

PRODUCT SPECIFICATION



Product specification for product no. 82184.1 Retractable Bottom
Helical Antenna System for LG model DB-520 hand portable unit.

DOCUMENT 82184.1 Issue P3

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The product specification is a complete description of the product only together with the specification drawing.

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3 ELECTRICAL PROPERTIES

3.1 FREQUENCY BANDS

3.1.1 Transmit Bands (Tx)

Tx₁: 824 - 849 MHz

Tx₂: 1850 - 1910 MHz

3.1.2 Receive Bands (Rx)

Rx₁: 869 - 894 MHz

Rx₂: 1930 - 1990 MHz

3.2 IMPEDANCE

3.2.1 Nominal Value

50 ohms

3.2.2 Method

Allgon will supply engineering assistance to ensure that the impedance over the frequency bands is as close to 50 ohms as possible after matching, both in extended and retracted modes. Both free space and talk position are considered.

3.3 THE HANDSET

3.3.1 Handset Revision

Allgon chassis ID Number

1407

Received at Allgon

December, 2000

3.3.2 Matching

The matching on the PCB of the handset, as specified in 3.3.1, is according to figure 3.3.1. The following matching components are used:

Capacitors: no capacitor

Inductors: 2.7 nH serie, 10nH shunt

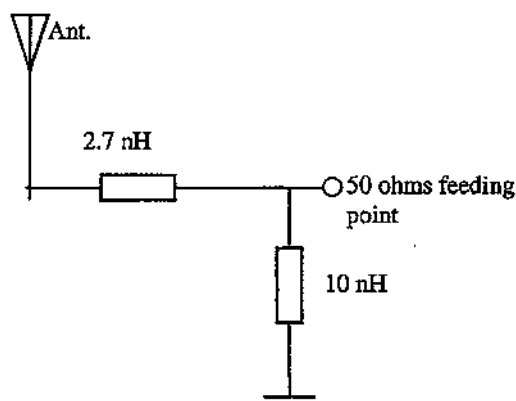


Figure 3.3.1 Matching circuit

3.4 VSWR

3.4.1 Free Space

Below are listed the typical values of the worst matched frequency within each band.

Mode	Typical Maximum Values			
	Tx ₁	Rx ₁	Tx ₂	Rx ₂
Extended	3.19	1.44	3.31	2.55
Retracted	3.4	3.26	2.28	2.07

3.4.2 Talk Position

Below are listed the typical values of the worst matched frequency within each band.

Mode	Typical Maximum Values			
	Tx ₁	Rx ₁	Tx ₂	Rx ₂
Extended	1.85	1.48	2.65	2.48
Retracted	2.4	2.71	1.43	2.56

3.4.3 Free Space

Below are listed the typical values of the worst matched frequency within each band.

Mode	Maximum Values			
	Tx ₁	Rx ₁	Tx ₂	Rx ₂
Extended	TBD:1	TBD:1	TBD:1	TBD:1
Retracted	TBD:1	TBD:1	TBD:1	TBD:1

3.4.4 Measuring Method

A 50 ohms coaxial cable is connected (soldered) to the 50 ohms feeding point (see fig. 3.3.1) on the PCB. The connection of the coaxial cable is done so as to introduce a minimum of mismatch. Ferrite beads are mounted on the cable outside the handset to reduce induced currents on the cable. The cable exits the handset in the negative Y direction. In the other end, the coaxial cable is connected to a network analyzer. The analyzer is calibrated so that the reference plane is at the 50 ohms feeding point.

The handset, including the PCB, must not in any significant way differ from the mass produced handset, e.g. the antenna feeding parts have to be equivalent to the parts in mass production.

Free space means that the handset is placed on a non-conductive surface of polystyrene. Talk position means that the handset is positioned according to "Intended Use" position described in paragraph 7.3.1.1 in "Considerations for evaluation of human exposure to Electromagnetic Fields (EMFs) from Mobile Telecommunication Equipment (MTE) in the frequency range 30 MHz-6 GHz", Final

3.4.5 Electrical Performance Assurance

In order to guarantee the specified electrical performance in mass production the following procedure is used (example given for a single band antenna). During the development phase, two antennas are selected; one defining the lowest allowable resonance frequency (when measured on the handset), marked "low freq.", and one defining the highest allowable resonance frequency, marked "high freq.", see figure 3.4.1. These antennas are our reference antennas. These antennas are then measured on a ground plane used in mass production and define the highest and lowest allowable resonance frequencies on this ground plane and each produced antenna is automatically tested on this ground plane.

Only the retracted mode is considered when finding the reference antennas, since the production variation of the extended mode is negligible.

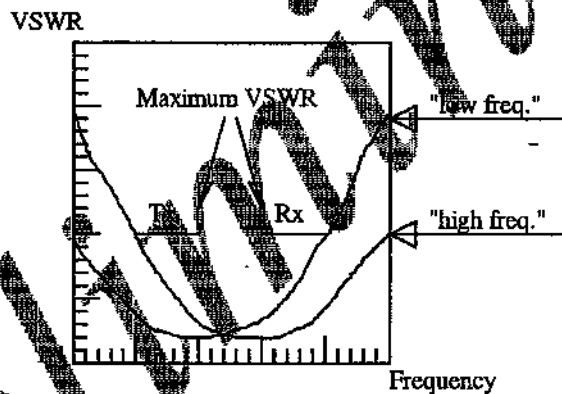
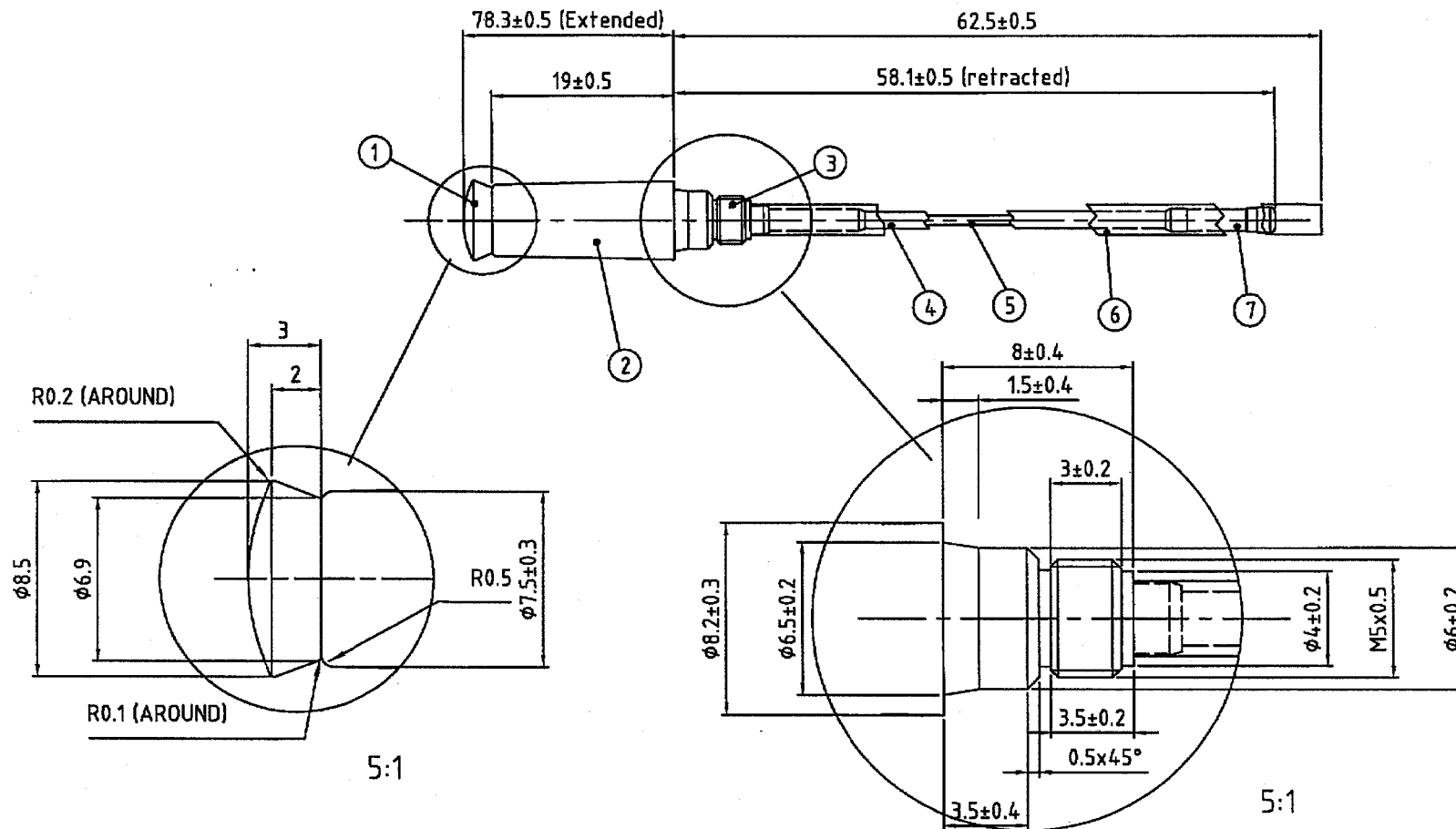


Figure 3.4.1 Reference antennas defining the lowest and highest allowable resonance frequencies for a single band antenna.

Unless otherwise stated specified dimensions apply after coating

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7	Brass	SS 5170-04	Cu/Cu3Ni10b acc. to SS ISO 1458
6	Plastic	PA12	Colour: Black
5	Ni-Ti-Cr	Super elastic alloy	
4	Plastic	PVC KAI/B-27-Nat	
3	Brass	SS 5170-04	Cu/Cu3Ni2-4b acc. to SS ISO 1458
2	Plastic	Santoprene 103-40	Surface acc. to Charmilles VDI 3400 no. 33, Colour black
1	Plastic	Zytel 66 E101 L	Surface acc. to Charmilles VDI 3400 no. 30, Colour black
NO	MATERIAL		SURFACE TREATMENT

Name		Material / Drawing		Dim	Note
	Format	Scale	Date/Sign	Department	Finish
	A3	2:1	2001-01-30 mcmhnn	R & D	Edges unless otherwise stated
	Approved	Checked Mec	Checked El	General tolerance	Surface treatment
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					Date/Sign
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