

## Measurement Protocol

Measurement Object	23T04Z80629 GSM
Description	FCC Volume control
Model Name	B160V
Sample Number	UT78a
IMEI	356197680005216
Test Band	GSM 850/1900
Test Date	20231218
Tester	Zhu Hongye
Test System (ACQUA System)	ACQUA V5.1.200,CMW500 (SN:170430),Labcore (SN:77000136)
HATS Type	HEAD HATS (HMS II.3, SN: 12306194(torso13740182))(0,0,5)
Environment	Temp.15~35 'C, 20~75%RH, Acoustic Chamber
Location	The NO.52 of Huayuan North Road

Project	TIA 5050 v1
Report Generation Date	2023/12/18 16:00
Responsible Person	STA

**Status Overview**

SMD	Status	Single Value Description	Single Value	Object
5.1 Receive Volume Control Performance 8N 1900	Done	Speech Level [dB[SPL]]	84.94	23T04Z80629 GSM
5.1 Receive Volume Control Performance 8N 850	Done	Speech Level [dB[SPL]]	84.91	23T04Z80629 GSM
5.1.1 -1 Conversation Gain 8N 1900	Ok	Calculated Value [dB]	14.94	23T04Z80629 GSM
5.1.1 -1 Conversation Gain 8N 850	Ok	Calculated Value [dB]	14.91	23T04Z80629 GSM
5.1 Receive Volume Control Performance 2N 850	Done	Speech Level [dB[SPL]]	80.94	23T04Z80629 GSM
5.1 Receive Volume Control Performance 2N 1900	Done	Speech Level [dB[SPL]]	80.89	23T04Z80629 GSM
5.1.1 -1 Conversation Gain 2N 850	Ok	Calculated Value [dB]	10.94	23T04Z80629 GSM
5.1.1 -1 Conversation Gain 2N 1900	Ok	Calculated Value [dB]	10.89	23T04Z80629 GSM

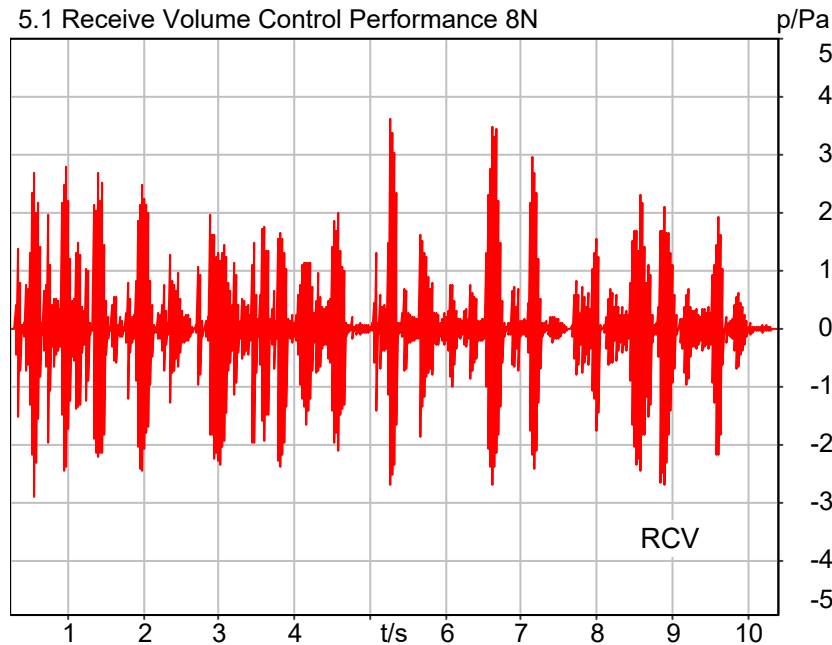
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## 5.1 Receive Volume Control Performance 8N

ANSI/TIA 5050-2018 \ 8N HAC OFF \ NB

1900



Speech Level RCV: 84.94 dB[SPL], Act.: 93.50%

2023/12/18 15:55 ACQUA 5.1.200

Meas. Setting STD:DRP/ERP OFF

Source: ieee\_male\_dual\_nb.dat

Level adj. Ch1 -90.0 dB

Level adj. Ch2 -4.0 dB

### Calibration

Input ch.2: 1.37 dB 2023/11/29 (HATS 3 (HMS II.3))

Output ch.2: 0.00 dB (Radio Tester 1 (CMW500))

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 3 (HMS II.3)

### Analysis

Direction Out 2 -&gt; In 2

Range start 250.00 ms Range length 10200.00 ms

Bandpass filter Narrow Band Margin (15.9dB nom) 15.90 dB

### Special Features

Compensate delay 184.2000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable rcv\_vol\_nb

### Hardware Config Settings

Used Setting STD:Mobile test both channels

**labCORE Settings**

labCORE Serial	77000136	Nickname	
Firmware	3.2.46	Sync Source	Internal
Clock Pitch	0.00 ppm		

## labCORE Routing

Out Channel 1 ->	Power Amp. 1/2 1 -> HATS 3 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 1 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	BEQ Filter 1 L <- Mic Amp. 1..4 In 1 <- HATS 3 (HMS II.3) Mic. Left
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. 1..4 In 2 <- HATS 3 (HMS II.3) Mic. Right

## Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Microphone Settings (Mic Amp. 1..4)

## Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## BEQ Settings (BEQ Filter 1)

Block mode	Bypass
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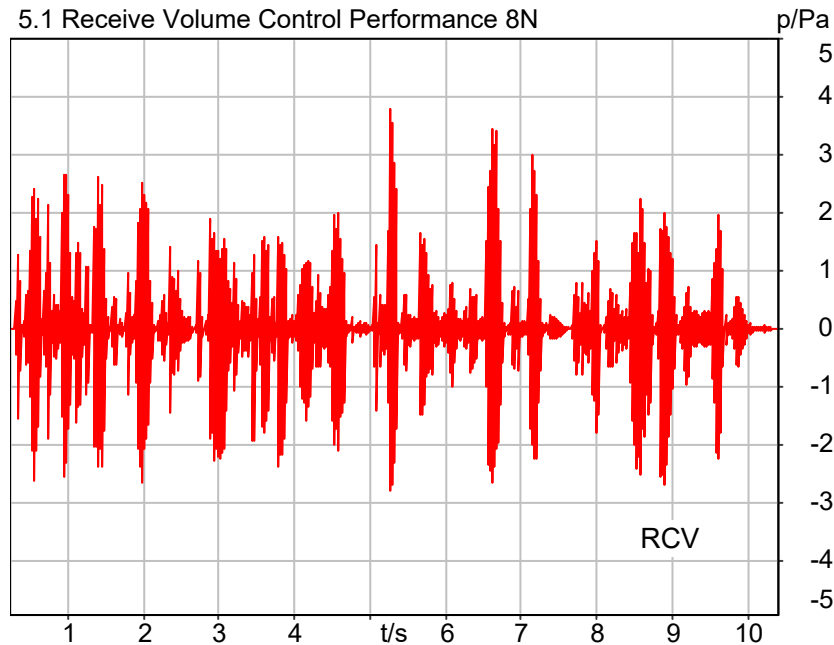
## Artificial Head Settings (HATS 3 (HMS II.3))

Ser. Nr.	12306194	Pinna Type	Type 3.3
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## 5.1 Receive Volume Control Performance 8N

ANSI/TIA 5050-2018 \ 8N HAC OFF \ NB

850



Speech Level RCV: 84.91 dB[SPL], Act.: 93.47%

2023/12/18 15:57 ACQUA 5.1.200

Meas. Setting STD:DRP/ERP OFF

Source: ieee\_male\_dual\_nb.dat

Level adj. Ch1 -90.0 dB

Level adj. Ch2 -4.0 dB

### Calibration

Input ch.2: 1.37 dB 2023/11/29 (HATS 3 (HMS II.3))

Output ch.2: 0.00 dB (Radio Tester 1 (CMW500))

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 3 (HMS II.3)

### Analysis

Direction Out 2 -&gt; In 2

Range start 250.00 ms

Range length 10200.00 ms

Bandpass filter Narrow Band

Margin (15.9dB nom) 15.90 dB

### Special Features

Compensate delay 184.3000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable rcv\_vol\_nb

### Hardware Config Settings

Used Setting STD:Mobile test both channels

**labCORE Settings**

labCORE Serial	77000136	Nickname	
Firmware	3.2.46	Sync Source	Internal
Clock Pitch	0.00 ppm		

## labCORE Routing

Out Channel 1 ->	Power Amp. 1/2 1 -> HATS 3 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 1 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	BEQ Filter 1 L <- Mic Amp. 1..4 In 1 <- HATS 3 (HMS II.3) Mic. Left
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. 1..4 In 2 <- HATS 3 (HMS II.3) Mic. Right

## Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Microphone Settings (Mic Amp. 1..4)

## Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## BEQ Settings (BEQ Filter 1)

Block mode	Bypass
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## Artificial Head Settings (HATS 3 (HMS II.3))

Ser. Nr.	12306194	Pinna Type	Type 3.3
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## **5.1.1 -1 Conversation Gain 8N**

ANSI/TIA 5050-2018 \ 8N HAC OFF \ NB  
1900

### **Correction**

rcv_vol_nb	84.940 dB[SPL]	2023/12/18	Measured	5.1 Receive Volume Control Performance 8N
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rcv\_vol\_nb-70

Calculated Value: 14.94 dB Ok

### **Ok**

2023/12/18 15:55 ACQUA 5.1.200

### **Limits**

	<b>lower</b>
Run 1	6.00 dB

## **5.1.1 -1 Conversation Gain 8N**

ANSI/TIA 5050-2018 \ 8N HAC OFF \ NB  
850

### **Correction**

rcv_vol_nb	84.910 dB[SPL]	2023/12/18	Measured	5.1 Receive Volume Control Performance 8N
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rcv\_vol\_nb-70

Calculated Value: 14.91 dB Ok

### **Ok**

2023/12/18 15:57 ACQUA 5.1.200

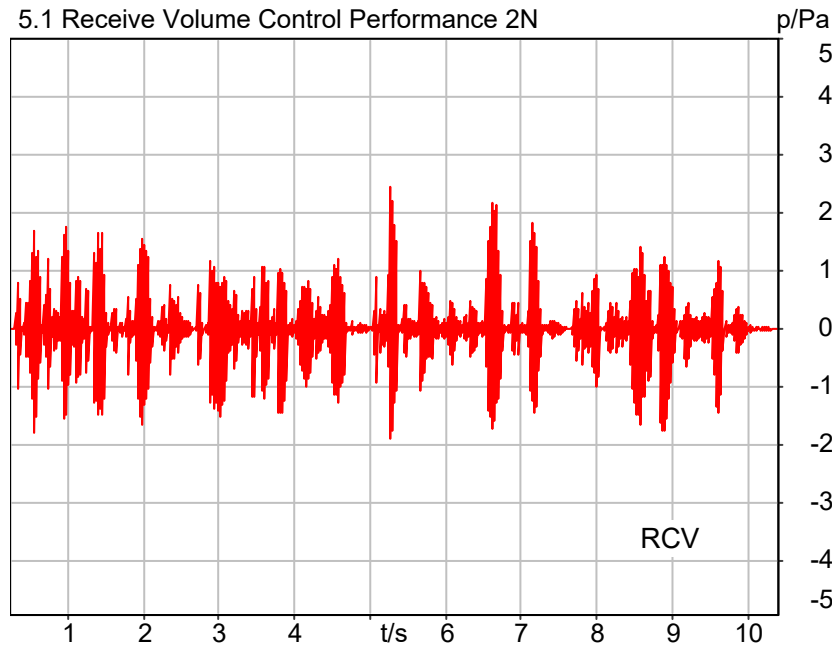
### **Limits**

	<b>lower</b>
Run 1	6.00 dB

## 5.1 Receive Volume Control Performance 2N

ANSI/TIA 5050-2018 \ 2N HAC ON \ NB

850



Speech Level RCV: 80.94 dB[SPL], Act.: 93.18%

2023/12/18 15:49 ACQUA 5.1.200

Meas. Setting STD:DRP/ERP OFF

Source: ieee\_male\_dual\_nb.dat

Level adj. Ch1 -90.0 dB

Level adj. Ch2 -4.0 dB

### Calibration

Input ch.2: 1.37 dB 2023/11/29 (HATS 3 (HMS II.3))

Output ch.2: 0.00 dB (Radio Tester 1 (CMW500))

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 3 (HMS II.3)

### Analysis

Direction Out 2 -&gt; In 2

Range start 250.00 ms Range length 10200.00 ms

Bandpass filter Narrow Band Margin (15.9dB nom) 15.90 dB

### Special Features

Compensate delay 184.4000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable rcv\_vol\_nb

### Hardware Config Settings

Used Setting STD:Mobile test both channels

**labCORE Settings**

labCORE Serial	77000136	Nickname	
Firmware	3.2.46	Sync Source	Internal
Clock Pitch	0.00 ppm		

## labCORE Routing

Out Channel 1 ->	Power Amp. 1/2 1 -> HATS 3 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 1 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	BEQ Filter 1 L <- Mic Amp. 1..4 In 1 <- HATS 3 (HMS II.3) Mic. Left
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. 1..4 In 2 <- HATS 3 (HMS II.3) Mic. Right

## Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Microphone Settings (Mic Amp. 1..4)

## Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## BEQ Settings (BEQ Filter 1)

Block mode	Bypass
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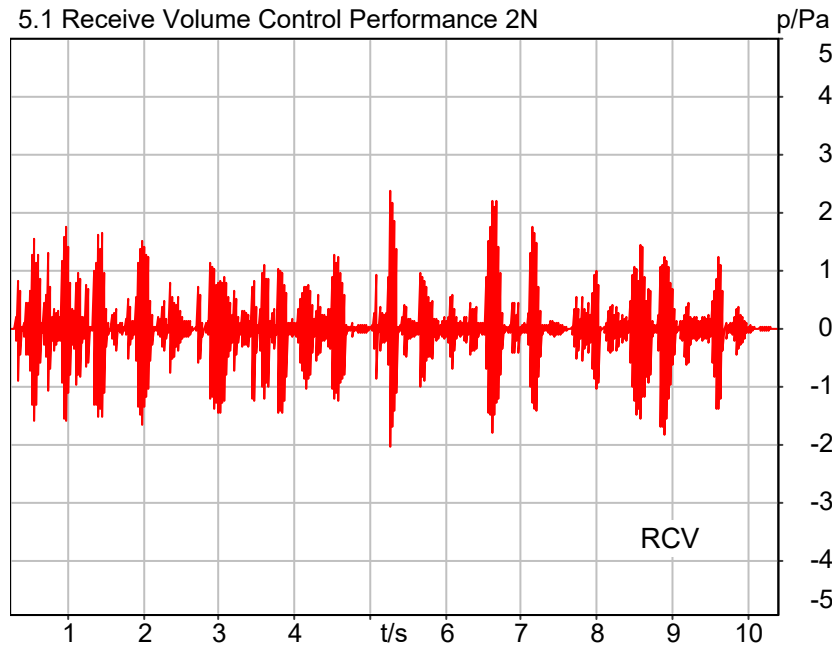
## Artificial Head Settings (HATS 3 (HMS II.3))

Ser. Nr.	12306194	Pinna Type	Type 3.3
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## 5.1 Receive Volume Control Performance 2N

ANSI/TIA 5050-2018 \ 2N HAC ON \ NB

1900



Speech Level RCV: 80.89 dB[SPL], Act.: 93.16%

2023/12/18 15:53 ACQUA 5.1.200

Meas. Setting STD:DRP/ERP OFF

Source: ieee\_male\_dual\_nb.dat

Level adj. Ch1 -90.0 dB

Level adj. Ch2 -4.0 dB

### Calibration

Input ch.2: 1.37 dB 2023/11/29 (HATS 3 (HMS II.3))

Output ch.2: 0.00 dB (Radio Tester 1 (CMW500))

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 3 (HMS II.3)

### Analysis

Direction Out 2 -&gt; In 2

Range start 250.00 ms

Range length 10200.00 ms

Bandpass filter Narrow Band

Margin (15.9dB nom) 15.90 dB

### Special Features

Compensate delay 184.3000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable rcv\_vol\_nb

### Hardware Config Settings

Used Setting STD:Mobile test both channels

**labCORE Settings**

labCORE Serial	77000136	Nickname	
Firmware	3.2.46	Sync Source	Internal
Clock Pitch	0.00 ppm		

## labCORE Routing

Out Channel 1 ->	Power Amp. 1/2 1 -> HATS 3 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 1 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	BEQ Filter 1 L <- Mic Amp. 1..4 In 1 <- HATS 3 (HMS II.3) Mic. Left
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. 1..4 In 2 <- HATS 3 (HMS II.3) Mic. Right

## Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB
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## Microphone Settings (Mic Amp. 1..4)

## Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

## Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	Off	Supply Voltage	±60V

## BEQ Settings (BEQ Filter 1)

Block mode	Bypass
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## Artificial Head Settings (HATS 3 (HMS II.3))

Ser. Nr.	12306194	Pinna Type	Type 3.3
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## **5.1.1 -1 Conversation Gain 2N**

ANSI/TIA 5050-2018 \ 2N HAC ON \ NB  
850

### **Correction**

rcv_vol_nb	80.940 dB[SPL]	2023/12/18	Measured	5.1 Receive Volume Control Performance 2N
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rcv\_vol\_nb-70

Calculated Value: 10.94 dB Ok

### **Ok**

2023/12/18 15:49 ACQUA 5.1.200

### **Limits**

	<b>lower</b>
Run 1	6.00 dB

## **5.1.1 -1 Conversation Gain 2N**

ANSI/TIA 5050-2018 \ 2N HAC ON \ NB  
1900

### **Correction**

rcv_vol_nb	80.890 dB[SPL]	2023/12/18	Measured	5.1 Receive Volume Control Performance 2N
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rcv\_vol\_nb-70

Calculated Value: 10.89 dB Ok

### **Ok**

2023/12/18 15:53 ACQUA 5.1.200

### **Limits**

	<b>lower</b>
Run 1	6.00 dB