# 009 DSP音效设置接口文档

## 播放流程

下图为009 项目总体音频通路：

FL

Rear Aout

&

Front Aout

FR

Music

DSP

Mixer

EQ

&

Balance

&

Delay

RL

RR

Radio

Sub LPF

SubWoof

SUBL

AUX

SUBR

简要说明：

1. Music 通路包含所有android 系统声音，此通路必须保持常开；
2. Radio & AUX通路在使用时通过切换开关开启；
3. SubWoof 通道目前默认设置截止频率为200，如果响应不够，可通过SetPEQFilter 接口进行调节；
4. 由于需要兼容ak7602,目前思必驰参考音通过副MIC 采集，软件不做处理；

## 接口介绍

hardware/libhardware/include/hardware/dsp\_effect.h

struct dsp\_control\_device\_t{

struct hw\_device\_t common;

int (\*SetEQ)(int channel,double freq,double Q,double Gain);

int (\*SetPEQFilter)(int Channel,int Type,double freq,double Q,double Gain);

int (\*SetChannel)(int Channel);

int (\*SetMute)(int Mute);

int (\*SetDelay)(int Channel,int DelayValue);

int (\*SetMixer)(double Stream1Vol,double Stream2Vol);

int (\*SetChannelVolume)(int Channel,double VolumeValue);

int (\*SetStreamVolume)(int Stream,double StreamVolume);

int (\*SetBalance)(int Channel,double BalanceValue);

int (\*SetStreamChannel)(int Channel);

int (\*GetDspInitState)(void);

Int (\*SetDeemphasis)(int);

};

### 均衡器设置(GEQ)

int (\*SetEQ)(int channel,double freq,double Q,double Gain);

参数:

1.Channel: enum Channel = {ALL = 0 ,FL,FR,RL,RR,SWL,SWR};

2. freq: int EQ\_VAL[] = {25, 40, 63, 160, 250, 400, 630, 1000, 1600, 2500, 4000, 6300, 10000, 16000}

3. Q: (>= 0)

4. GAIN (-15 ~ 15)

返回值:

=0:Successful implementation; !=0:Error in execution

### LPF & HPF设置

int (\*SetPEQFilter)(int Channel,int Type,double freq,double Q,double Gain);

参数：

1.Channel: enum Channel = {FRONT,REAR,SUBWOOF};

2.TYPE:

enum Filter = {

GEQ\_THRH = 1,

GEQ\_LPF,

GEQ\_HPF,

GEQ\_BPF,

GEQ\_1stLPF,

GEQ\_1stHPF,

GEQ\_NOTCH,

GEQ\_PEAKING\_EQ,

GEQ\_LOW\_SHELF,

GEQ\_HIGH\_SHELF,

GEQ\_APF};

3.freq: HPF(> 200) LPF(20 ~ 200)

4.Q:( >0)

5.Gain: default 0

返回值：

=0:Successful implementation; !=0:Error in execution

### 喇叭配置

int (\*SetChannel)(int Channel);

参数：

Channel:

enum AudioSpeakerLayout {

SPEAKER\_LAYOUT\_FRONT,

SPEAKER\_LAYOUT\_REAR,

SPEAKER\_LAYOUT\_SUBWOOF,

};

返回值:

=0:Successful implementation; !=0:Error in execution

### Mute 控制

int (\*SetMute)(int Mute);

参数：

Mute: 0-disable,1 - enable

返回值：

=0:Successful implementation; !=0:Error in execution

### Delay 控制

int (\*SetDelay)(int Channel,int DelayValue);

参数：

1.Channel: enum Channel = {ALL,FL,FR,RL,RR,SWL,SWR};

2.DelayValue: 0 ~ 100(0 ~ 10ms)

返回值：

=0:Successful implementation; !=0:Error in execution

### Balance 控制

int (\*SetBalance)(int Channel,double BalanceValue)

参数：

BalanceValue: (-25 ~ +25) ,中心点默认每个通道0

返回值：

=0:Successful implementation; !=0:Error in execution

### 声道切换

int (\*SetStreamChannel)(int Channel);

参数：

Channel: enum Stream = {Music=1,radio,Aux};

返回值：

=0:Successful implementation; !=0:Error in execution

### 初始化状态读取

int (\*GetDspInitStateCmd)(void);

参数：无

返回值：

=0：初始化成功

=1：初始化数据异常

=2：芯片启动异常（spi或pnd异常）

### De-emphasis控制

int (\*SetDeemphasis)(int Open);

参数：

Open: 0-disable,1 - enable

返回值：

=0:Successful implementation; !=0:Error in execution