



## 8. BANDWIDTH

### 8.1 LIMIT

According to FCC section 2.1049, OBW and EBW no limit.

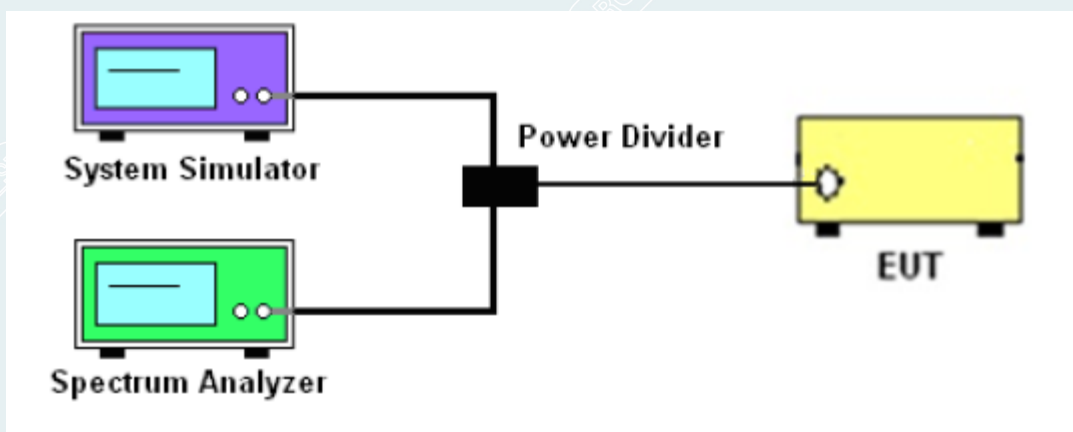
### 8.2 TEST PROCEDURES

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel). The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

#### Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2.  $RBW = 1-5\%$  of the expected OBW
3.  $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1- 5% of the 99% occupied bandwidth observed in Step 7

### 8.3 TEST SETUP

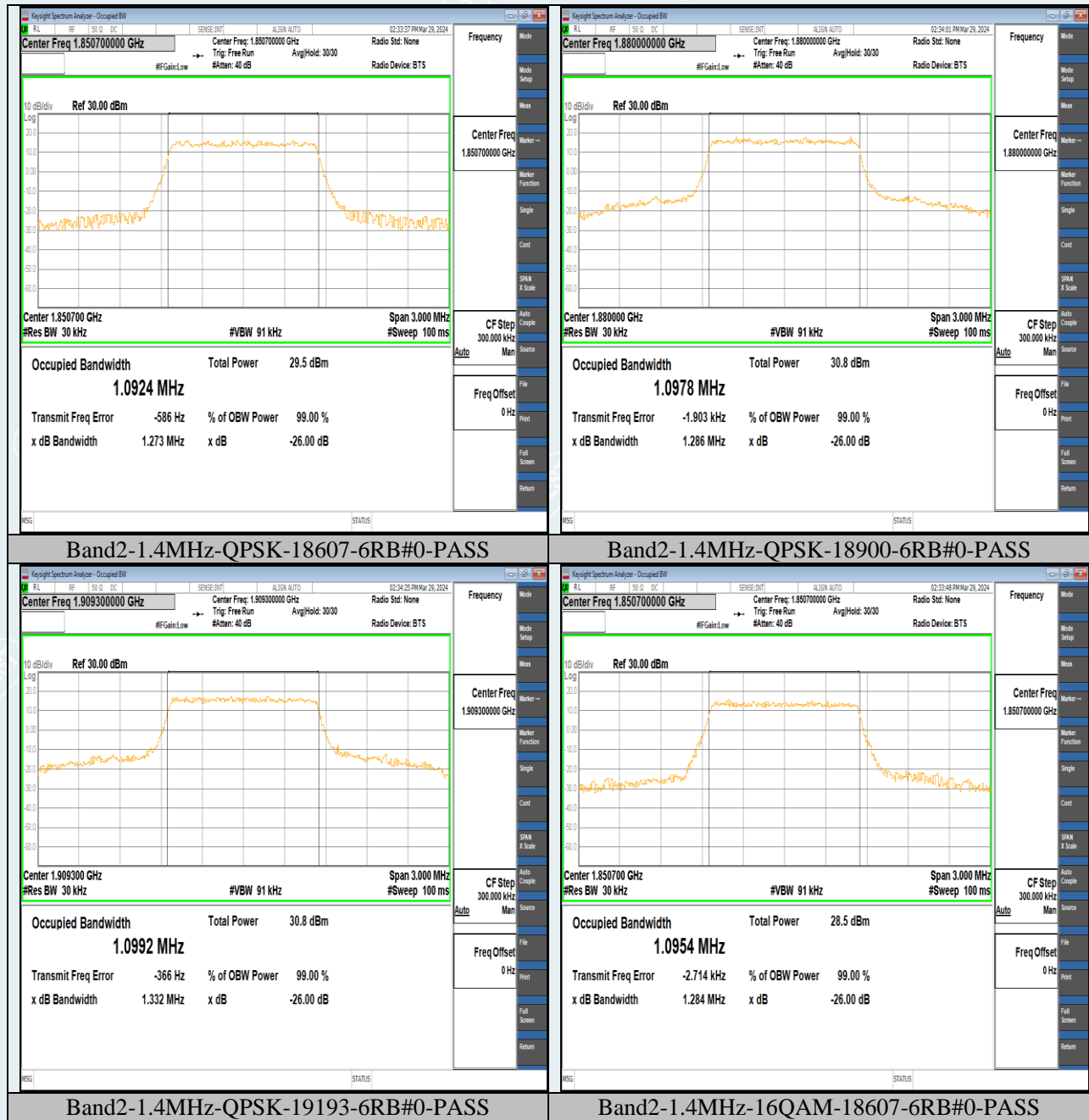


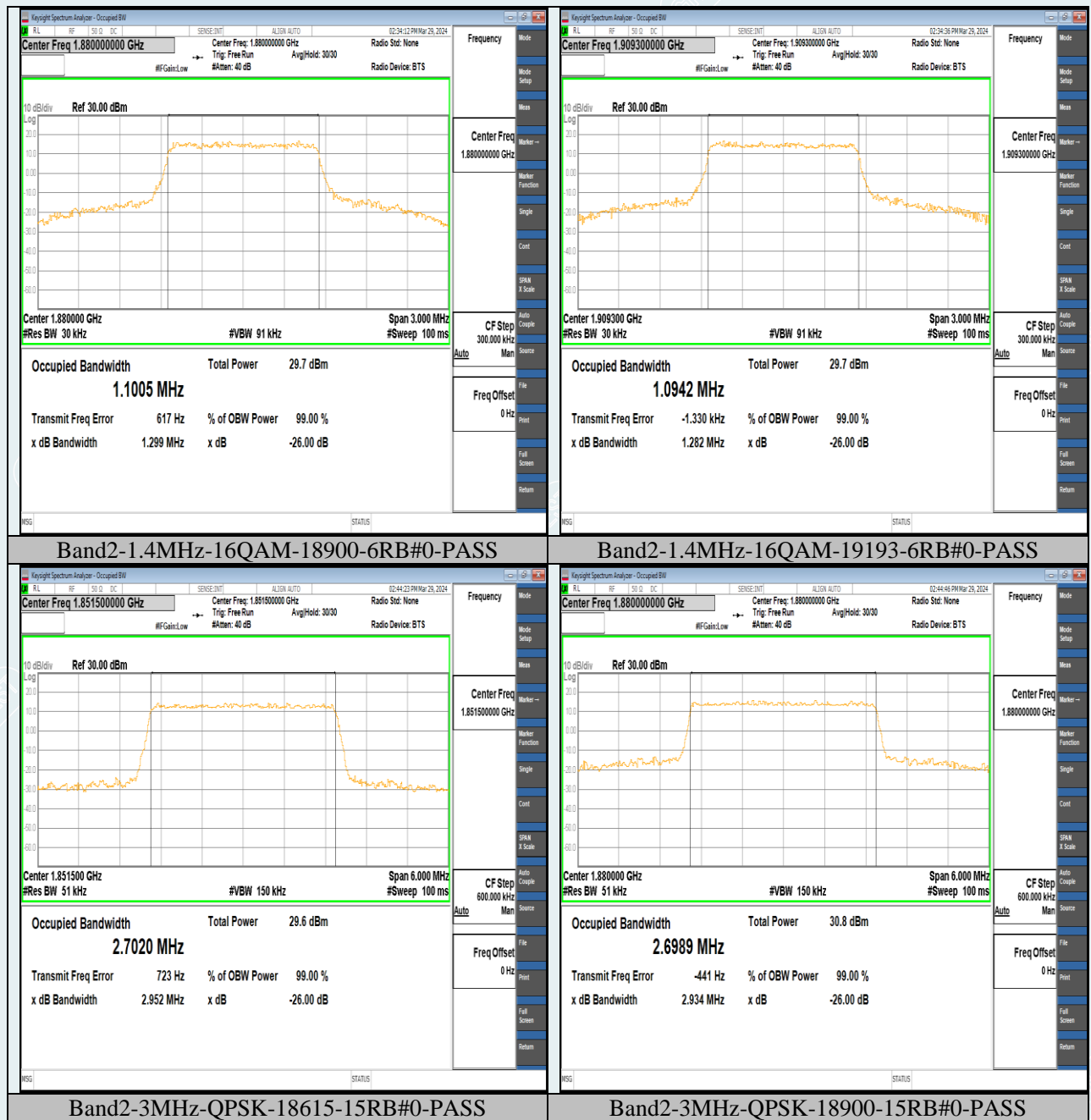
#### 8.4 TEST RESULTS

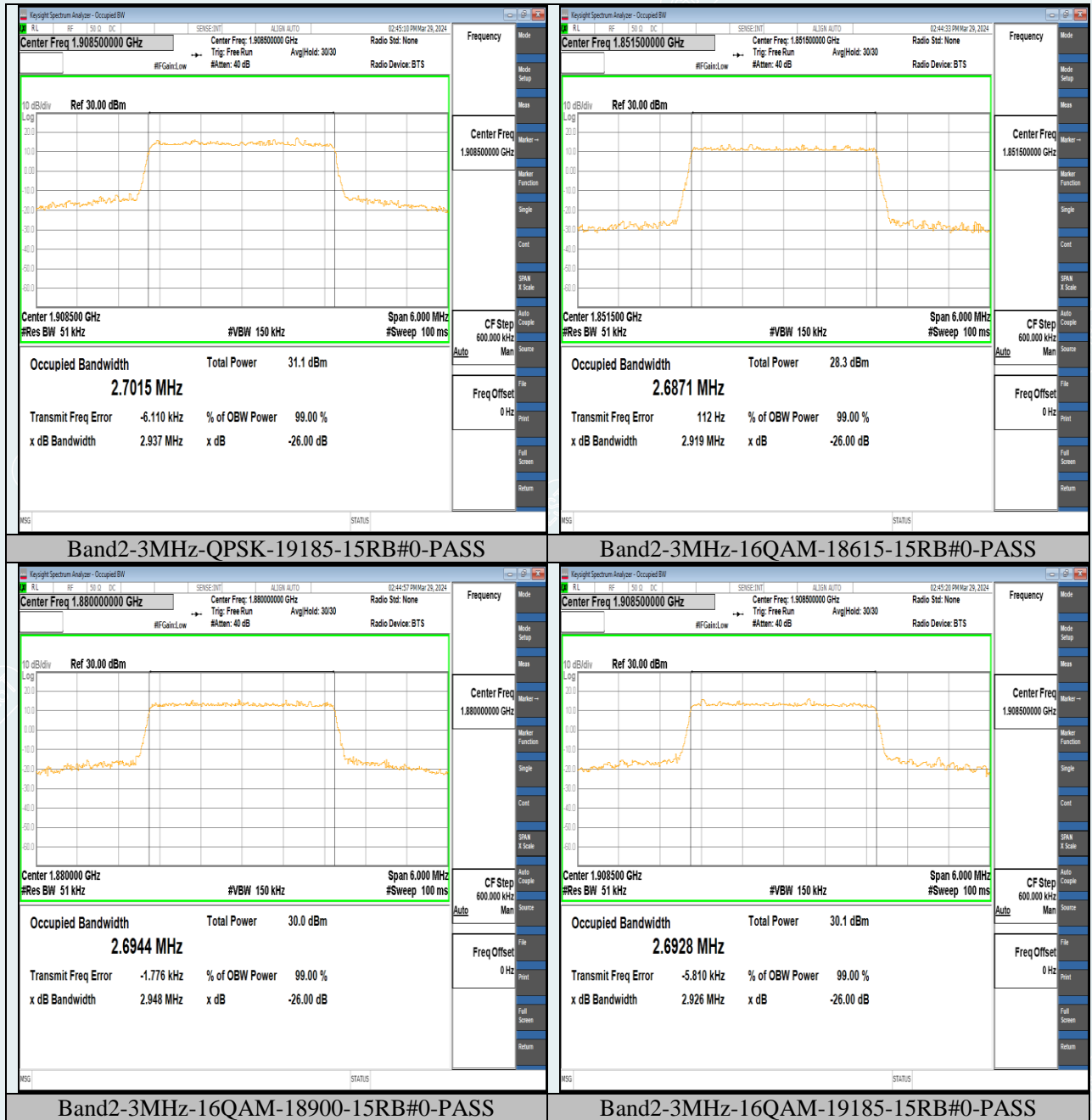
EUT Name	Pet Tracker	Model	M200d
Sample No.	E202403143863-0002	Test Mode	LTE
Power supply	DC 3.85V	Environmental Conditions	Temp:25.8℃;Humi:45%RH
Test Date	2024-03-27 to 2024-03-30	Test Site	/
Tested By	Zhu rongting	Reviewed by	Zhao Zetian

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band2	1.4MHz	QPSK	18607	6RB#0	1.0924	1.273	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	1.0978	1.286	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	1.0992	1.332	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	1.0954	1.284	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	1.1005	1.299	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	1.0942	1.282	PASS
Band2	3MHz	QPSK	18615	15RB#0	2.7020	2.952	PASS
Band2	3MHz	QPSK	18900	15RB#0	2.6989	2.934	PASS
Band2	3MHz	QPSK	19185	15RB#0	2.7015	2.937	PASS
Band2	3MHz	16QAM	18615	15RB#0	2.6871	2.919	PASS
Band2	3MHz	16QAM	18900	15RB#0	2.6944	2.948	PASS
Band2	3MHz	16QAM	19185	15RB#0	2.6928	2.926	PASS
Band2	5MHz	QPSK	18625	25RB#0	4.5022	4.980	PASS
Band2	5MHz	QPSK	18900	25RB#0	4.5036	4.974	PASS
Band2	5MHz	QPSK	19175	25RB#0	4.4926	4.938	PASS
Band2	5MHz	16QAM	18625	25RB#0	4.5222	4.970	PASS
Band2	5MHz	16QAM	18900	25RB#0	4.5002	4.955	PASS
Band2	5MHz	16QAM	19175	25RB#0	4.5014	4.975	PASS
Band2	10MHz	QPSK	18650	50RB#0	8.9724	9.746	PASS
Band2	10MHz	QPSK	18900	50RB#0	8.9743	9.750	PASS
Band2	10MHz	QPSK	19150	50RB#0	8.9650	9.808	PASS
Band2	15MHz	QPSK	18675	75RB#0	13.450	14.66	PASS
Band2	15MHz	QPSK	18900	75RB#0	13.418	14.50	PASS
Band2	15MHz	QPSK	19125	75RB#0	13.470	14.61	PASS
Band2	20MHz	QPSK	18700	100RB#0	17.934	19.13	PASS
Band2	20MHz	QPSK	18900	100RB#0	17.906	19.19	PASS
Band2	20MHz	QPSK	19100	100RB#0	17.915	19.15	PASS

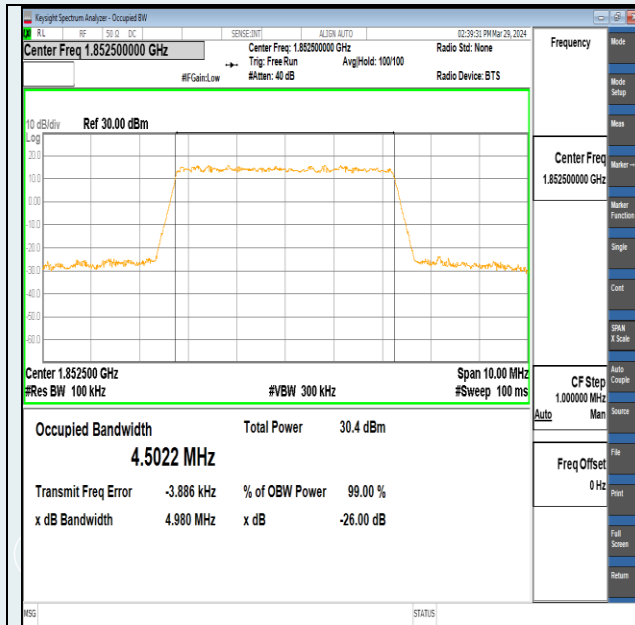
Note: For 10MHz, 15MHz, 20MHz bandwidth support QPSK only.



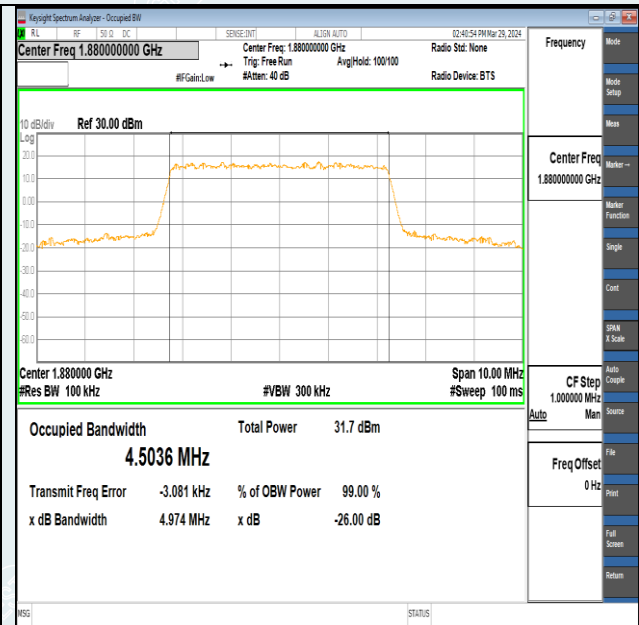








Band2-5MHz-QPSK-18625-25RB#0-PASS



Band2-5MHz-QPSK-18900-25RB#0-PASS

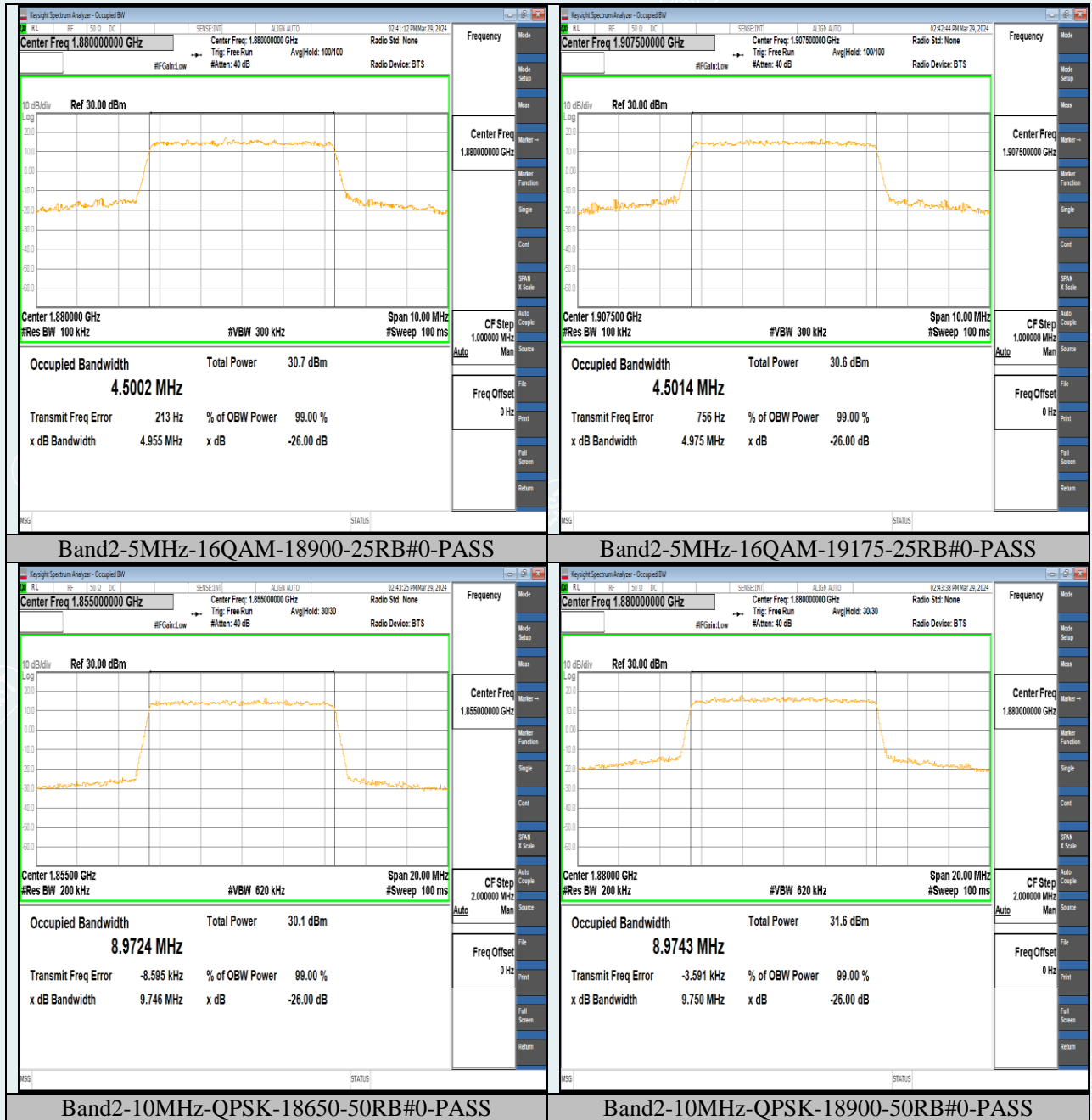


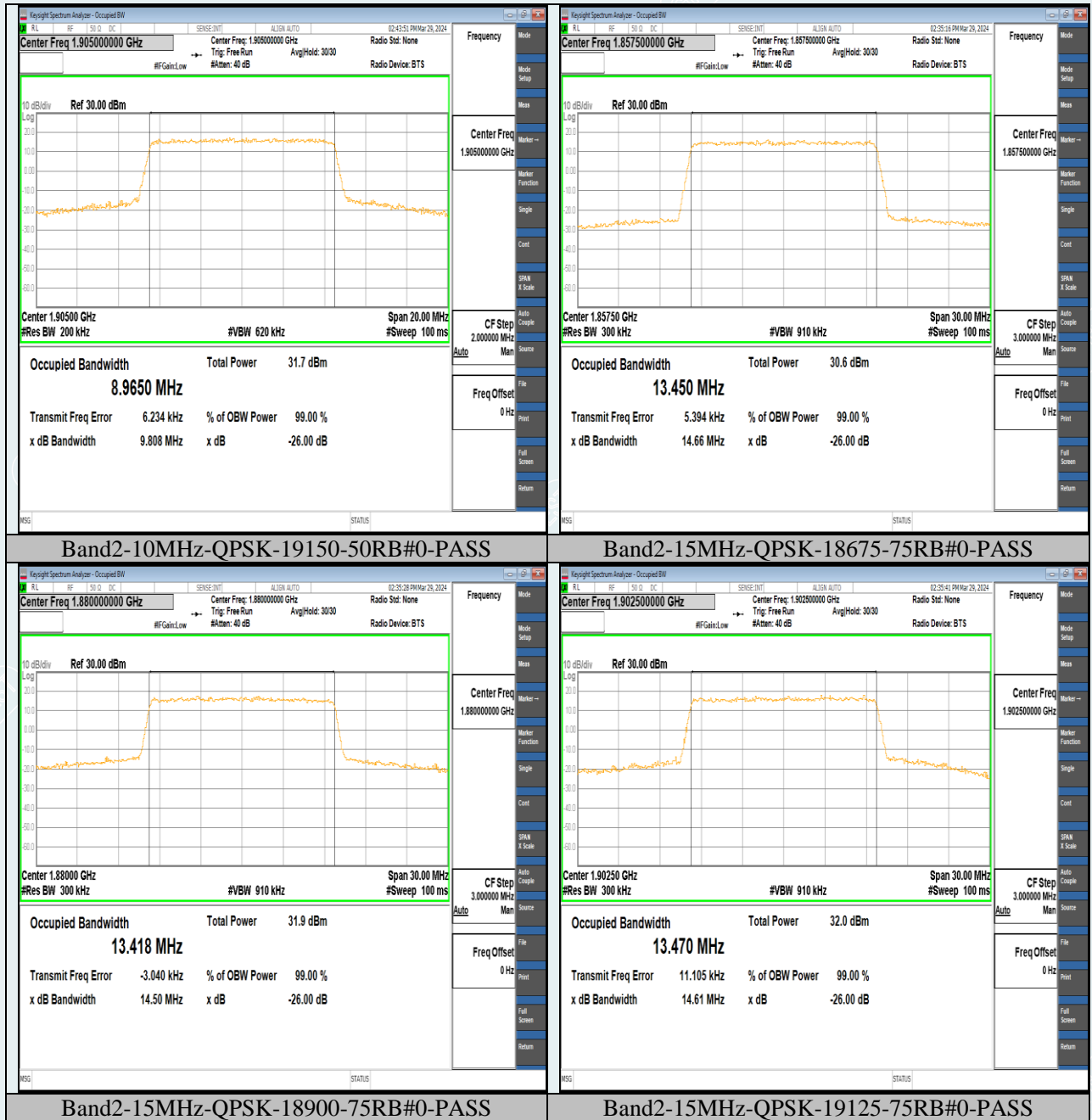
Band2-5MHz-QPSK-19175-25RB#0-PASS



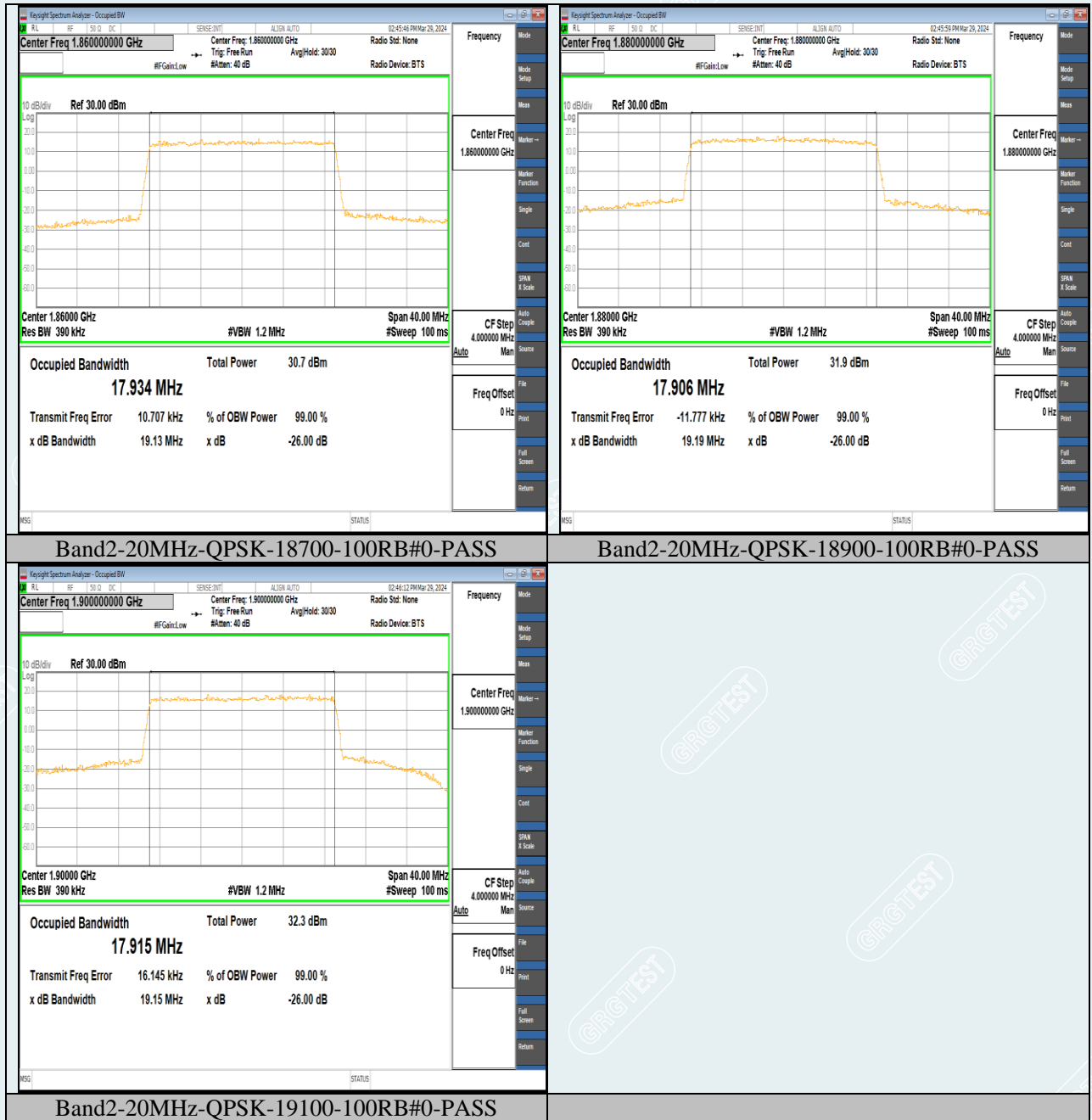
Band2-5MHz-16QAM-18625-25RB#0-PASS











## 9. BAND EDGES COMPLIANCE

### 9.1 LIMIT

According to FCC section 24.238(a)(b), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10\log(P)$  dB.

### 9.2 TEST PROCEDURES

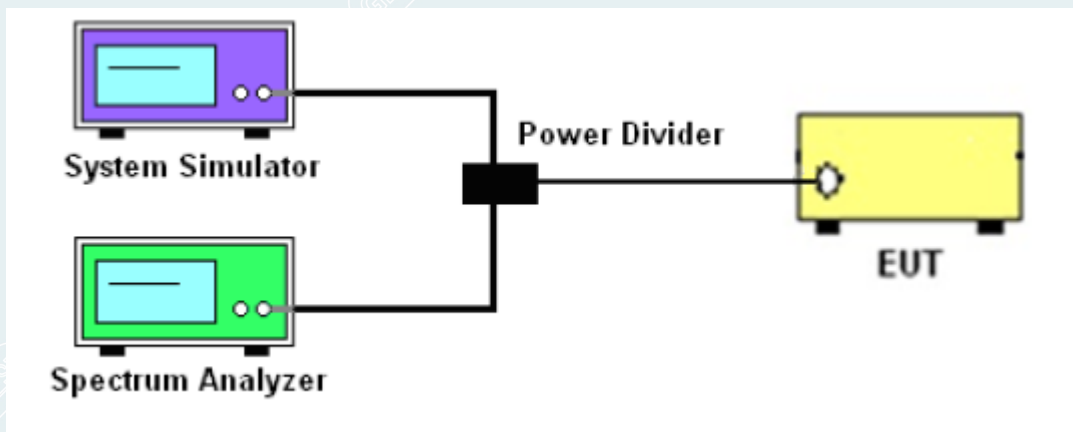
Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

#### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3.  $RBW \geq 1\%$  of the emission bandwidth
4.  $VBW \geq 3 \times RBW$
5. Detector = RMS
6. Number of sweep points  $\geq 2 \times \text{Span}/RBW$
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### 9.3 TEST SETUP



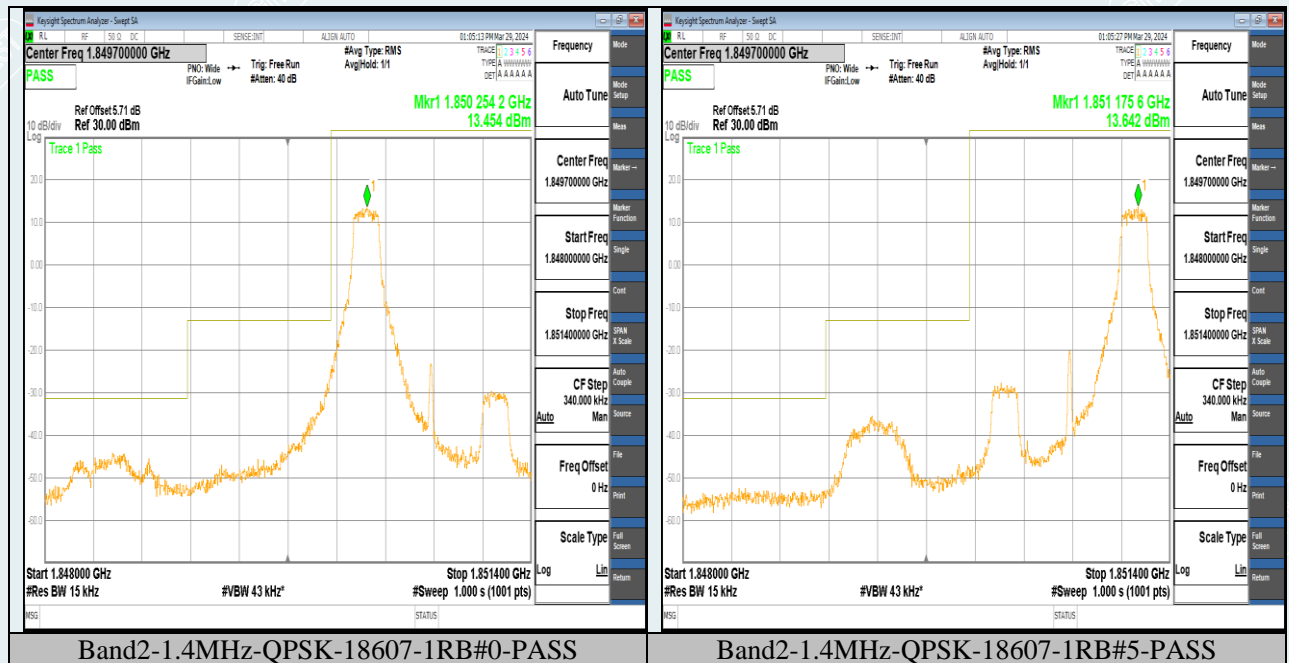


## 9.4 TEST RESULTS

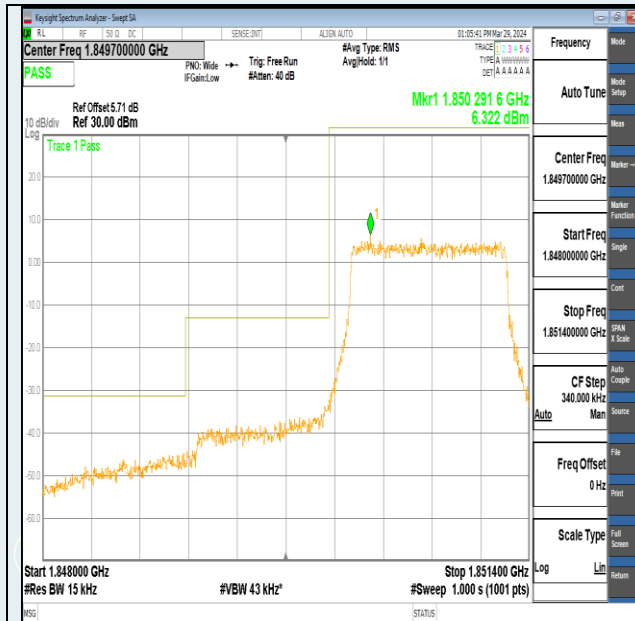
EUT Name	Pet Tracker	Model	M200d
Sample No.	E202403143863-0002	Test Mode	LTE
Power supply	DC 3.85V	Environmental Conditions	Temp:25.8℃;Humi:45%RH
Test Date	2024-03-27 to 2024-03-30	Test Site	/
Tested By	Zhu rongting	Reviewed by	Zhao Zetian

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#0	-25.28	PASS
Band2	1.4MHz	QPSK	18607	1RB#5	-52.38	PASS
Band2	1.4MHz	QPSK	18607	6RB#0	-44.64	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	-51.87	PASS
Band2	1.4MHz	QPSK	19193	1RB#5	-20.17	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	-22.97	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	-26.13	PASS
Band2	1.4MHz	16QAM	18607	1RB#5	-52.41	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	-45.74	PASS
Band2	1.4MHz	16QAM	19193	1RB#0	-51.82	PASS
Band2	1.4MHz	16QAM	19193	1RB#5	-22.05	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	-25.58	PASS
Band2	3MHz	QPSK	18615	1RB#0	-19.50	PASS
Band2	3MHz	QPSK	18615	1RB#14	-36.84	PASS
Band2	3MHz	QPSK	18615	15RB#0	-39.43	PASS
Band2	3MHz	QPSK	19185	1RB#0	-37.27	PASS
Band2	3MHz	QPSK	19185	1RB#14	-16.94	PASS
Band2	3MHz	QPSK	19185	15RB#0	-28.81	PASS
Band2	3MHz	16QAM	18615	1RB#0	-22.19	PASS
Band2	3MHz	16QAM	18615	1RB#14	-38.67	PASS
Band2	3MHz	16QAM	18615	15RB#0	-39.41	PASS
Band2	3MHz	16QAM	19185	1RB#0	-38.42	PASS
Band2	3MHz	16QAM	19185	1RB#14	-20.13	PASS
Band2	3MHz	16QAM	19185	15RB#0	-31.87	PASS
Band2	5MHz	QPSK	18625	1RB#0	-20.17	PASS
Band2	5MHz	QPSK	18625	1RB#24	-45.94	PASS
Band2	5MHz	QPSK	18625	25RB#0	-39.28	PASS
Band2	5MHz	QPSK	19175	1RB#0	-42.46	PASS
Band2	5MHz	QPSK	19175	1RB#24	-16.14	PASS
Band2	5MHz	QPSK	19175	25RB#0	-27.53	PASS
Band2	5MHz	16QAM	18625	1RB#0	-19.18	PASS
Band2	5MHz	16QAM	18625	1RB#24	-46.79	PASS
Band2	5MHz	16QAM	18625	25RB#0	-37.94	PASS
Band2	5MHz	16QAM	19175	1RB#0	-41.98	PASS
Band2	5MHz	16QAM	19175	1RB#24	-19.30	PASS
Band2	5MHz	16QAM	19175	25RB#0	-30.13	PASS
Band2	10MHz	QPSK	18650	1RB#0	-23.19	PASS
Band2	10MHz	QPSK	18650	1RB#49	-50.53	PASS
Band2	10MHz	QPSK	18650	50RB#0	-38.61	PASS
Band2	10MHz	QPSK	19150	1RB#0	-49.34	PASS
Band2	10MHz	QPSK	19150	1RB#49	-21.00	PASS
Band2	10MHz	QPSK	19150	50RB#0	-30.52	PASS
Band2	10MHz	16QAM	18650	1RB#0	-24.85	PASS
Band2	10MHz	16QAM	18650	1RB#49	-51.31	PASS
Band2	10MHz	16QAM	19150	1RB#0	-50.44	PASS
Band2	10MHz	16QAM	19150	1RB#49	-24.02	PASS

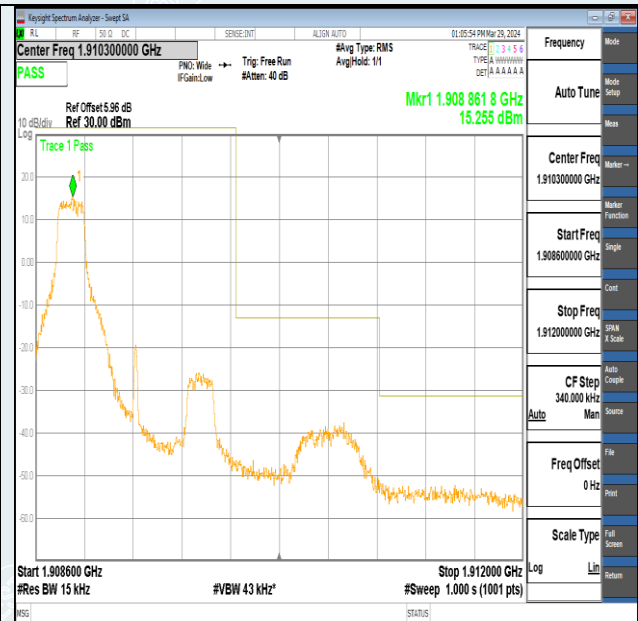
Band2	15MHz	QPSK	18675	1RB#0	-29.00	PASS
Band2	15MHz	QPSK	18675	1RB#74	-39.02	PASS
Band2	15MHz	QPSK	18675	75RB#0	-36.83	PASS
Band2	15MHz	QPSK	19125	1RB#0	-40.90	PASS
Band2	15MHz	QPSK	19125	1RB#74	-26.17	PASS
Band2	15MHz	QPSK	19125	75RB#0	-29.46	PASS
Band2	15MHz	16QAM	18675	1RB#0	-32.29	PASS
Band2	15MHz	16QAM	18675	1RB#74	-44.01	PASS
Band2	15MHz	16QAM	19125	1RB#0	-40.55	PASS
Band2	15MHz	16QAM	19125	1RB#74	-28.30	PASS
Band2	20MHz	QPSK	18700	1RB#0	-42.02	PASS
Band2	20MHz	QPSK	18700	1RB#99	-46.47	PASS
Band2	20MHz	QPSK	18700	100RB#0	-36.53	PASS
Band2	20MHz	QPSK	19100	1RB#0	-47.38	PASS
Band2	20MHz	QPSK	19100	1RB#99	-42.41	PASS
Band2	20MHz	QPSK	19100	100RB#0	-30.04	PASS
Band2	20MHz	16QAM	18700	1RB#0	-43.22	PASS
Band2	20MHz	16QAM	18700	1RB#99	-47.70	PASS
Band2	20MHz	16QAM	19100	1RB#0	-48.11	PASS
Band2	20MHz	16QAM	19100	1RB#99	-43.40	PASS



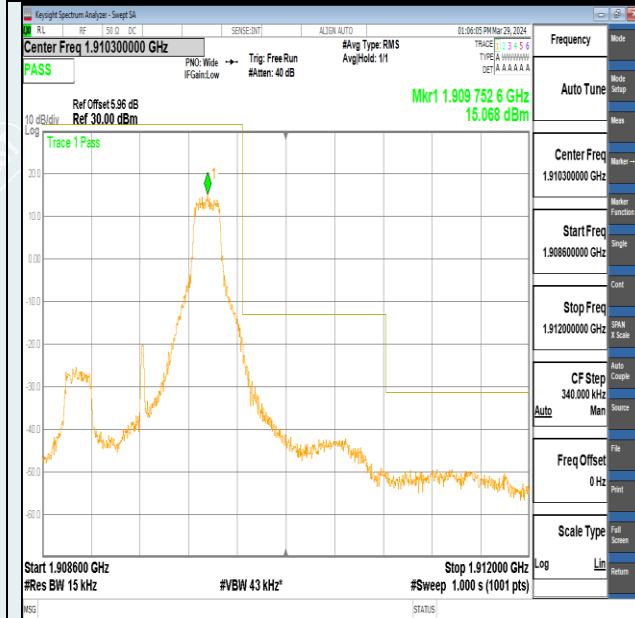




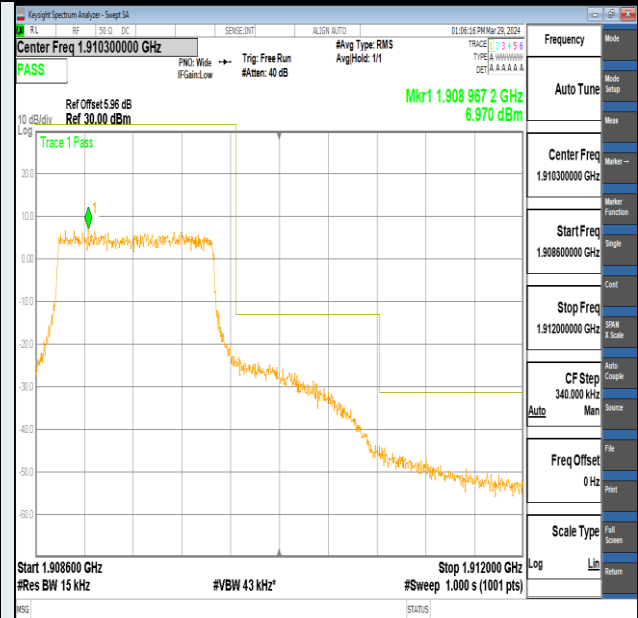
Band2-1.4MHz-QPSK-18607-6RB#0-PASS



Band2-1.4MHz-QPSK-19193-1RB#0-PASS



Band2-1.4MHz-QPSK-19193-1RB#5-PASS



Band2-1.4MHz-QPSK-19193-6RB#0-PASS