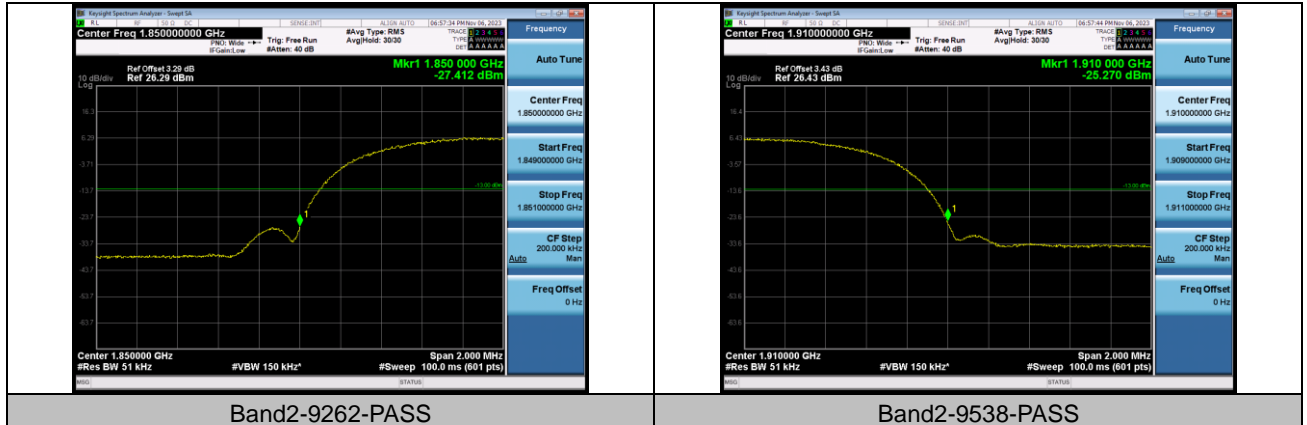
Band	Channel	Frequency (MHz)	Result (dBm)	Limit(dBm)	Verdict
Band2	9262	1850.00	-27.41	-13	PASS
Band2	9538	1910.00	-25.27	-13	PASS



BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs





BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

CONDUCTED SPURIOUS EMISSION

Test Result

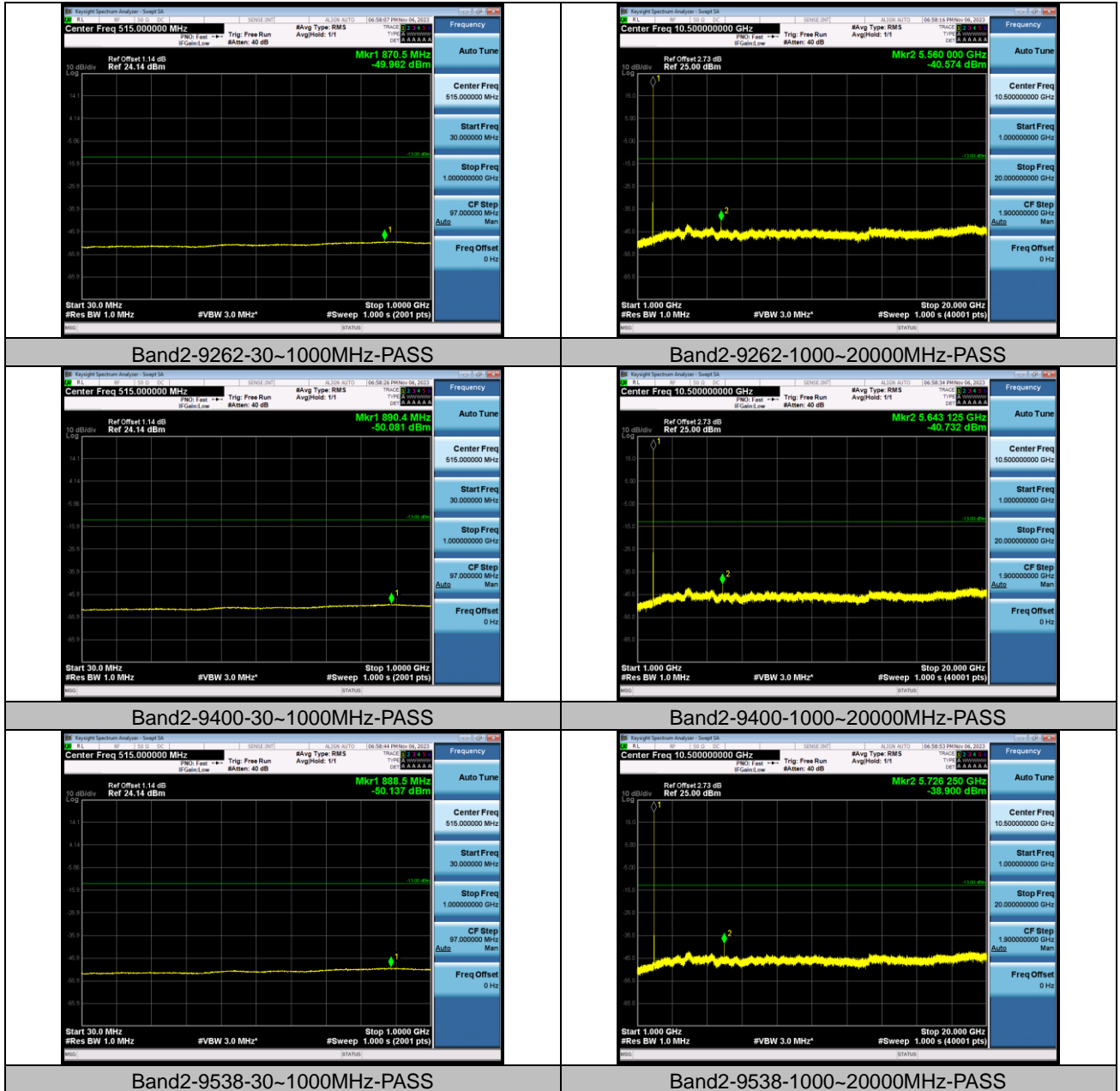
Band	Channel	Frequency Range (Mhz)	Frequency (dBm)	Result (dBm)	Limit (dBm)	Verdict
Band2	9262	30~1000MHz	870.51	-49.96	-13	PASS
Band2	9262	1000~20000MHz	5560	-40.57	-13	PASS
Band2	9400	30~1000MHz	890.39	-50.08	-13	PASS
Band2	9400	1000~20000MHz	5643.13	-40.73	-13	PASS
Band2	9538	30~1000MHz	888.45	-50.14	-13	PASS
Band2	9538	1000~20000MHz	5726.25	-38.9	-13	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

Test Graphs



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

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

Tel: +86(0557) 368 1008



FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VN	NT	-11.89	-0.006419	±2.5	PASS
Band2	9262	VL	NT	-13.25	-0.007153	±2.5	PASS
Band2	9262	VH	NT	-11.57	-0.006246	±2.5	PASS
Band2	9400	VN	NT	-11.67	-0.006207	±2.5	PASS
Band2	9400	VL	NT	-10.29	-0.005473	±2.5	PASS
Band2	9400	VH	NT	-9.38	-0.004989	±2.5	PASS
Band2	9538	VN	NT	-11.93	-0.006254	±2.5	PASS
Band2	9538	VL	NT	-9.77	-0.005122	±2.5	PASS
Band2	9538	VH	NT	-10.63	-0.005572	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	-9.62	-0.005193	±2.5	PASS
Band2	9262	NV	-20	-11.68	-0.006305	±2.5	PASS
Band2	9262	NV	-10	-11.27	-0.006084	±2.5	PASS
Band2	9262	NV	0	-10.66	-0.005755	±2.5	PASS
Band2	9262	NV	10	-11.08	-0.005981	±2.5	PASS
Band2	9262	NV	20	-9.59	-0.005177	±2.5	PASS
Band2	9262	NV	30	-9.85	-0.005317	±2.5	PASS
Band2	9262	NV	40	-12.52	-0.006759	±2.5	PASS
Band2	9262	NV	50	-11.37	-0.006138	±2.5	PASS
Band2	9400	NV	-30	-9.94	-0.005287	±2.5	PASS
Band2	9400	NV	-20	-9.37	-0.004984	±2.5	PASS
Band2	9400	NV	-10	-8.96	-0.004766	±2.5	PASS
Band2	9400	NV	0	-9.44	-0.005021	±2.5	PASS
Band2	9400	NV	10	-12.28	-0.006532	±2.5	PASS
Band2	9400	NV	20	-9.19	-0.004888	±2.5	PASS
Band2	9400	NV	30	-9.19	-0.004888	±2.5	PASS
Band2	9400	NV	40	-7.34	-0.003904	±2.5	PASS
Band2	9400	NV	50	-10.37	-0.005516	±2.5	PASS
Band2	9538	NV	-30	-11.75	-0.006160	±2.5	PASS
Band2	9538	NV	-20	-11.62	-0.006091	±2.5	PASS
Band2	9538	NV	-10	-11.61	-0.006086	±2.5	PASS
Band2	9538	NV	0	-9.98	-0.005232	±2.5	PASS
Band2	9538	NV	10	-12.03	-0.006306	±2.5	PASS
Band2	9538	NV	20	-8.11	-0.004251	±2.5	PASS
Band2	9538	NV	30	-10.49	-0.005499	±2.5	PASS
Band2	9538	NV	40	-9.76	-0.005116	±2.5	PASS
Band2	9538	NV	50	-6.32	-0.003313	±2.5	PASS



LTE-B2

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

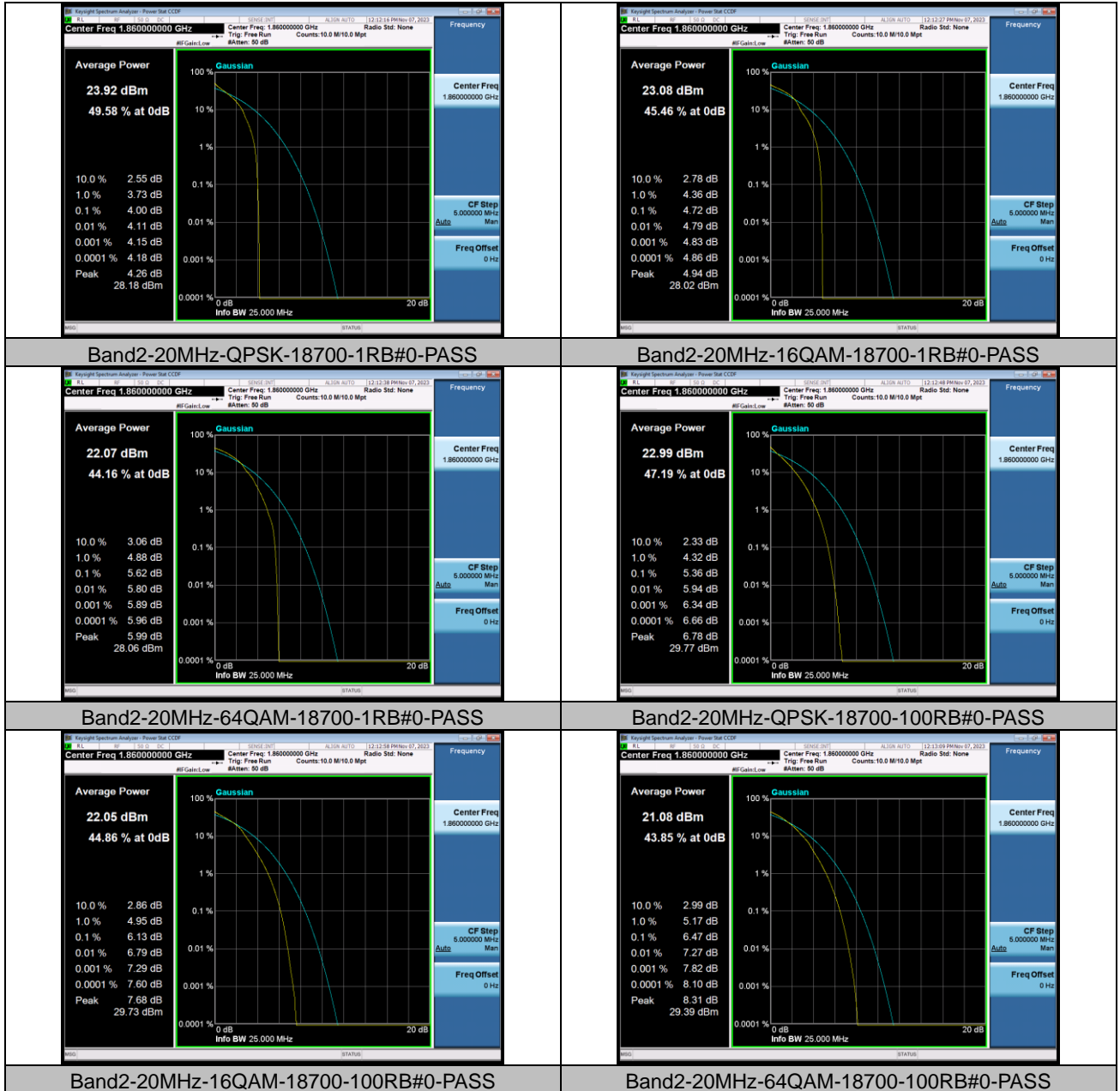
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	20MHz	QPSK	18700	1RB#0	4.00	13	PASS
Band2	20MHz	16QAM	18700	1RB#0	4.72	13	PASS
Band2	20MHz	64QAM	18700	1RB#0	5.62	13	PASS
Band2	20MHz	QPSK	18700	100RB#0	5.36	13	PASS
Band2	20MHz	16QAM	18700	100RB#0	6.13	13	PASS
Band2	20MHz	64QAM	18700	100RB#0	6.47	13	PASS
Band2	20MHz	QPSK	18900	1RB#0	4.54	13	PASS
Band2	20MHz	16QAM	18900	1RB#0	5.20	13	PASS
Band2	20MHz	64QAM	18900	1RB#0	6.05	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	5.33	13	PASS
Band2	20MHz	16QAM	18900	100RB#0	6.11	13	PASS
Band2	20MHz	64QAM	18900	100RB#0	6.45	13	PASS
Band2	20MHz	QPSK	19100	1RB#0	4.12	13	PASS
Band2	20MHz	16QAM	19100	1RB#0	4.81	13	PASS
Band2	20MHz	64QAM	19100	1RB#0	5.74	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	5.09	13	PASS
Band2	20MHz	16QAM	19100	100RB#0	5.87	13	PASS
Band2	20MHz	64QAM	19100	100RB#0	6.33	13	PASS



BUREAU VERITAS

Test Report No.: W7L-P23100008RF05

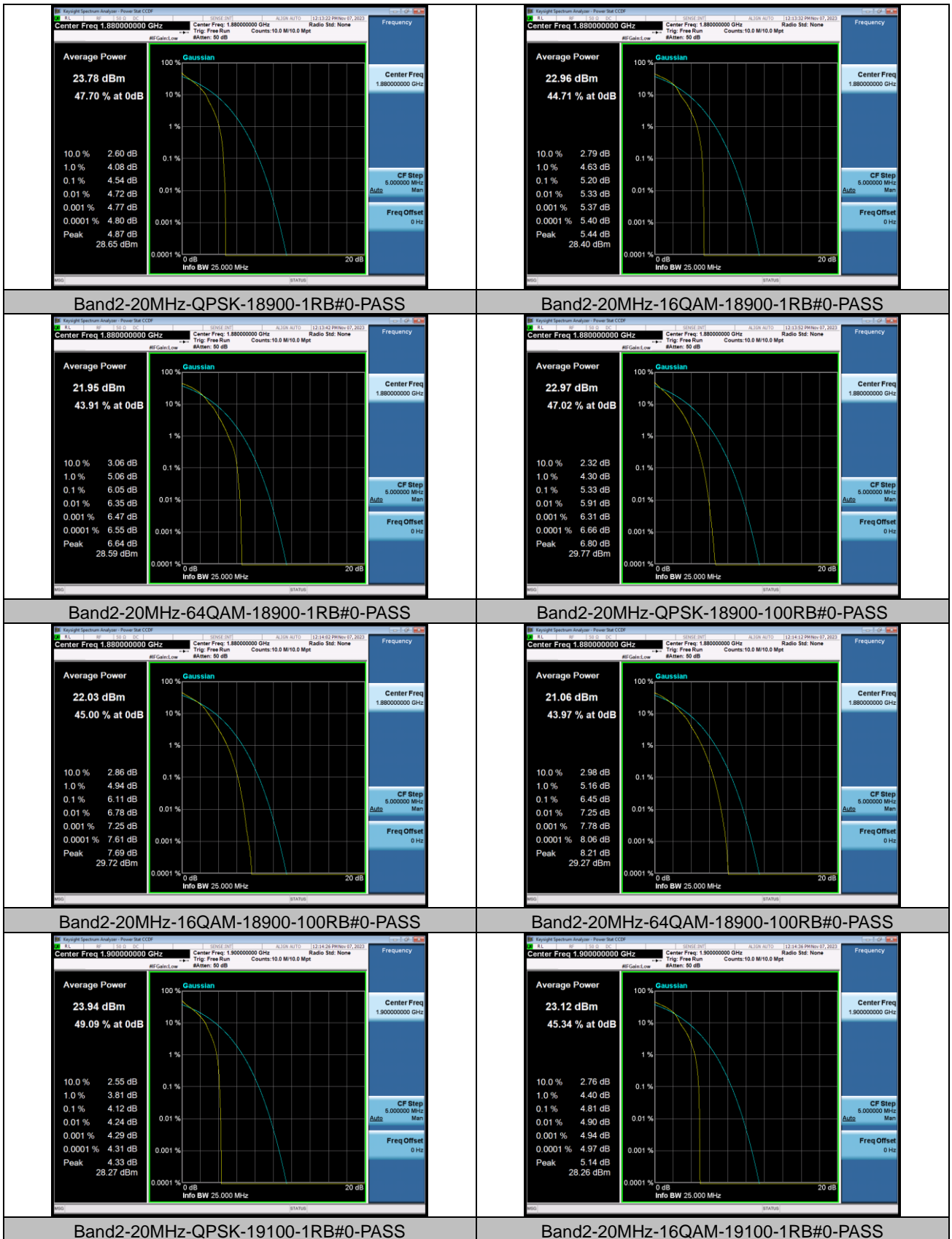
Test Graphs





BUREAU VERITAS

Test Report No.: W7L-P23100008RF05



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

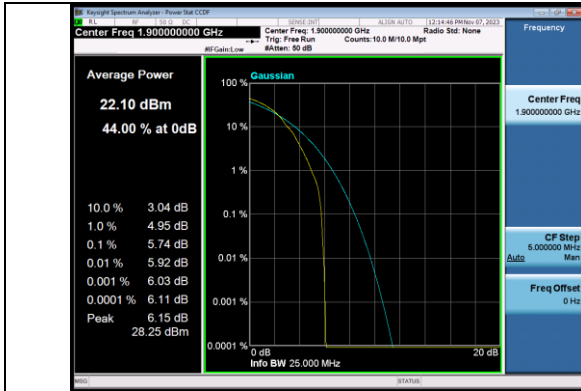
Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Tel: +86(0557) 368 1008

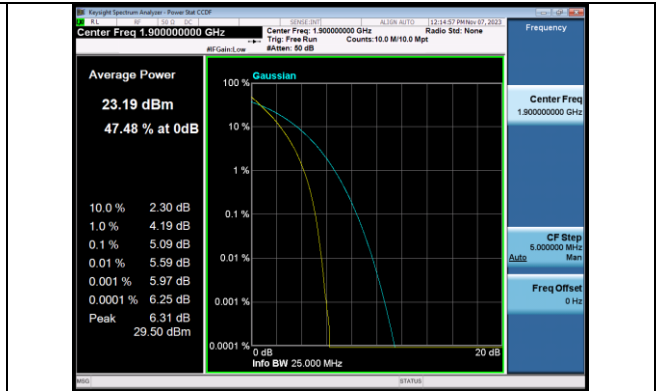


BUREAU VERITAS

Test Report No.: W7L-P23100008RF05



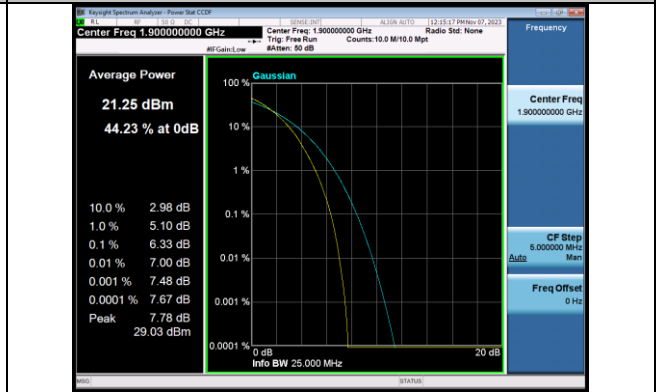
Band2-20MHz-64QAM-19100-1RB#0-PASS



Band2-20MHz-QPSK-19100-100RB#0-PASS



Band2-20MHz-16QAM-19100-100RB#0-PASS



Band2-20MHz-64QAM-19100-100RB#0-PASS



BUREAU
VERITAS

Test Report No.: W7L-P23100008RF05

26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band2	1.4MHz	QPSK	18607	6RB#0	1.0994	1.287	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	1.0934	1.277	PASS
Band2	1.4MHz	64QAM	18607	6RB#0	1.0897	1.275	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	1.0919	1.281	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	1.0966	1.311	PASS
Band2	1.4MHz	64QAM	18900	6RB#0	1.0894	1.281	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	1.0969	1.292	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	1.0932	1.304	PASS
Band2	1.4MHz	64QAM	19193	6RB#0	1.0904	1.277	PASS
Band2	3MHz	QPSK	18615	15RB#0	2.6874	2.888	PASS
Band2	3MHz	16QAM	18615	15RB#0	2.6828	2.917	PASS
Band2	3MHz	64QAM	18615	15RB#0	2.6935	2.905	PASS
Band2	3MHz	QPSK	18900	15RB#0	2.6887	2.900	PASS
Band2	3MHz	16QAM	18900	15RB#0	2.6824	2.911	PASS
Band2	3MHz	64QAM	18900	15RB#0	2.6973	2.910	PASS
Band2	3MHz	QPSK	19185	15RB#0	2.6851	2.904	PASS
Band2	3MHz	16QAM	19185	15RB#0	2.6856	2.903	PASS
Band2	3MHz	64QAM	19185	15RB#0	2.6917	2.908	PASS
Band2	5MHz	QPSK	18625	25RB#0	4.5020	4.926	PASS
Band2	5MHz	16QAM	18625	25RB#0	4.4877	4.906	PASS
Band2	5MHz	64QAM	18625	25RB#0	4.4934	4.912	PASS
Band2	5MHz	QPSK	18900	25RB#0	4.5059	4.931	PASS
Band2	5MHz	16QAM	18900	25RB#0	4.4838	4.892	PASS
Band2	5MHz	64QAM	18900	25RB#0	4.4933	4.933	PASS
Band2	5MHz	QPSK	19175	25RB#0	4.5030	4.922	PASS
Band2	5MHz	16QAM	19175	25RB#0	4.4917	4.915	PASS
Band2	5MHz	64QAM	19175	25RB#0	4.4901	4.922	PASS
Band2	10MHz	QPSK	18650	50RB#0	8.9980	9.814	PASS
Band2	10MHz	16QAM	18650	50RB#0	8.9955	9.747	PASS
Band2	10MHz	64QAM	18650	50RB#0	8.9754	9.785	PASS
Band2	10MHz	QPSK	18900	50RB#0	8.9809	9.808	PASS
Band2	10MHz	16QAM	18900	50RB#0	8.9861	9.758	PASS
Band2	10MHz	64QAM	18900	50RB#0	8.9802	9.784	PASS
Band2	10MHz	QPSK	19150	50RB#0	8.9949	9.859	PASS
Band2	10MHz	16QAM	19150	50RB#0	8.9782	9.766	PASS
Band2	10MHz	64QAM	19150	50RB#0	8.9644	9.775	PASS
Band2	15MHz	QPSK	18675	75RB#0	13.488	14.68	PASS
Band2	15MHz	16QAM	18675	75RB#0	13.481	14.64	PASS
Band2	15MHz	64QAM	18675	75RB#0	13.460	14.67	PASS
Band2	15MHz	QPSK	18900	75RB#0	13.487	14.71	PASS
Band2	15MHz	16QAM	18900	75RB#0	13.457	14.61	PASS

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

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

Tel: +86(0557) 368 1008