

8 APPENDIX REPORT



Appendix A: Carrier Output Power(ERP)

Test Mode	Modulation Type	Test Channel	Measured power (dBm)	Measured power (W)	Limit(W)	Result
TX-FRS	FM	CH _{M1}	29.13	0.82	≤1	PASS
TX-FRS	FM	CH _{M2}	26.98	0.50	≤0.5	PASS
TX-FRS	FM	CH _{M3}	29.07	0.81	≤1	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}	5.201	10.119	≤12.5	PASS
TX-FRS	FM	CH _{M2}	5.204	10.119	≤12.5	PASS
TX-FRS	FM	CH _{M3}	<u>5.212</u>	10.119	≤12.5	PASS



Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth

Operation Mode	Modulation Type	Test Channel	TEST PLOT RESULT
TX-FRS	FM	CH _{M1}	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 462.637500 MHz</p> <p>Center Freq: 462.637500 MHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: >10/10</p> <p>#IF Gain: Low</p> <p>#Atten: 38 dB</p> <p>Radio Device: BTS</p> <p>Frequency: 462.637500 MHz</p> <p>Center Freq: 462.637500 MHz</p> <p>CF Step: 5.000 kHz</p> <p>Freq Offset: 0 Hz</p> <p>10 dB/div Ref 33.00 dBm</p> <p>Log</p> <p>Center 462.6 MHz</p> <p>#Res BW 100 Hz</p> <p>#VBW 300 Hz</p> <p>Span 50 kHz</p> <p>Sweep FFT</p> <p>Occupied Bandwidth 5.201 kHz</p> <p>Total Power 29.1 dBm</p> <p>Transmit Freq Error 76 Hz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 10.12 kHz</p> <p>x dB -26.00 dB</p> <p>STATUS DC Coupled</p>
TX-FRS	FM	CH _{M2}	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 467.637500 MHz</p> <p>Center Freq: 467.637500 MHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: >10/10</p> <p>#IF Gain: Low</p> <p>#Atten: 38 dB</p> <p>Radio Device: BTS</p> <p>Frequency: 467.637500 MHz</p> <p>Center Freq: 467.637500 MHz</p> <p>CF Step: 5.000 kHz</p> <p>Freq Offset: 0 Hz</p> <p>10 dB/div Ref 31.07 dBm</p> <p>Log</p> <p>Center 467.6 MHz</p> <p>#Res BW 100 Hz</p> <p>#VBW 300 Hz</p> <p>Span 50 kHz</p> <p>Sweep FFT</p> <p>Occupied Bandwidth 5.204 kHz</p> <p>Total Power 27.2 dBm</p> <p>Transmit Freq Error 78 Hz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 10.12 kHz</p> <p>x dB -26.00 dB</p> <p>STATUS DC Coupled</p>
TX-FRS	FM	CH _{M3}	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 462.650000 MHz</p> <p>Center Freq: 462.650000 MHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: >10/10</p> <p>#IF Gain: Low</p> <p>#Atten: 38 dB</p> <p>Radio Device: BTS</p> <p>Frequency: 462.650000 MHz</p> <p>Center Freq: 462.650000 MHz</p> <p>CF Step: 5.000 kHz</p> <p>Freq Offset: 0 Hz</p> <p>10 dB/div Ref 32.97 dBm</p> <p>Log</p> <p>Center 462.7 MHz</p> <p>#Res BW 100 Hz</p> <p>#VBW 300 Hz</p> <p>Span 50 kHz</p> <p>Sweep FFT</p> <p>Occupied Bandwidth 5.213 kHz</p> <p>Total Power 29.2 dBm</p> <p>Transmit Freq Error 74 Hz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 10.12 kHz</p> <p>x dB -26.00 dB</p> <p>STATUS DC Coupled</p>



Appendix C:Emission Mask

Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT
TX-FRS	FM	CH _{M1}	
TX-FRS	FM	CH _{M2}	
TX-FRS	FM	CH _{M3}	

**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 _{M2}	-20	0.06	0.181	0.266	0.416	2.5	PASS
TX-FRS	FM	CH _{M2}	-15	0.082	0.304	0.447	0.731	2.5	PASS
TX-FRS	FM	CH _{M2}	-10	0.115	0.505	0.768	1.278	2.5	PASS
TX-FRS	FM	CH _{M2}	-5	0.184	0.877	1.355	1.744	2.5	PASS
TX-FRS	FM	CH _{M2}	0	0.302	1.513	1.771	1.841	2.5	PASS
TX-FRS	FM	CH _{M2}	5	0.504	1.828	1.871	1.877	2.5	PASS
TX-FRS	FM	CH _{M2}	10	0.879	2.009	1.909	1.897	2.5	PASS
TX-FRS	FM	CH _{M2}	15	1.525	2.07	1.926	1.916	2.5	PASS
TX-FRS	FM	CH _{M2}	20	1.95	2.096	1.944	1.952	2.5	PASS



Appendix D:Modulation Limit

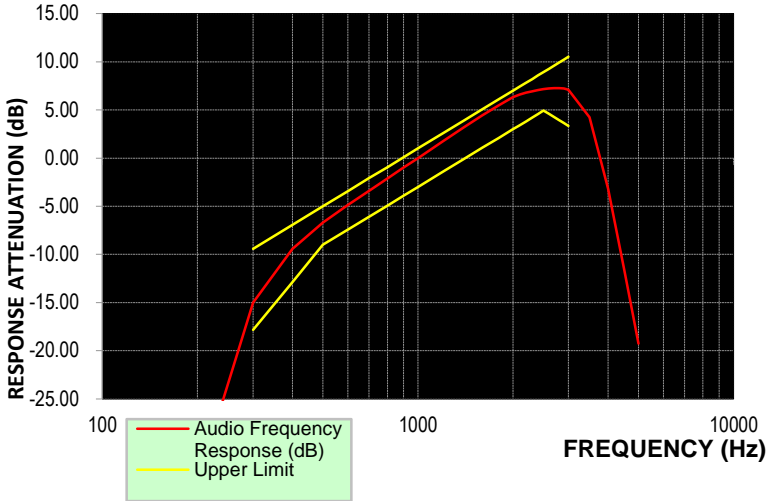
Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT																																																												
TX-FRS	FM	CH _{M2}	<p>The graph plots Peak Deviation (kHz) on the y-axis (0 to 3) against Modulation Level (dB) on the x-axis (-20 to 20). A horizontal orange line at 2.5 kHz indicates the modulation limit. Four curves represent different modulation rates: 300 (pink), 1004 (blue), 1500 (purple), and 2500 (green). All curves start below the limit and increase with modulation level, with the 2500 rate curve being the highest and the 300 rate curve being the lowest.</p> <table border="1"><caption>Approximate Peak Deviation (kHz) vs Modulation Level (dB)</caption><thead><tr><th>Modulation Level (dB)</th><th>300 (kHz)</th><th>1004 (kHz)</th><th>1500 (kHz)</th><th>2500 (kHz)</th><th>Limit (kHz)</th></tr></thead><tbody><tr><td>-20</td><td>0.1</td><td>0.2</td><td>0.3</td><td>0.4</td><td>2.5</td></tr><tr><td>-15</td><td>0.1</td><td>0.3</td><td>0.5</td><td>0.7</td><td>2.5</td></tr><tr><td>-10</td><td>0.1</td><td>0.5</td><td>0.8</td><td>1.2</td><td>2.5</td></tr><tr><td>-5</td><td>0.2</td><td>0.8</td><td>1.3</td><td>1.7</td><td>2.5</td></tr><tr><td>0</td><td>0.3</td><td>1.2</td><td>1.7</td><td>1.8</td><td>2.5</td></tr><tr><td>5</td><td>0.5</td><td>1.6</td><td>1.8</td><td>1.9</td><td>2.5</td></tr><tr><td>10</td><td>0.8</td><td>1.9</td><td>1.9</td><td>1.9</td><td>2.5</td></tr><tr><td>15</td><td>1.5</td><td>2.0</td><td>1.9</td><td>1.9</td><td>2.5</td></tr><tr><td>20</td><td>1.9</td><td>2.1</td><td>1.9</td><td>1.9</td><td>2.5</td></tr></tbody></table>	Modulation Level (dB)	300 (kHz)	1004 (kHz)	1500 (kHz)	2500 (kHz)	Limit (kHz)	-20	0.1	0.2	0.3	0.4	2.5	-15	0.1	0.3	0.5	0.7	2.5	-10	0.1	0.5	0.8	1.2	2.5	-5	0.2	0.8	1.3	1.7	2.5	0	0.3	1.2	1.7	1.8	2.5	5	0.5	1.6	1.8	1.9	2.5	10	0.8	1.9	1.9	1.9	2.5	15	1.5	2.0	1.9	1.9	2.5	20	1.9	2.1	1.9	1.9	2.5
Modulation Level (dB)	300 (kHz)	1004 (kHz)	1500 (kHz)	2500 (kHz)	Limit (kHz)																																																										
-20	0.1	0.2	0.3	0.4	2.5																																																										
-15	0.1	0.3	0.5	0.7	2.5																																																										
-10	0.1	0.5	0.8	1.2	2.5																																																										
-5	0.2	0.8	1.3	1.7	2.5																																																										
0	0.3	1.2	1.7	1.8	2.5																																																										
5	0.5	1.6	1.8	1.9	2.5																																																										
10	0.8	1.9	1.9	1.9	2.5																																																										
15	1.5	2.0	1.9	1.9	2.5																																																										
20	1.9	2.1	1.9	1.9	2.5																																																										

**Appendix E:Audio Frequency Response**

Test Mode	Modulation Type	Test Channel	Frequency (Hz)	Audio Frequency Response (dB)	Lower Limit	Upper Limit	Result
TX-FRS	FM	CH _{M2}	100	-33.68			PASS
TX-FRS	FM	CH _{M2}	200	-33.71			PASS
TX-FRS	FM	CH _{M2}	300	-15.01	-17.84	-9.42	PASS
TX-FRS	FM	CH _{M2}	400	-9.41	-12.86	-6.93	PASS
TX-FRS	FM	CH _{M2}	500	-6.70	-9.00	-5.00	PASS
TX-FRS	FM	CH _{M2}	600	-4.88	-7.42	-3.42	PASS
TX-FRS	FM	CH _{M2}	700	-3.40	-6.09	-2.09	PASS
TX-FRS	FM	CH _{M2}	800	-2.11	-4.93	-0.93	PASS
TX-FRS	FM	CH _{M2}	900	-0.99	-3.91	0.09	PASS
TX-FRS	FM	CH _{M2}	1000	-0.01	-3.00	1.00	PASS
TX-FRS	FM	CH _{M2}	1200	1.76	-1.42	2.58	PASS
TX-FRS	FM	CH _{M2}	1400	3.21	-0.09	3.91	PASS
TX-FRS	FM	CH _{M2}	1600	4.44	1.07	5.07	PASS
TX-FRS	FM	CH _{M2}	1800	5.47	2.09	6.09	PASS
TX-FRS	FM	CH _{M2}	2000	6.34	3.00	7.00	PASS
TX-FRS	FM	CH _{M2}	2100	6.60	3.42	7.42	PASS
TX-FRS	FM	CH _{M2}	2200	6.80	3.83	7.83	PASS
TX-FRS	FM	CH _{M2}	2300	6.95	4.21	8.21	PASS
TX-FRS	FM	CH _{M2}	2400	7.06	4.58	8.58	PASS
TX-FRS	FM	CH _{M2}	2500	7.16	4.93	8.93	PASS
TX-FRS	FM	CH _{M2}	2600	7.22	4.59	9.27	PASS
TX-FRS	FM	CH _{M2}	2700	7.26	4.27	9.60	PASS
TX-FRS	FM	CH _{M2}	2800	7.26	3.95	9.91	PASS
TX-FRS	FM	CH _{M2}	2900	7.22	3.65	10.22	PASS
TX-FRS	FM	CH _{M2}	3000	7.10	3.35	10.51	PASS
TX-FRS	FM	CH _{M2}	3500	4.23			PASS
TX-FRS	FM	CH _{M2}	4000	-3.16			PASS
TX-FRS	FM	CH _{M2}	4500	-11.50			PASS
TX-FRS	FM	CH _{M2}	5000	-19.25			PASS



Appendix E:Audio Frequency Response

Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT
TX-FRS	FM	CH _{M2}	 <p>The graph displays the audio frequency response in dB against frequency in Hz. The x-axis is logarithmic, ranging from 100 Hz to 10,000 Hz. The y-axis is linear, ranging from -25.00 dB to 15.00 dB. A red line represents the 'Audio Frequency Response (dB)', which starts at approximately -25 dB at 100 Hz, rises to a peak of about 7 dB at 3.125 kHz, and then drops sharply to -20 dB at 10,000 Hz. A yellow line represents the 'Upper Limit', which starts at -10 dB at 100 Hz and rises to about 10 dB at 10,000 Hz. The red line remains below the yellow line throughout the measured range.</p>

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



Appendix F:Frequency Stability Test & Temperature

Test Mode	Modulation Type	Test Conditions		Frequency error (ppm)			Limit (ppm)	Result
		Voltage	Temperature	CH _{M1}	CH _{M2}	CH _{M3}		
TX-FRS	FM	V _N	-30	0.221	0.241	0.226	±2.5	PASS
TX-FRS	FM	V _N	-20	0.221	0.225	0.228	±2.5	PASS
TX-FRS	FM	V _N	-10	0.224	0.244	0.215	±2.5	PASS
TX-FRS	FM	V _N	0	0.221	0.237	0.211	±2.5	PASS
TX-FRS	FM	V _N	10	0.222	0.232	0.222	±2.5	PASS
TX-FRS	FM	V _N	20	0.212	0.223	0.207	±2.5	PASS
TX-FRS	FM	V _N	30	0.214	0.243	0.221	±2.5	PASS
TX-FRS	FM	V _N	40	0.223	0.237	0.214	±2.5	PASS
TX-FRS	FM	V _N	55	0.221	0.242	0.210	±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}	CH _{M2}	CH _{M3}		
TX-FRS	FM	V _N	T _N	0.212	0.223	0.207	±2.5	PASS
TX-FRS	FM	V _L	T _N	0.215	0.227	0.207	±2.5	PASS
TX-FRS	FM	V _H	T _N	0.222	0.236	0.217	±2.5	PASS

----End of Report----