

## 12. Audio Low Pass Filter Response

### 12.1 Provisions Applicable

§95.1775 GMRS modulation requirements

Audio filter. Each GMRS transmitter type must include audio frequency low pass filtering, unless it complies with the applicable paragraphs of §95.1779 (without filtering).

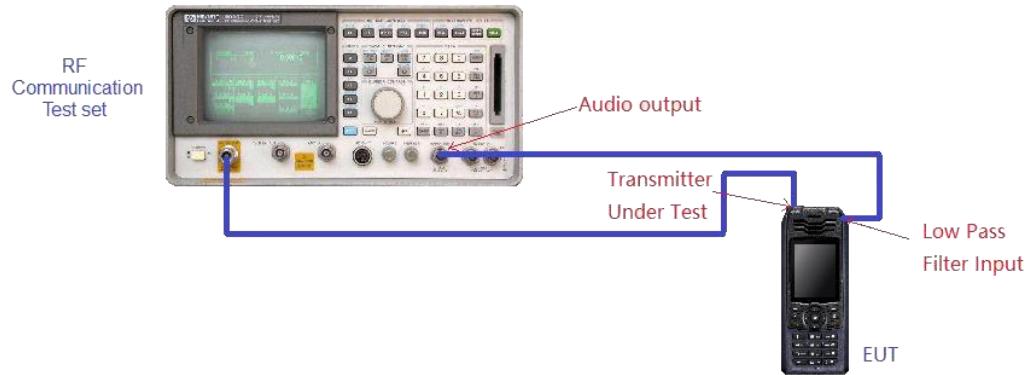
The filter must be between the modulation limiter and the modulated stage of the transmitter.

At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least  $60 \log(f/3)$  dB more than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB more than the attenuation at 1 kHz

### 12.2 Measurement Procedure

1. The DUT transmitter output port was connected to Modulation Analyzer.
2. Path loss for the measurement included.
3. Press 23.1SPCL on modulation analyzer to enable the external LO from Sigen.
4. Set the Sigen frequency to  $F_c + 1.5\text{MHz}$ , RF output level to 0dBm without modulation.
5. Transmit the radio and set the audio analyzer to 1 kHz audio frequency and 60% of the maximum deviation.
6. Up the amplitude by 20dB.
7. On DSA, get the reference point to 0dB.
8. Vary the frequency on audio analyzer from 3 kHz to 30 kHz, record the audio tone from DSA.

### 12.3 Measurement Setup



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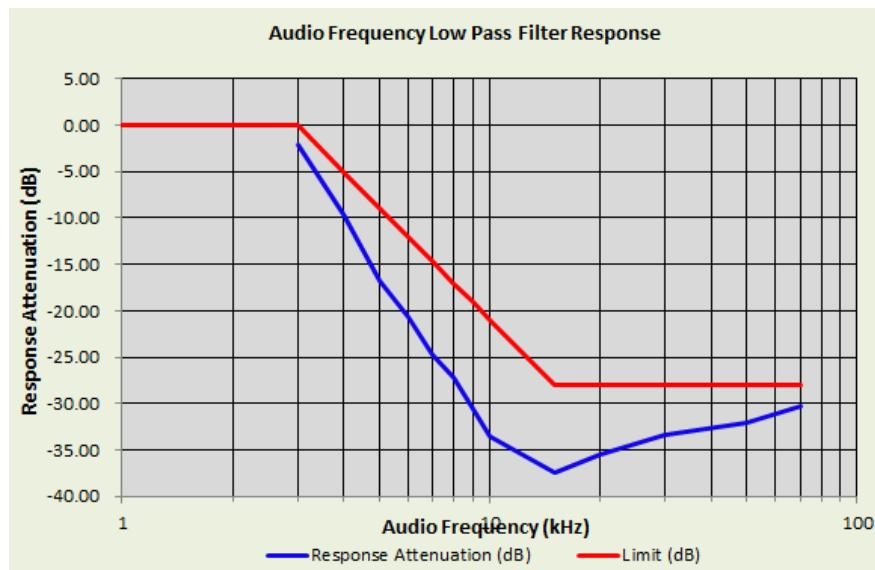
Attestation of Global Compliance(Shenzhen)Co., Ltd

Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: <http://www.agccert.com/>

## 12.4 Measurement Result

12.5kHz, FM modulation, Assigned Frequency:462.6500MHz-4.5W		
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1	0	/
3	-2.15	0.00
4	-9.56	-5.00
5	-16.76	-8.87
6	-20.60	-12.04
7	-24.68	-14.72
8	-27.18	-17.04
9	-30.55	-19.08
10	-33.58	-20.92
15	-37.48	-28.00
20	-35.56	-28.00
30	-33.36	-28.00
50	-32.14	-28.00
70	-30.25	-28.00



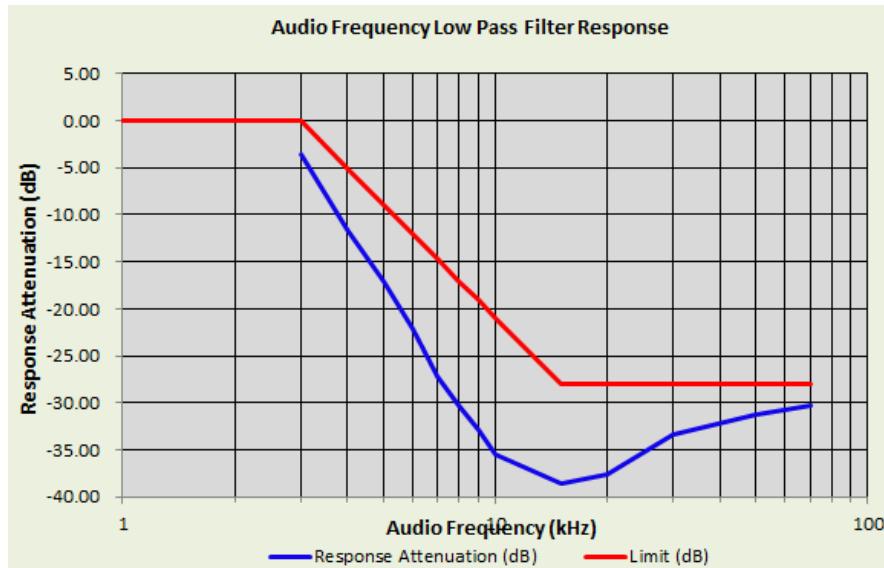
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25kHz, FM modulation, Assigned Frequency:462.6500MHz-4.5W		
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1	0	/
3	-3.49	0.00
4	-11.59	-5.00
5	-17.10	-8.87
6	-22.15	-12.04
7	-27.13	-14.72
8	-30.20	-17.04
9	-32.95	-19.08
10	-35.53	-20.92
15	-38.55	-28.00
20	-37.56	-28.00
30	-33.36	-28.00
50	-31.21	-28.00
70	-30.25	-28.00



Note: All test frequencies was tested, but only the worst data be recorded in this part.

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**Appendix I: Photographs of Test Setup**

Refer to the Report No.: AGC02294250701AP01

**Appendix II: Photographs of Test EUT**

Refer to the Report No.: AGC02294250701AP02

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

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