

TELIT WIRELESS SOLUTIONS

APPROVAL SHEET

NO	MODEL	FREQUENCY	
1	HW-3BM-SMA	Cellular	824 – 894 MHz
		GPS	1575 MHz
		US PCS	1850 – 1990 MHZ



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ANTENNA SPECIFICATION

1. MODEL: HW – 3BM – SMA

2. APPLICATION: This specification is provided for AMPS, GPS, US PCS band TRIPLE-MAGNET ANTENNA.

3. ANTENNA used condition

☐ Portable ☒ Fixing ☐ Movement ☒ Out-door ☒ In-door ☒ Etc()

4. ANTENNA Drawing

Attached Drawing paper

5. Electrical specification and performance

Satisfied next data with real used or similar environment conditions.

No.	ELECTRICAL DATA	SPECIFICATIONS		REMARK
5. 1	FREQUENCY RANGE	AMPS	824 – 894 MHz	
		GPS	1575 MHz	
		US PCS	1850 – 1990 MHz	
5. 2	IMPEDANCE	50 Ω NOMINAL		
5. 3	GAIN	AMPS	-2.0 $\pm$ 0.5 dBi	
		GPS	-6.0 $\pm$ 0.5 dBi	
		US PCS	-3.0 $\pm$ 0.5 dBi	
5. 4	RADIATION PATTERN	OMNI – DIRECTIONAL		
5. 5	POLARIZATION	VERTICAL		

6. Hardware specification and mechanical

No.	MECHANICAL	SPECIFICATIONS	REMARK
6. 1	ELEMENT	Φ 0.5 PWG	Ni-PLATING
6. 2	SLEEVE	URETHANE	BLACK-COLOR
6. 3	BASE COVER	ABS	BLACK-COLOR
6. 4	CONNECTOR	SMA(Male)	GOLD-PLATING
6. 5	CABLE	RG-174 COAX CABLE	BLACK-COLOR
6. 6	ANTENNA TOTAL LENGTH	85.0 $\pm$ 2.0 mm	
6. 7	CABLE TOTAL LENGTH	0.5 m $\pm$ 20 mm	

7. SINUSOIDAL VIBRATION

Vibration Frequencies : 5- 55 Hz (1 cycle)

Sweep Rate : 1 cycle/min

Maximum Amplitude : A - 1 mm

Maximum Acceleration : 2 g

Measuring method

Antenna is combined in the test equipment.

The vibration is done X and Y direction (left, right, up and down) according to below image.

It continued for 2 hours each direction.

8. OPERATING TEMPERATURE

Temperature : - 30℃ / +70℃

Demands : Set Antenna and Cable for 96 hours each temperature.

No visual and mechanical changes.

The fitting and mold will be unchanged mechanically during the test.

The antenna shall satisfy the electrical data

9. HUMIDITY

Condition : 90% ~ 95% / +40℃

Measuring method

Antenna is placed in climatic chamber for 96 hours.

Antenna is taken out from the chamber and measured

after another 24 hours in room temperature

Demands : No visual and mechanical changes.

The fitting and mold will be unchanged mechanically during the test.

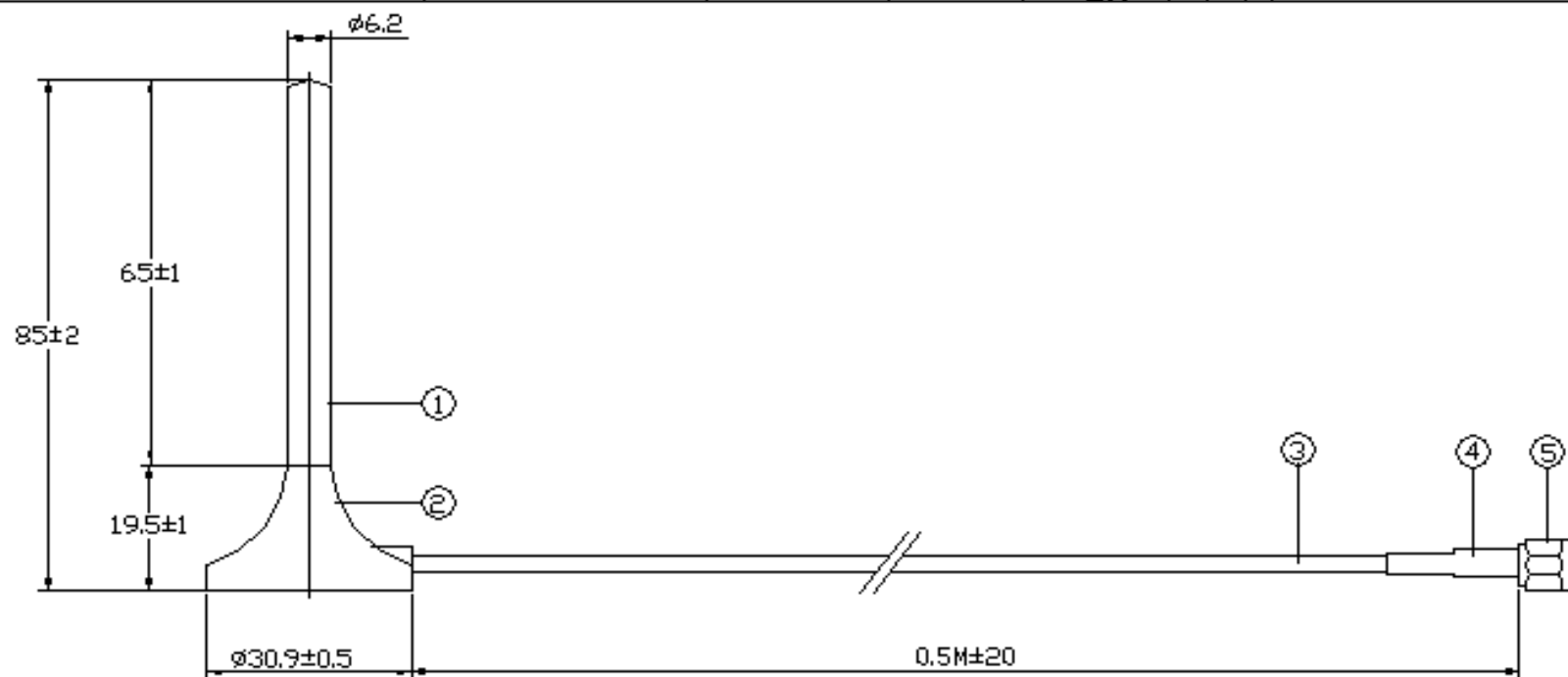
The antenna shall satisfy the electrical data.

10. TEST and Q/C

This specification is according to fixed demands and suitable Hanwool technology Q/C provision.

But it is possible to skip No. 7~9 demands, after consultation with buyer.

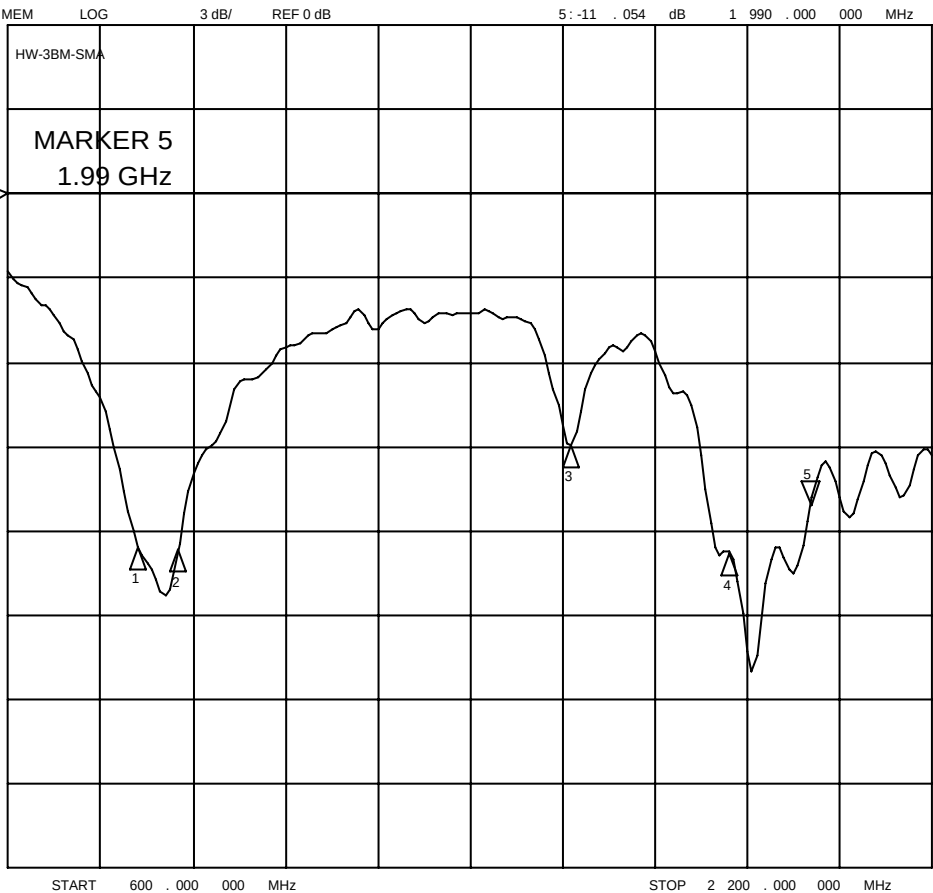
DQ No.	HW-071120-1	Modify No.		Write	Wan-choul. Lee
Supply to	TELIT WIRELESS	Date	2007.11.20	Approval	Chang-gi. Nam



5	SMA(Male) CRIMP TYPE	BRASS	GOLD-PLATING
4	SHRINKABLE TUBE	PO	BLACK-COLOR
3	COAX-CABLE	RG-174	BLACK-COLOR
2	COVER	ABS	BLACK-COLOR
1	SLEEVE	URETHANE	BLACK-COLOR
No.	PART NAME	MATERIAL	FINISH
TITLE	Triple Antenna Assy	MODEL	HW-3BM-SMA
Drawn	Checked	Approval	Date
W.C.LEE		C.G.NAM	07.05.25

15 Jun 2004 22:47:53

CH1

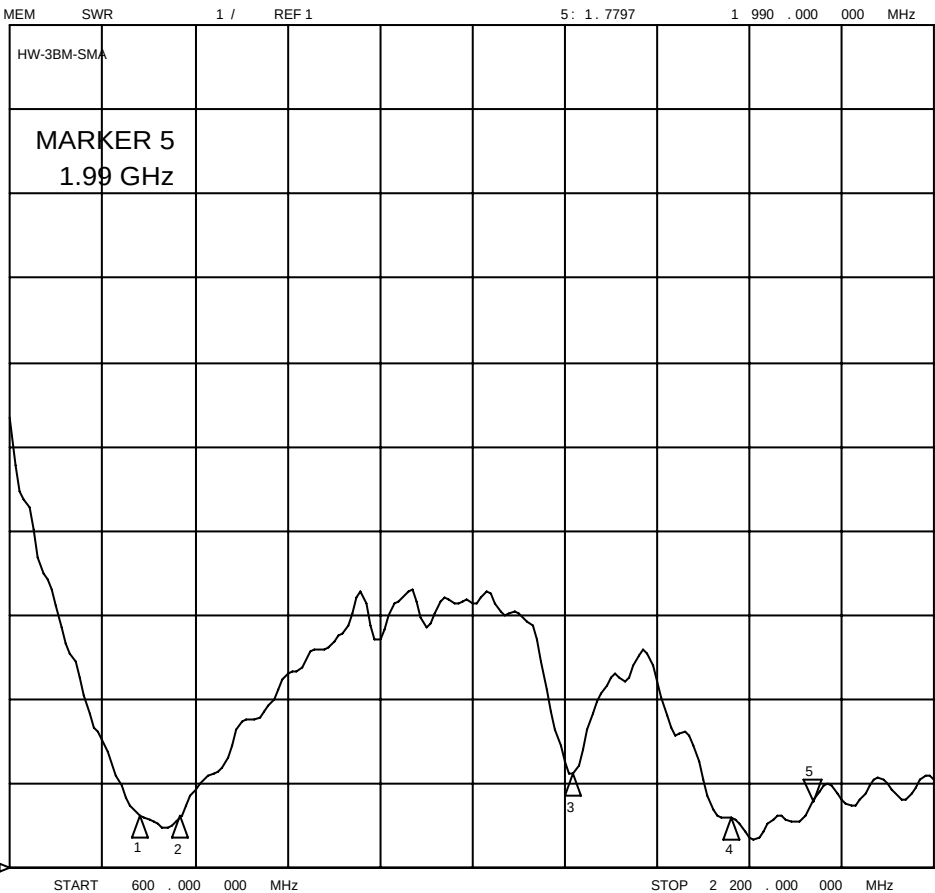


CH1 Markers

- 1 : -12 . 557 dB
824 . 000 MHz
- 2 : -12 . 679 dB
894 . 000 MHz
- 3 : -8 . 9691 dB
1. 57500 GHz
- 4 : -12 . 786 dB
1. 85000 GHz
- 5 : -12 . 786 dB
1. 85000 GHz

MARKER PARAM	Channel 1	Channel 2	Channel 3	Channel 4
MARKER 1	824 .000000MHz -12 .557 dB	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 2	894 .000000MHz -12 .679 dB	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 3	1575 .000000MHz -8 .9691 dB	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 4	1850 .000000MHz -12 .786 dB	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 5	1990 .000000MHz -11 .054 dB	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MKR STIM OFFSET	0.000000MHz 0 dB	0.000000MHz 0 dB	0.000000MHz .0000 dB	0.000000MHz 0 dB
REFERENCE MARKER PLACEMENT	OFF CONTINUOUS	OFF CONTINUOUS	OFF CONTINUOUS	OFF CONTINUOUS
MARKER SEARCH	OFF	OFF	OFF	OFF
TARGET VALUE	-3 dB	-3 dB	-3 dB	-3 dB
MKR WIDTH VALUE	-3 dB	-3 dB	-3 dB	-3 dB
	OFF	OFF	OFF	OFF
MARKER TRACKING	OFF	OFF	OFF	OFF
SMOOTH APERTURE	1 % SPAN	1 % SPAN	1 % SPAN	1 % SPAN
	OFF	OFF	OFF	OFF
PHASE OFFSET	0 °	0 °	0 °	0 °
ELECTRICAL DELAY	0 s	0 s	0 s	0 s

CH1



- CH1 Markers
- 1: 1.6163824 .000 MHz
 - 2: 1.6068894 .000 MHz
 - 3: 2.10591.57500 GHz
 - 4: 1.59571.85000 GHz

MARKER PARAM	Channel 1	Channel 2	Channel 3	Channel 4
MARKER 1	824 .000000MHz 1. 6163	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 2	894 .000000MHz 1. 6068	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 3	1575 .000000MHz 2. 1059	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 4	1850 .000000MHz 1. 5957	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MARKER 5	1990 .000000MHz 1. 7797	0.000000MHz OFF	0.000000MHz OFF	0.000000MHz OFF
MKR STIM OFFSET	0.000000MHz 0	0.000000MHz 0 dB	0.000000MHz .0000 dB	0.000000MHz 0 dB
REFERENCE MARKER	OFF	OFF	OFF	OFF
PLACEMENT	CONTINUOUS	CONTINUOUS	CONTINUOUS	CONTINUOUS
MARKER SEARCH	OFF	OFF	OFF	OFF
TARGET VALUE	-3	-3 dB	-3 dB	-3 dB
MKR WIDTH VALUE	-3	-3 dB	-3 dB	-3 dB
	OFF	OFF	OFF	OFF
MARKER TRACKING	OFF	OFF	OFF	OFF
SMOOTH APERTURE	1 % SPAN	1 % SPAN	1 % SPAN	1 % SPAN
	OFF	OFF	OFF	OFF
PHASE OFFSET	0 °	0 °	0 °	0 °
ELECTRICAL DELAY	0 s	0 s	0 s	0 s