



Appendix Report
FCC PART 95B Test Form

QRE316 V 3.2 (2019-4)

Project No.	SHT2007107701EW	Test sample No.	#22288
Start test date	2020/7/30	Finish date	2020/8/5
Temperature	22°C	Humidity	55%
Test Engineer	Zijian.Li	Auditor	Xiaodong Zhu

Appendix clause	Test Item	Test date (M/D)	Test Result (PASS/FAIL)
A	Transmit Power (ERP)	7/31	PASS
B	Occupied Bandwidth	8/3	PASS
C	Emission Mask	8/3	PASS
D	Modulation Limit	8/4	PASS
E	Aduio Frequency Response	8/5	PASS
E-1	Audio Low Pass Filter Response	8/5	PASS
F	Frequency Stability Test & Temperature	8/5	PASS
G	Frequency Stability Test & Voltage	8/5	PASS



Appendix A: Transmit Power (ERP)

Test Mode	Modulation Type	Test Channel	Measured power (dBm)	Measured power (mW)	Limit(W)	Result
TX-FRS	FM	CH _{M1}	-16.85	0.02	≤2	PASS



Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth

Test Mode	Modulation Type	Test Channel	Occupied Bandwidth		99% Limit(kHz)	Result
			99%(kHz)	26dB(kHz)		
TX-FRS	FM	CH _{M1}	5.195	10.052	≤12.5	PASS

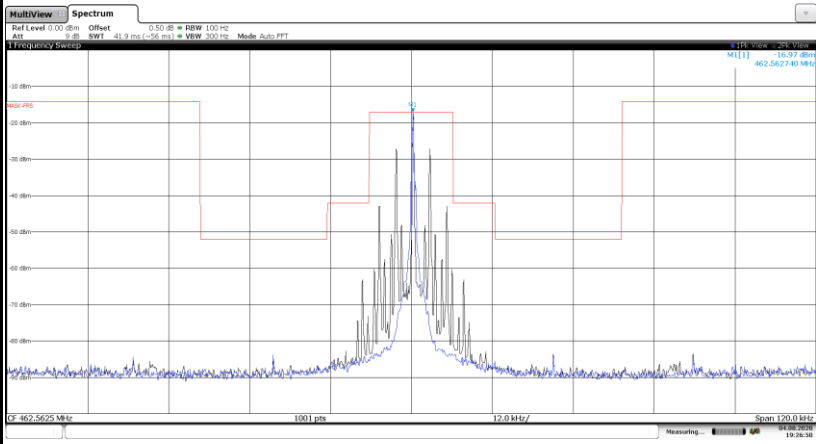


Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth

Operation Mode	Modulation Type	Test Channel	TEST PLOT RESULT																																			
TX-FRS	FM	CH _{M1}	MultiView Spectrum Ref Level: -15.00 dBm RBW: 100 Hz SWT: 40.9 ms (-55 ms) VIEW: 200 Hz Mode: Auto FFT 1 Occupied Bandwidth -15.430 dBm -43.430 dBm 43.44 dBm 10.0520 kHz 43.44 dBm 462.5577110 MHz D1[1] M1[1] 462.557711 MHz 1000 pts 5.0 kHz Span: 50.0 kHz CF: 462.5525 MHz 2 Marker Table <table><thead><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-Value</th><th>Y-Value</th><th>Function</th><th>Function Result</th></tr></thead><tbody><tr><td>M1</td><td>1</td><td></td><td>462.557711 MHz</td><td>-43.44 dBm</td><td></td><td></td></tr><tr><td>T1</td><td>1</td><td></td><td>462.557711 MHz</td><td>-43.44 dBm</td><td>Occ BW</td><td>5.194805195 kHz</td></tr><tr><td>T2</td><td>1</td><td></td><td>462.557711 MHz</td><td>-43.44 dBm</td><td></td><td></td></tr><tr><td>D1</td><td>M1</td><td>1</td><td>10.052 kHz</td><td>0.03 dB</td><td></td><td></td></tr></tbody></table> Date: 4/AUG/2020 19:03:27 Measuring... 91.36 30.00 19.02.28	Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		462.557711 MHz	-43.44 dBm			T1	1		462.557711 MHz	-43.44 dBm	Occ BW	5.194805195 kHz	T2	1		462.557711 MHz	-43.44 dBm			D1	M1	1	10.052 kHz	0.03 dB		
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Appendix C:Emission Mask

Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT
TX-FRS	FM	CH _{M1}	

**Appendix D:Modulation Limit**

Test Mode	Modulation Type	Test Channel	Modulation Level (dB)	Peak Frequency Deviation (Hz)				Limit (kHz)	Result
				300	1004	1500	2500		
TX-FRS	FM	CH _{M1}	-20	0.362	0.386	0.531	0.553	2.5	PASS
TX-FRS	FM	CH _{M1}	-15	0.357	0.495	0.637	0.812	2.5	PASS
TX-FRS	FM	CH _{M1}	-10	0.442	0.749	0.89	1.231	2.5	PASS
TX-FRS	FM	CH _{M1}	-5	0.512	1.008	1.315	1.671	2.5	PASS
TX-FRS	FM	CH _{M1}	0	0.708	1.562	1.78	1.786	2.5	PASS
TX-FRS	FM	CH _{M1}	5	0.928	1.889	1.865	1.914	2.5	PASS
TX-FRS	FM	CH _{M1}	10	1.494	1.959	1.909	1.87	2.5	PASS
TX-FRS	FM	CH _{M1}	15	1.837	1.971	1.969	1.869	2.5	PASS
TX-FRS	FM	CH _{M1}	20	2.062	1.939	1.901	1.871	2.5	PASS



Appendix D:Modulation Limit

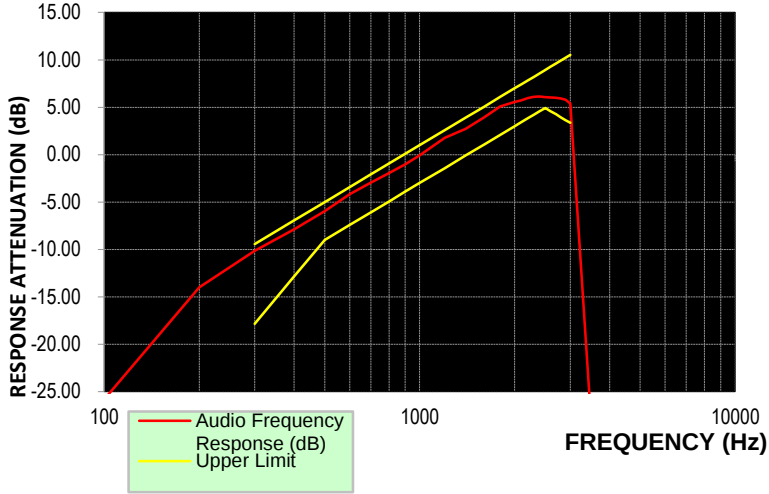
Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT																																																												
TX-FRS	FM	CH _{M1}	<table><caption>Approximate data points from the Modulation Limit graph</caption><tr><th>Modulation Level (dB)</th><th>Limit (kHz)</th><th>300 (kHz)</th><th>1004 (kHz)</th><th>1500 (kHz)</th><th>2500 (kHz)</th></tr><tr><td>-20</td><td>2.5</td><td>0.5</td><td>0.5</td><td>0.5</td><td>0.5</td></tr><tr><td>-15</td><td>2.5</td><td>0.5</td><td>0.6</td><td>0.7</td><td>0.8</td></tr><tr><td>-10</td><td>2.5</td><td>0.5</td><td>0.8</td><td>1.0</td><td>1.2</td></tr><tr><td>-5</td><td>2.5</td><td>0.5</td><td>1.0</td><td>1.3</td><td>1.6</td></tr><tr><td>0</td><td>2.5</td><td>0.7</td><td>1.5</td><td>1.7</td><td>1.8</td></tr><tr><td>5</td><td>2.5</td><td>0.9</td><td>1.8</td><td>1.9</td><td>1.9</td></tr><tr><td>10</td><td>2.5</td><td>1.5</td><td>1.9</td><td>1.9</td><td>1.9</td></tr><tr><td>15</td><td>2.5</td><td>1.8</td><td>1.9</td><td>1.9</td><td>1.9</td></tr><tr><td>20</td><td>2.5</td><td>2.1</td><td>1.9</td><td>1.9</td><td>1.9</td></tr></table>	Modulation Level (dB)	Limit (kHz)	300 (kHz)	1004 (kHz)	1500 (kHz)	2500 (kHz)	-20	2.5	0.5	0.5	0.5	0.5	-15	2.5	0.5	0.6	0.7	0.8	-10	2.5	0.5	0.8	1.0	1.2	-5	2.5	0.5	1.0	1.3	1.6	0	2.5	0.7	1.5	1.7	1.8	5	2.5	0.9	1.8	1.9	1.9	10	2.5	1.5	1.9	1.9	1.9	15	2.5	1.8	1.9	1.9	1.9	20	2.5	2.1	1.9	1.9	1.9
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**Appendix E:Aduio Frequency Response**

Test Mode	Modulation Type	Test Channel	Frequency (Hz)	Audio Frequency Response (dB)	Lower Limit	Upper Limit	Result
TX-FRS	FM	CH _{M1}	100	-25.81			PASS
TX-FRS	FM	CH _{M1}	200	-13.98			PASS
TX-FRS	FM	CH _{M1}	300	-10.15	-17.84	-9.42	PASS
TX-FRS	FM	CH _{M1}	400	-7.87	-12.86	-6.93	PASS
TX-FRS	FM	CH _{M1}	500	-5.97	-9.00	-5.00	PASS
TX-FRS	FM	CH _{M1}	600	-4.17	-7.42	-3.42	PASS
TX-FRS	FM	CH _{M1}	700	-2.94	-6.09	-2.09	PASS
TX-FRS	FM	CH _{M1}	800	-1.93	-4.93	-0.93	PASS
TX-FRS	FM	CH _{M1}	900	-1.03	-3.91	0.09	PASS
TX-FRS	FM	CH _{M1}	1000	-0.07	-3.00	1.00	PASS
TX-FRS	FM	CH _{M1}	1200	1.77	-1.42	2.58	PASS
TX-FRS	FM	CH _{M1}	1400	2.73	-0.09	3.91	PASS
TX-FRS	FM	CH _{M1}	1600	3.94	1.07	5.07	PASS
TX-FRS	FM	CH _{M1}	1800	5.10	2.09	6.09	PASS
TX-FRS	FM	CH _{M1}	2000	5.57	3.00	7.00	PASS
TX-FRS	FM	CH _{M1}	2100	5.74	3.42	7.42	PASS
TX-FRS	FM	CH _{M1}	2200	5.96	3.83	7.83	PASS
TX-FRS	FM	CH _{M1}	2300	6.10	4.21	8.21	PASS
TX-FRS	FM	CH _{M1}	2400	6.12	4.58	8.58	PASS
TX-FRS	FM	CH _{M1}	2500	6.08	4.93	8.93	PASS
TX-FRS	FM	CH _{M1}	2600	6.02	4.59	9.27	PASS
TX-FRS	FM	CH _{M1}	2700	6.00	4.27	9.60	PASS
TX-FRS	FM	CH _{M1}	2800	5.94	3.95	9.91	PASS
TX-FRS	FM	CH _{M1}	2900	5.78	3.65	10.22	PASS
TX-FRS	FM	CH _{M1}	3000	5.38	3.35	10.51	PASS
TX-FRS	FM	CH _{M1}	3500	-28.65			PASS
TX-FRS	FM	CH _{M1}	4000	-29.28			PASS
TX-FRS	FM	CH _{M1}	4500	-29.39			PASS
TX-FRS	FM	CH _{M1}	5000	-29.43			PASS



Appendix E:Aduio Frequency Response

Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT
TX-FRS	FM	CH _{M1}	

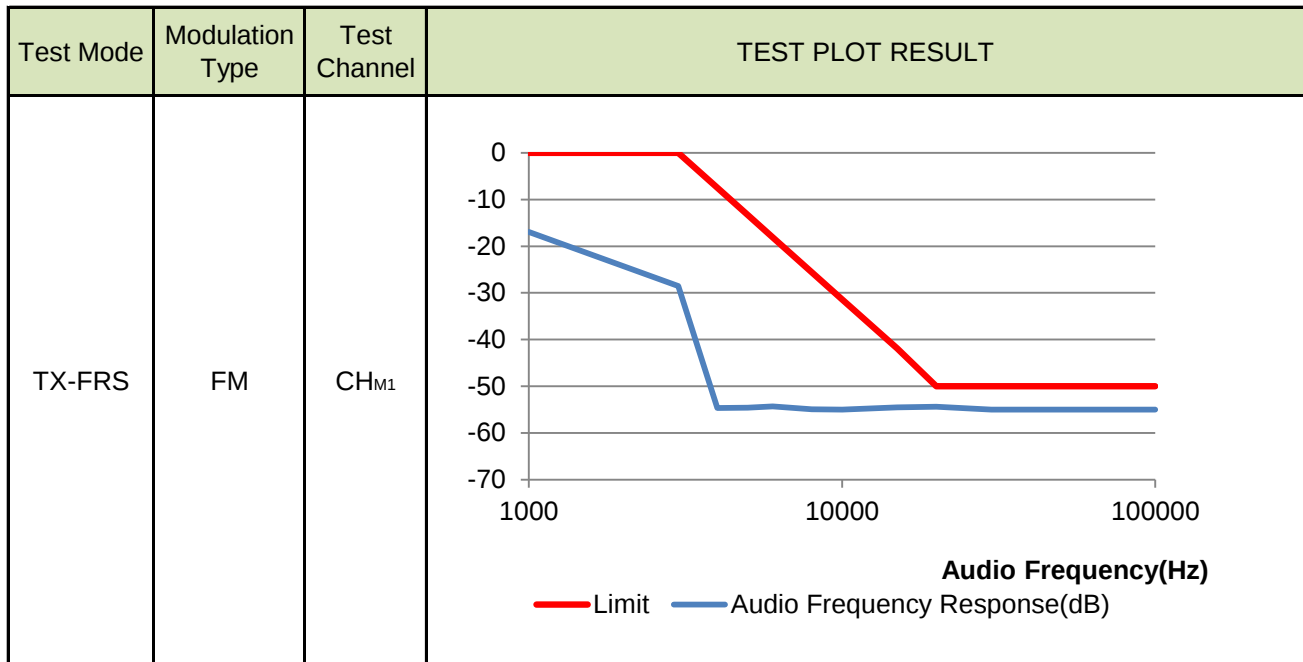
Note: The highest audio frequency response at 3kHz<3.125kHz, so meet the requirement.

**Appendix E-1:Audio Low Pass Filter Response**

Test Mode	Modulation Type	Test Channel	Audio Frequency(Hz)	Audio Frequency Response(dB)	Limit	Result
TX-FRS	FM	CH _{M1}	1000	-16.97	0	PASS
TX-FRS	FM	CH _{M1}	3000	-28.53	0	PASS
TX-FRS	FM	CH _{M1}	4000	-54.67	-7.5	PASS
TX-FRS	FM	CH _{M1}	5000	-54.62	-13.3	PASS
TX-FRS	FM	CH _{M1}	6000	-54.33	-18.1	PASS
TX-FRS	FM	CH _{M1}	8000	-54.92	-25.6	PASS
TX-FRS	FM	CH _{M1}	10000	-54.98	-31.4	PASS
TX-FRS	FM	CH _{M1}	15000	-54.51	-41.9	PASS
TX-FRS	FM	CH _{M1}	20000	-54.35	-50	PASS
TX-FRS	FM	CH _{M1}	30000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	40000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	50000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	60000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	70000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	80000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	90000	-55	-50	PASS
TX-FRS	FM	CH _{M1}	100000	-55	-50	PASS



Appendix E-1:Audio Low Pass Filter Response



**Appendix F:Frequency Stability Test & Temperature**

Test Mode	Modulation Type	Test Conditions		Frequency error (ppm)	Limit (ppm)	Result
		Voltage	Temperature	CH _{M1}		
TX-FRS	FM	V _N	-30	0.342	±2.5	PASS
TX-FRS	FM	V _N	-20	0.326	±2.5	PASS
TX-FRS	FM	V _N	-10	0.324	±2.5	PASS
TX-FRS	FM	V _N	0	0.317	±2.5	PASS
TX-FRS	FM	V _N	10	0.339	±2.5	PASS
TX-FRS	FM	V _N	20	0.312	±2.5	PASS
TX-FRS	FM	V _N	30	0.341	±2.5	PASS
TX-FRS	FM	V _N	40	0.338	±2.5	PASS
TX-FRS	FM	V _N	50	0.322	±2.5	PASS



Appendix G:Frequency Stability Test & Voltage

Test Mode	Modulation Type	Test Conditions		Frequency error (ppm)	Limit (ppm)	Result
		Voltage	Temperature	CH _{M1}		
TX-FRS	FM	V _N	T _N	0.312	±2.5	PASS
TX-FRS	FM	V _L	T _N	0.348	±2.5	PASS
TX-FRS	FM	V _H	T _N	0.319	±2.5	PASS

-----End of Report-----