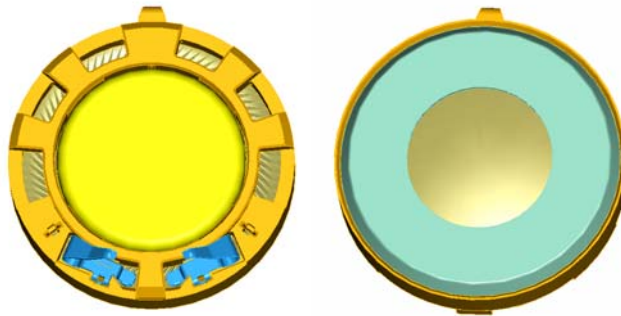


# SPECIFICATION FOR

## 16mm MALT Slim SPEAKER with copper wire coil and spring contacts



CONTENT	SHEET No.:	EDITION	NOTE
main dimensions	190 – 1	<b>B</b>	Change phase on basket
mechanical characteristics	190 – 2	<b>B</b>	Change working realm spring contact
force layout	190 – 2.1	<b>B</b>	Change owrking realm spring contact
environmental data	190 – 2.2	<b>B</b>	Change material of basket
frequency response	190 – 3	<b>A</b>	Official released version
electro acoustic charact.	190 – 4	<b>A</b>	Official released version
measurement set up	190 – 5	<b>A</b>	Official released version
additional documents	190 – 6	<b>A</b>	Official released version

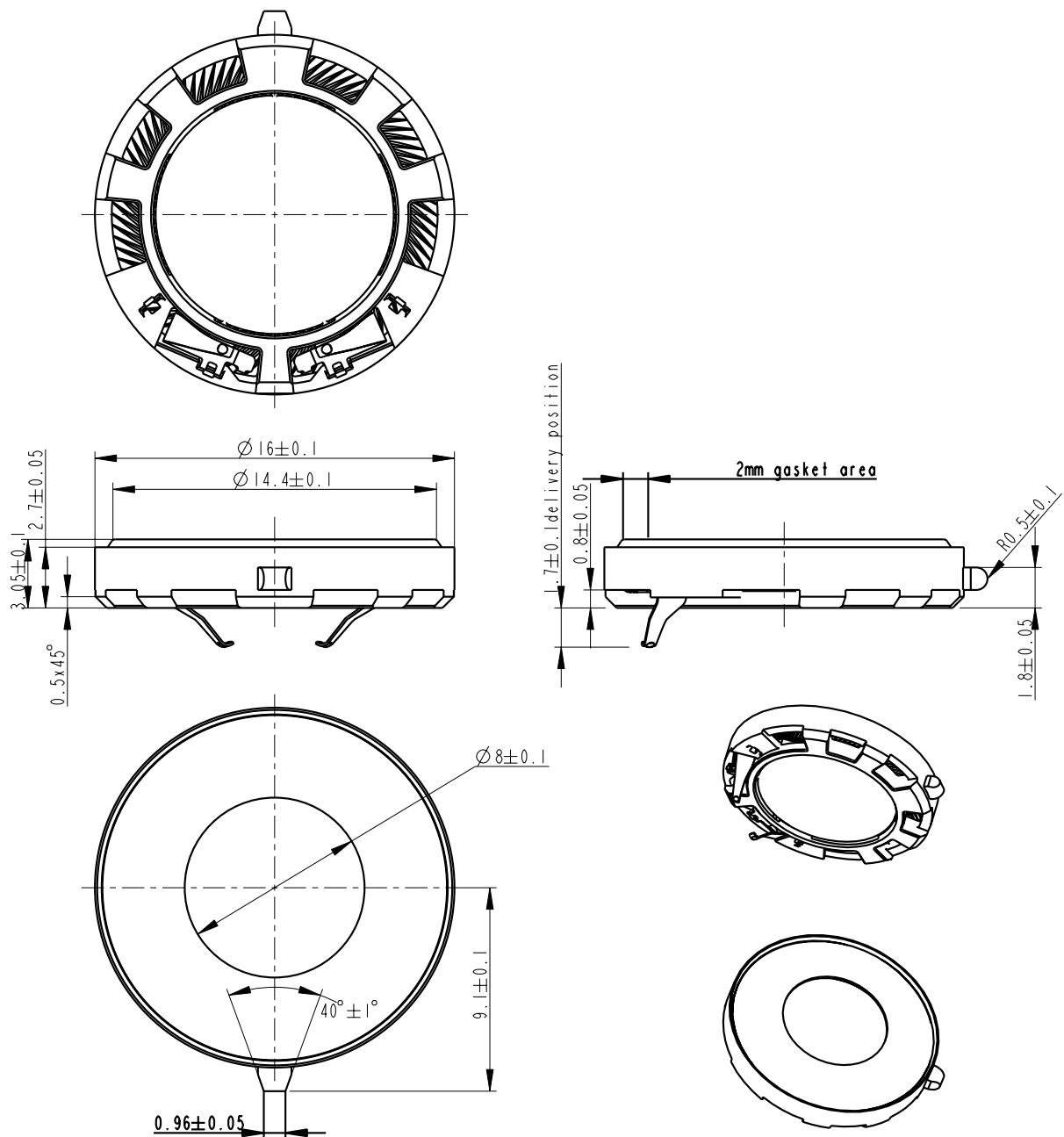
TYPE No.: WD 20663/ Y8L			CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>						
check design	check acoustics	release	CHANGE No.: / REVISION DATE						
Schöffmann	Bauer	Öfferl	11.05.04	ECR402	20.08.04			-	-
			-	-	-	-	-	-	-

*Let's make things better.*



**PHILIPS**

# **MAIN DIMENSIONS**



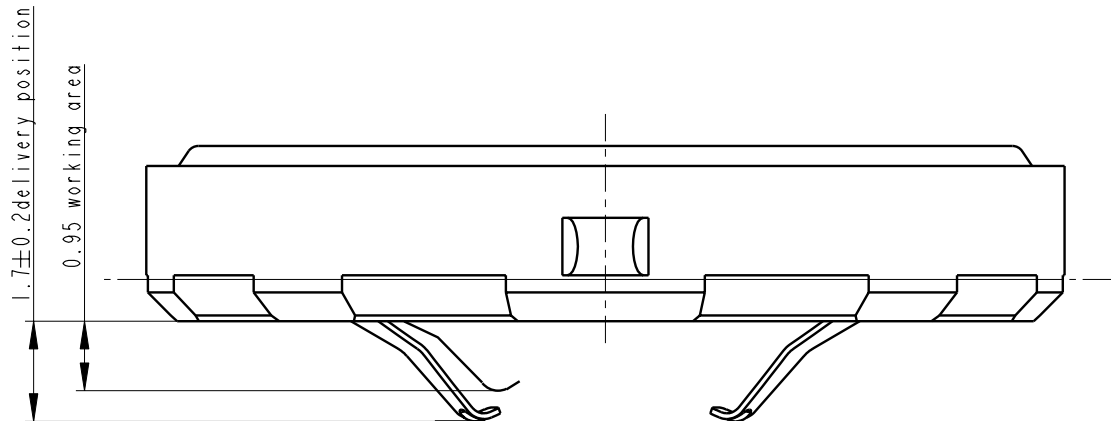
CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>									
EDITION / DATE					SHEET No.: <b>190 – 1</b>				
A	11.05.2004	B	20.08.04	C		D		E	
F		G		H		I		J	

Let's make things better.



**PHILIPS**

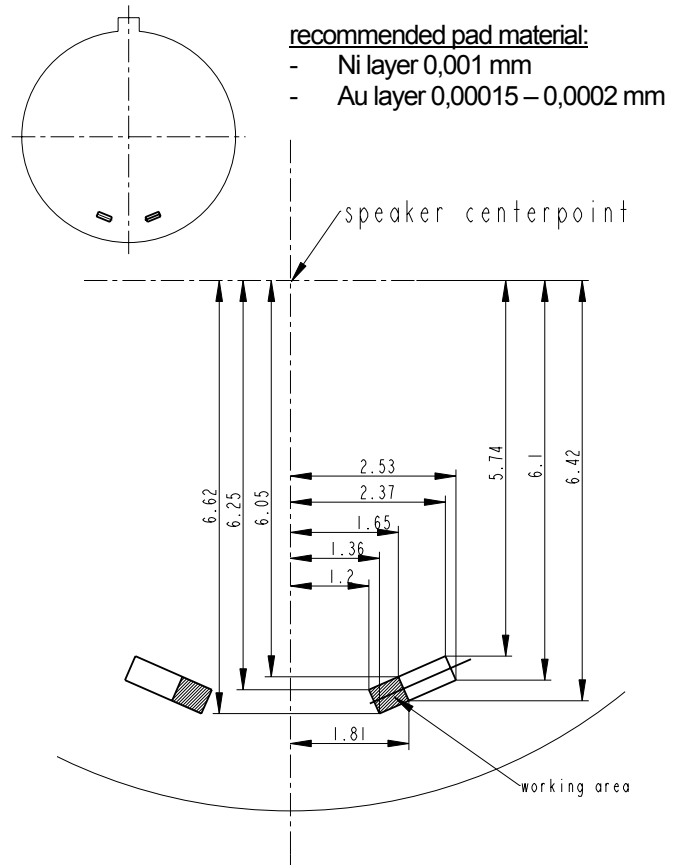
## MECHANICAL CHARACTERISTICS



### Force area of one springcontact (all measured values within area)

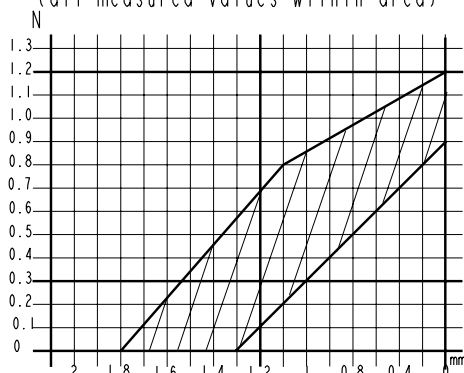
measurement point	dimimension measured from basket bottom	tolerance	force
delivery position	1.7	±0.2	0.0
start workingarea	0.95		min 0.3 N
end workingarea	0		min 0.9N max 1.2N
contact pressure			500-700 N/mm <sup>2</sup>

### Position of Contact points on PWB Layout without mounting clearance of the speaker



### FORCE AREA OF ONE SPRINGCONTACT

(all measured values within area)



CODE No. / ORDER No.: **2403 258 23602 / 2403 258 23622**

EDITION / DATE

SHEET No.: **190 – 2**

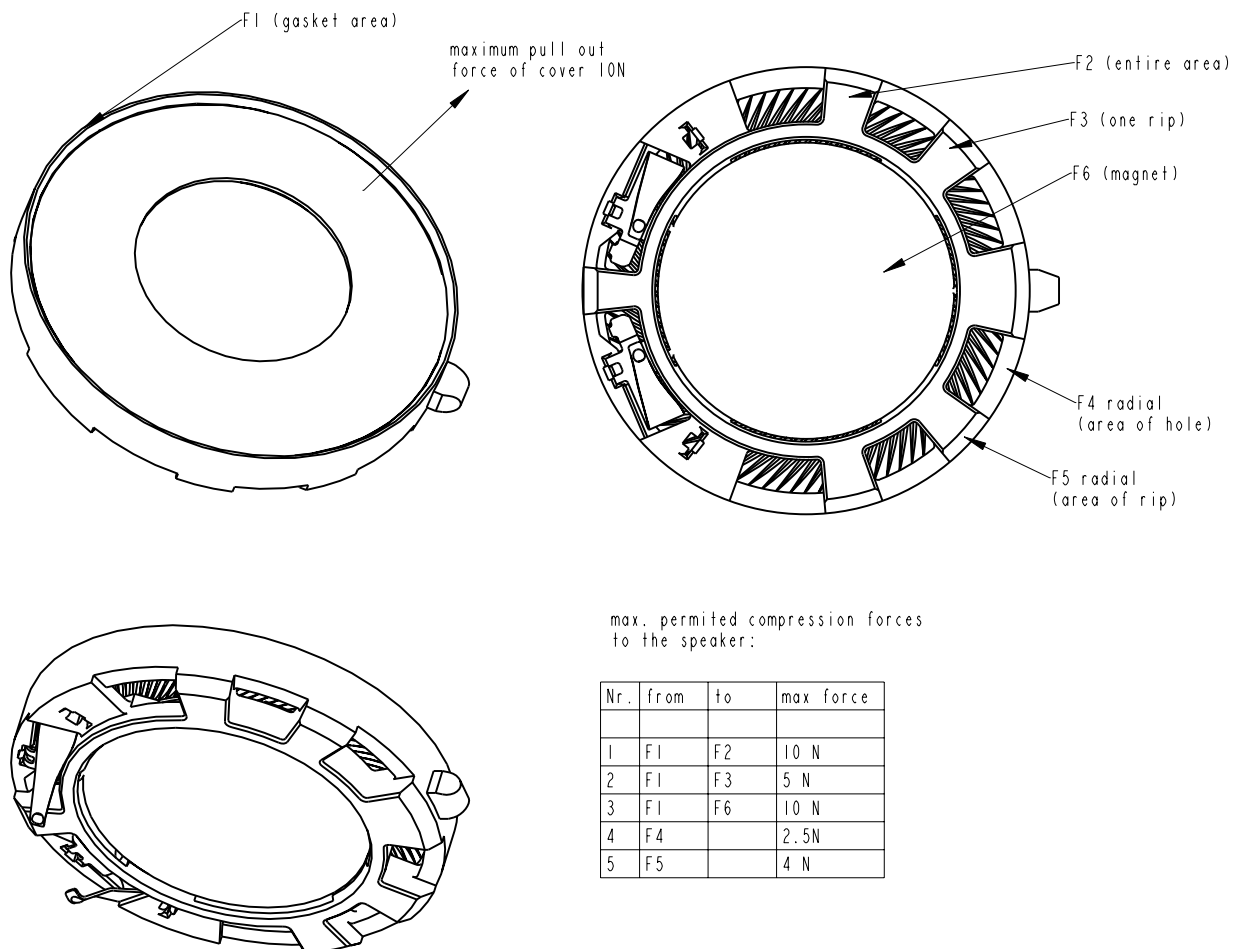
A	11.05.2004	B	20.08.2004	C		D		E	
F		G		H		I		J	

Let's make things better.



**PHILIPS**

## FORCE LAYOUT



CODE No. / ORDER No.: **2403 258 23602**

EDITION / DATE

SHEET No.: **190 – 2.1**

A	11.05.2004	B	20.08.04	C		D		E	
F		G		H		I		J	

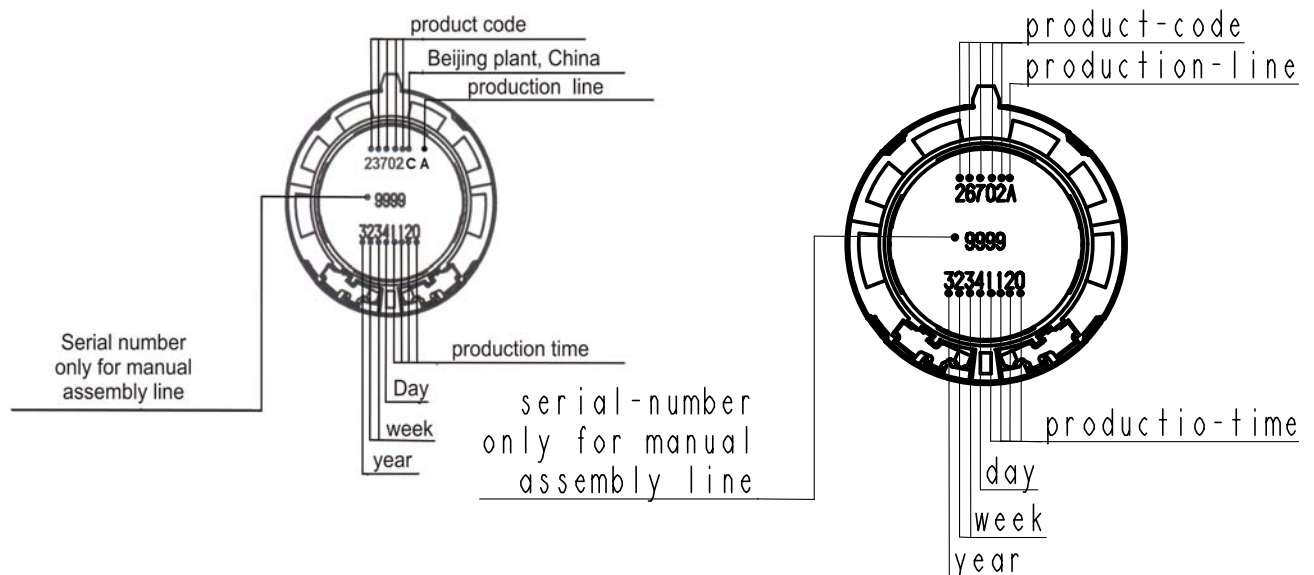
*Let's make things better.*



**PHILIPS**

## ENVIRONMENTAL DATA

1. MATERIAL of BASKET: Polycarbonat
2. MATERIAL of MEMBRANE: Polyarylat
3. MATERIAL of POT: soft magnetic iron
4. MATERIAL of MAGNET: Nd Fe B /N42
5. MATERIAL of CONTACT: CrNi-STEEL
6. PLATING of CONTACT: 0,1-0,2µm Ni, 0,3-0.5µm Au (CONTACT AREA)  
6-12µm Sn70Pb30
7. MATERIAL of COVER: Styrol/Arylnitril
8. DIMENSION: 16mm / 0,629"
9. MASS: 1,14 g
10. STAMP

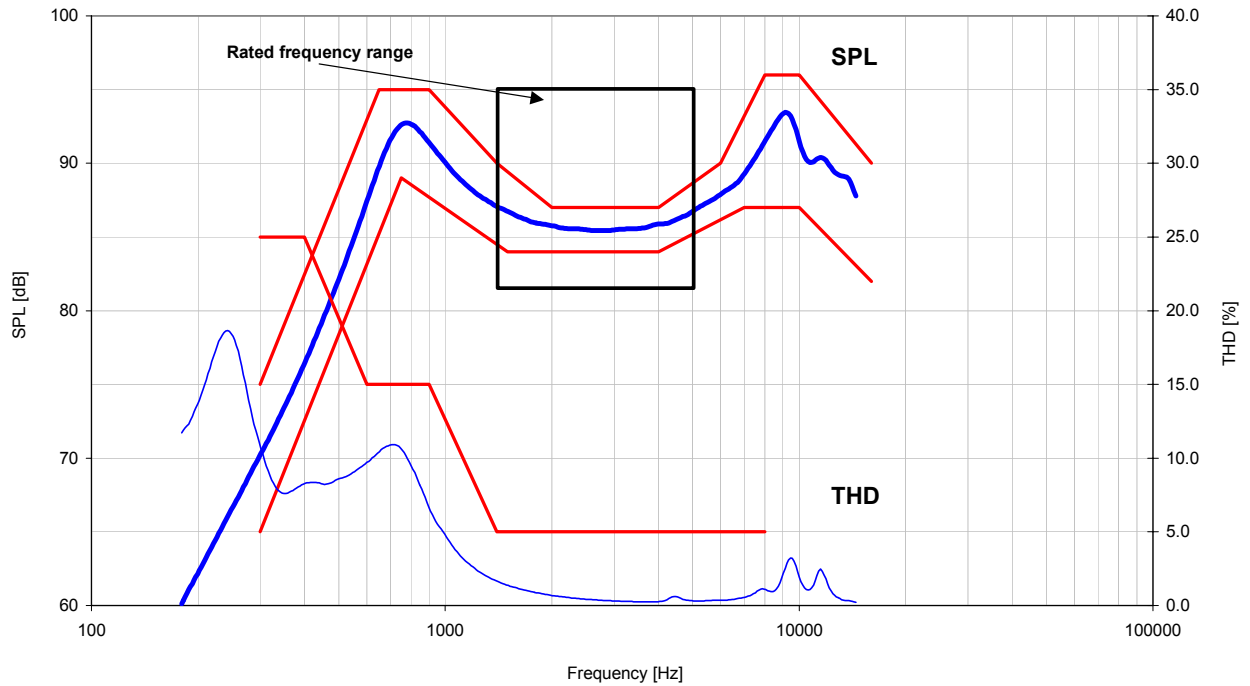


CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>									
EDITION / DATE								SHEET No.: <b>190 – 2.2</b>	
A	11.05.2004	B	20.08.04	C		D		E	
F		G		H		I		J	

## FREQUENCY RESPONSE

TYPICAL FREQUENCY RESPONSE measured acc. to sheet 590-5  
(distance d = 10cm, with 12cm<sup>3</sup> sealed back cavity at 100 mW)

MALT Slim: 100mW; 12ccm closed backvolume; 10cm



f [Hz]	THD [%] Upper Limit
300	25
400	25
600	15
900	15
1400	5
8000	5

f [Hz]	SPL [dB] Upper Limit	f [Hz]	SPL [dB] Lower Limit
300	75	300	65
650	95	750	89
900	95	1500	84
1400	90	4000	84
2000	87	7000	87
4000	87	10000	87
6000	90	16000	82
8000	96		
10000	96		
16000	90		

Floating SPL tolerance window

CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>							
EDITION / DATE				SHEET No.: <b>190 – 3</b>			
A	<b>11.05.2004</b>	B		C		D	
F		G		H		I	

*Let's make things better.*



**PHILIPS**

## ELECTRICAL SPECIFICATION acc. IEC 268-5

### I. LOUDSPEAKER UNMOUNTED

1. RATED IMPEDANCE	Z:	8 $\Omega$
2. VOICE COIL RESISTANCE	R:	7,2 $\Omega \pm 10 \%$
3. RESONANCE FREQUENCY	$f_0$ :	700 Hz $\pm 15 \%$
4. MAXIMUM LINEAR EXCURSION	Xmax:	+/- 0,25 mm

### II. LOUDSPEAKER IN MEASUREMENT SETUP ACC. SHEET 590-5

1. CHARACT. SENSITIVITY (at 0,1W in 1m ) average in the rated frequency range	65,5 $\pm 2$ dB
1.1. CHARACT. SENSITIVITY (at 0,1W in 10cm ) average in the rated frequency range	85,5 $\pm 2$ dB
2. RATED FREQU. RANGE for calculation of the characteristic sensitivity	1,5 - 5 kHz
3. THD	acc. sheet 590 - 3
4. Rub & Buzz	< 60 dBSPL (500 Hz .. 1000Hz) at 100mW

### III LOUDSPEAKER MOUNTED IN LIFETIME TEST DEVICE (open front, open rear)

Signal IEC268-1 with highpass 12dB/Oct. at 800 Hz, Crestfaktor 2, ambient temperature 85°C

1. MAX.SHORT TERM POWER	1sec ON, 1min. OFF, 60 cycles	0,8 WATT
2. MAX LONG TERM POWER	1min ON, 2min. OFF, 10 cycles	0,4 WATT
3. MAX. NOISE POWER	(PHC CONTINUOUS) 500h	0,3 WATT

(FREQU. RANGE IN TELECOM APPLICATION 300 Hz – 3,4 kHz)

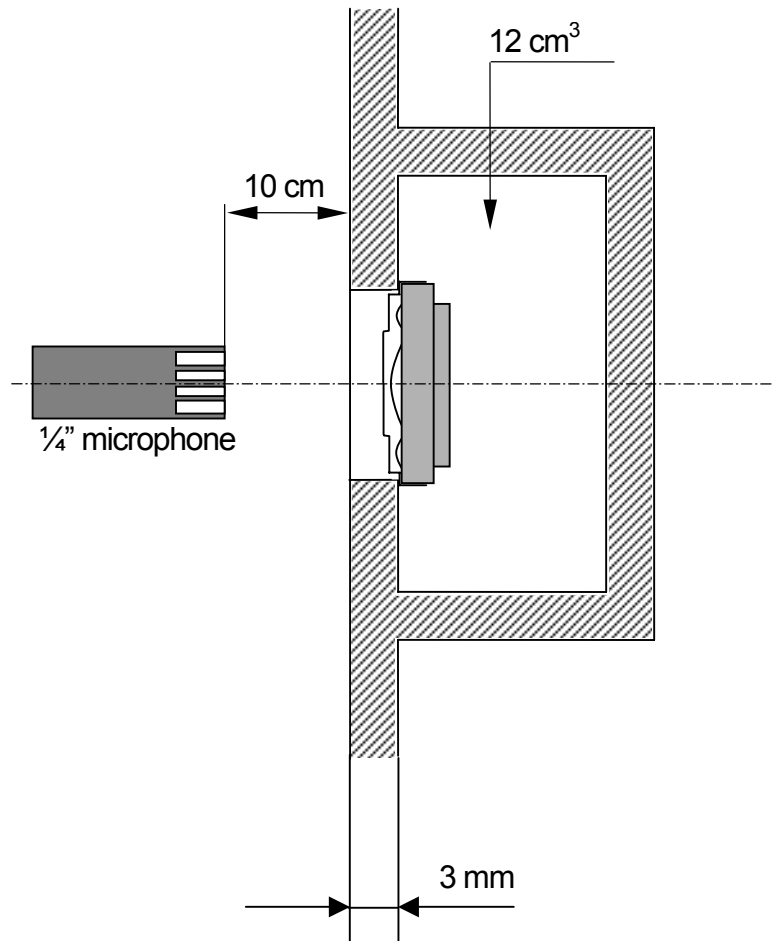
CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>									
EDITION / DATE								SHEET No.: <b>190 – 4</b>	
A	<b>11.05.2004</b>	B		C		D		E	
F		G		H		I		J	

*Let's make things better.*



**PHILIPS**

## MEASUREMENT SETUP



CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>									
EDITION / DATE								SHEET No.: <b>190 – 5</b>	
A	11.05.2004	B		C		D		E	
F		G		H		I		J	

*Let's make things better.*



**PHILIPS**



**ADDITIONAL DOCUMENTS**

## 1) Packaging information

see SHEET 299: packaging instruction for 2403 258 23602

## 2) Technical Delivery Terms

see matching Document TDT 2403 258 2

CODE No. / ORDER No.: <b>2403 258 23602 / 2403 258 23622</b>									
EDITION / DATE								SHEET No.: <b>190 – 6</b>	
A	11.05.2004	B		C		D		E	
F		G		H		I		J	

*Let's make things better.***PHILIPS**