

MICROWAVE PRODUCTS

Chip Dielectric Antenna (CDA)

W 1 series



for Bluetooth / WLAN2.4G

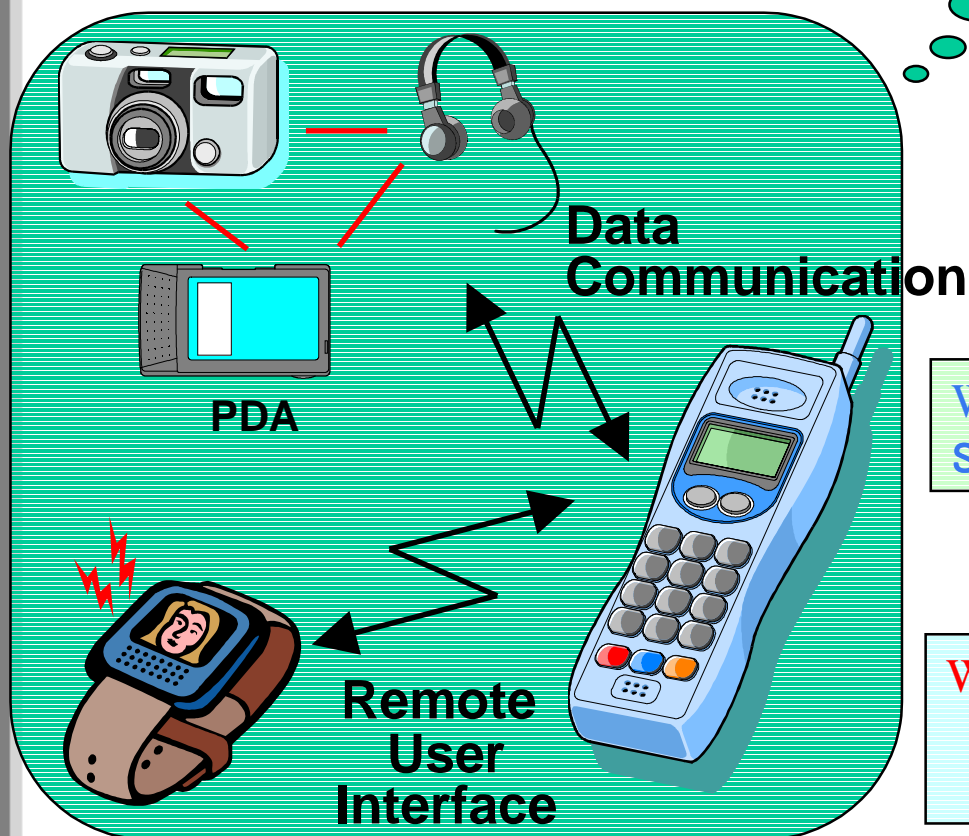
<Module size PCB>

PRODUCT DEPARTMENT 2

KANAZAWA MURATA MFG. CO., LTD.

2.4GHz Local Area Network Application

muRata



Compact sets need small & right antenna for communication.

Need to reduce the design cost and span

We recommend to adjust the center frequency and matching with external circuit

We proposed M1 series (ANCM12G45SAA072/075)

Size : $3 \times 9 \times t2$ / $3 \times 9 \times t1$ Weight : 0.22g/0.11g

We changed some process for cost down.

We release Low Cost type in Oct. 2002 :

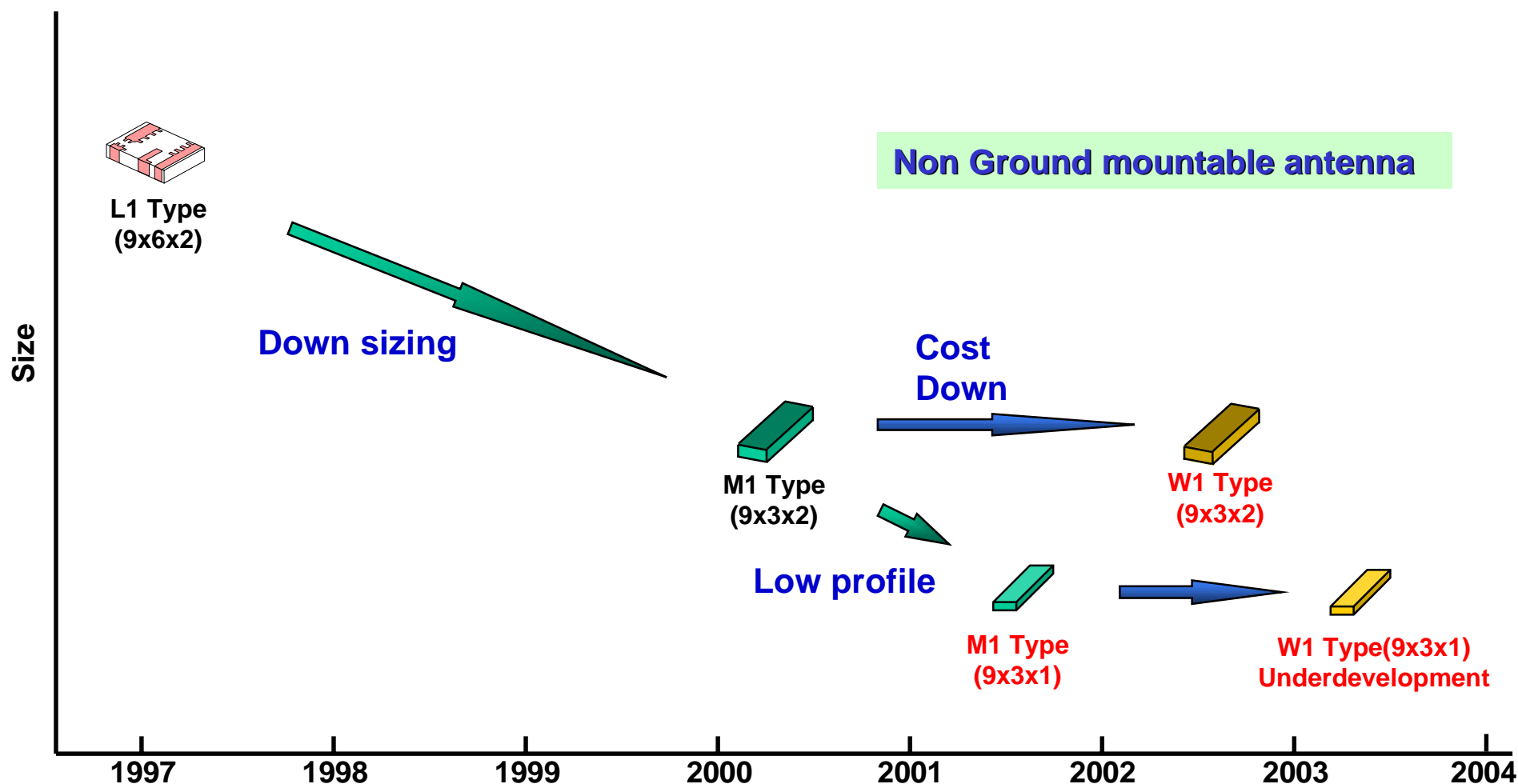
< W1 series (ANCM12G45SAA110) >

Size : $3 \times 9 \times t2$ Weight : 0.22g

And...

We will release the low profile type : $3 \times 9 \times t1$ / 0.11g in 2003Q2.

CDA Products Line up for 2.4GHz



We have also Ground mountable type : G*. If you'd like to use this type, let us talk with us regarding we can arrange or not.

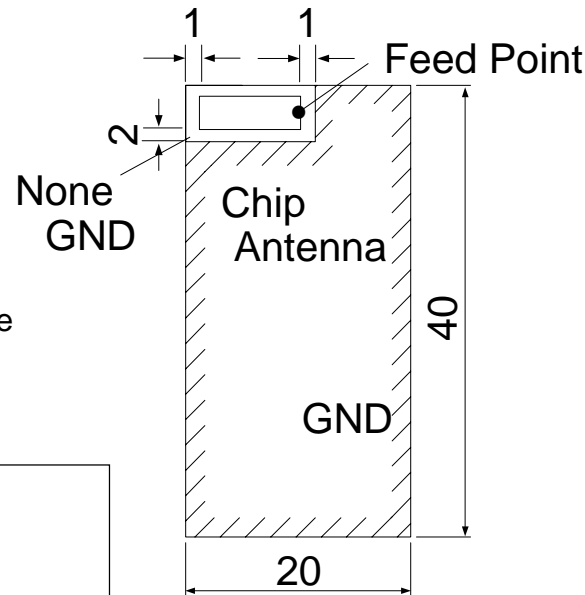
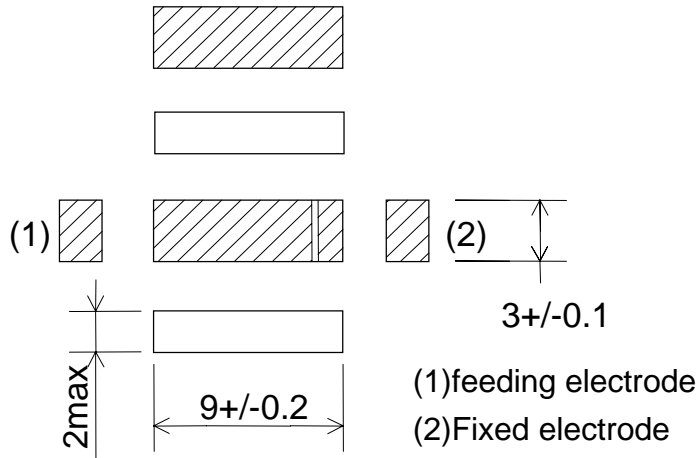
CDA Products Line Up for 2.4GHz



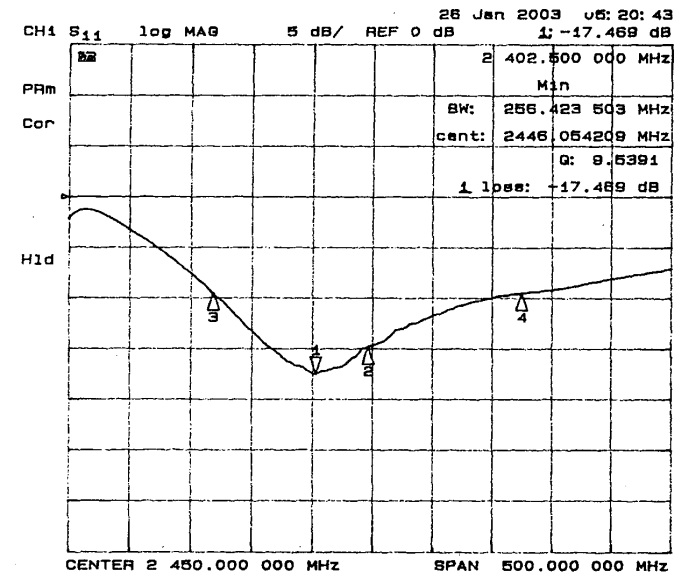
	W1 Series(new)		M 1 Series
Mounting condition	No Ground		
Part Number	ANC <u>W</u> 12G45SA A 110	ANC <u>W</u> 12G45SA A *** (Underdevelopment)	ANCM <u>1</u> 2G45SA A 075
Size	3X9X2	3X9X1	3X9X1
Features	<ul style="list-style-type: none"> > Small in size > Light in weight > Wide bandwidth > Center frequency adjustment with external matching circuit > W1 series is Low Cost type. This is the New Line up instead of M 1 series ANCM 12G45SAA072 		
Application	<ul style="list-style-type: none"> > Hand held phone > PDA > Digital Camera > Any other hand held products > Others 		

How to use of W1 Series and M1 series

Frequency Adjustment with external matching circuit

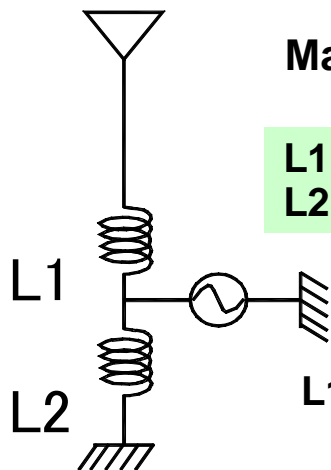


< Murata Standard PCB >



< Return Loss >

BW : 255.4 MHz(VSWR \leq 2)



Matching circuit

L1 : frequency adjust
L2 : matching adjust

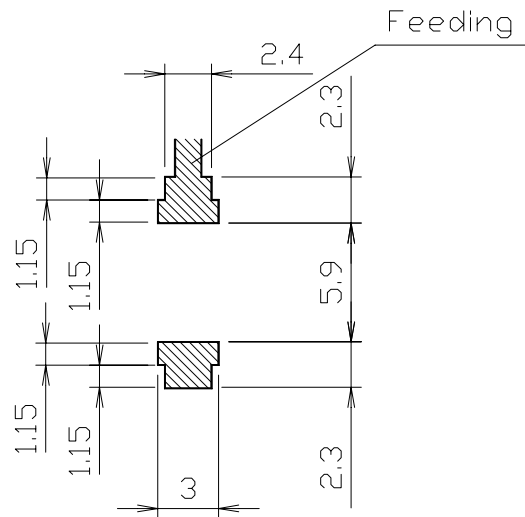
L1 and L2 are fixed by circumstance

Chip Dielectric Antenna - W1 Series -

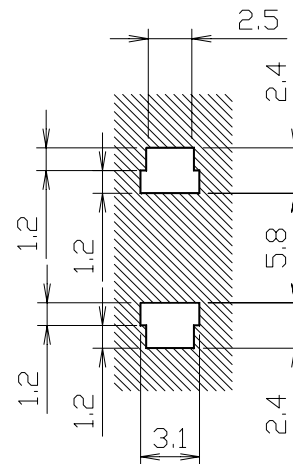


Operation Temp.	-20 to +60 degree C
Storage Temp.	-10 to +40 degree C
Polarization	Linear
Frequency	2450 MHz.
Range	fo +/- 50.0 MHz
V.S.W.R at BW	2.5 Max.
Impedance	50 Ω

Note. : The electrical characteristics are influenced by the land pattern, PCB size, case and so on.



Recommended Land Pattern



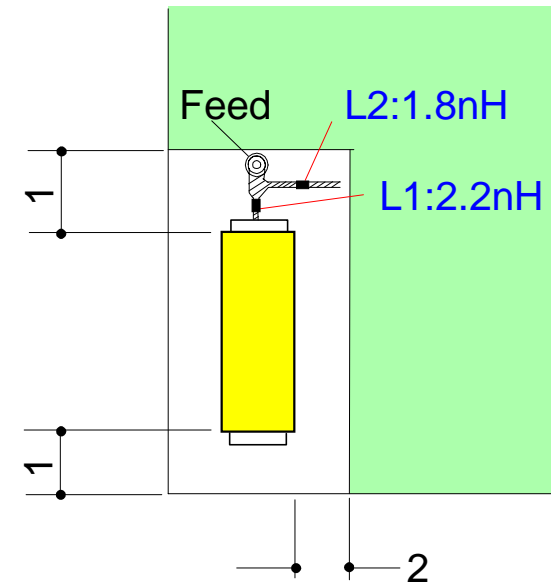
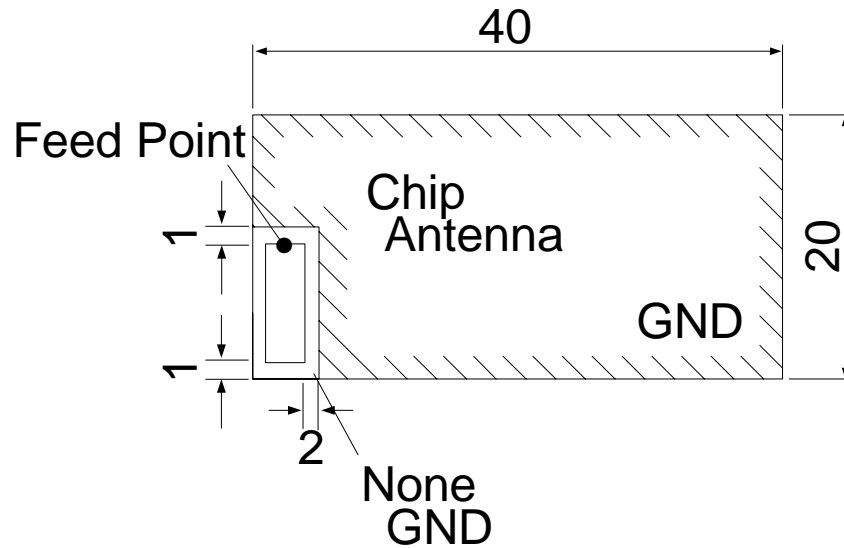
Recommended Resist pattern

OTHERWISE SPECIFIED : +/-0.2
DIMENSION : mm

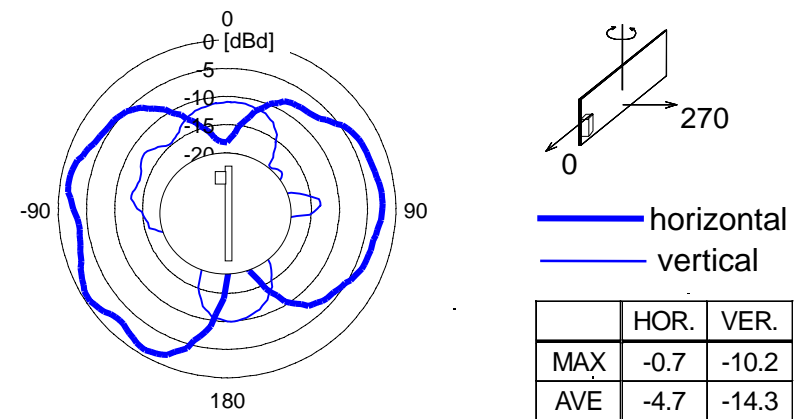
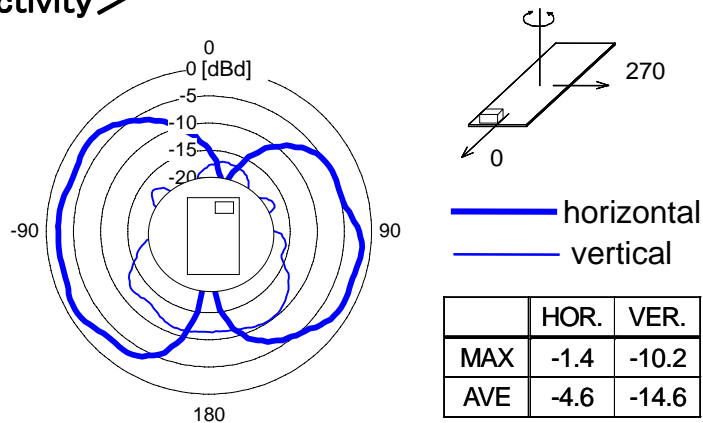
Chip Dielectric Antenna - W1 Series -



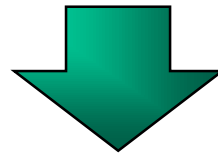
<Evaluation Board>



<Directivity>

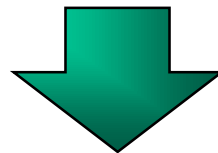


1 P/N antenna for any hand held products
(Non customized antenna)



Because

- Adjustable the center frequency and matching by **external circuit** on the PCB
- Wide Band-width
- Used Simple Process to Make Antenna Electrode

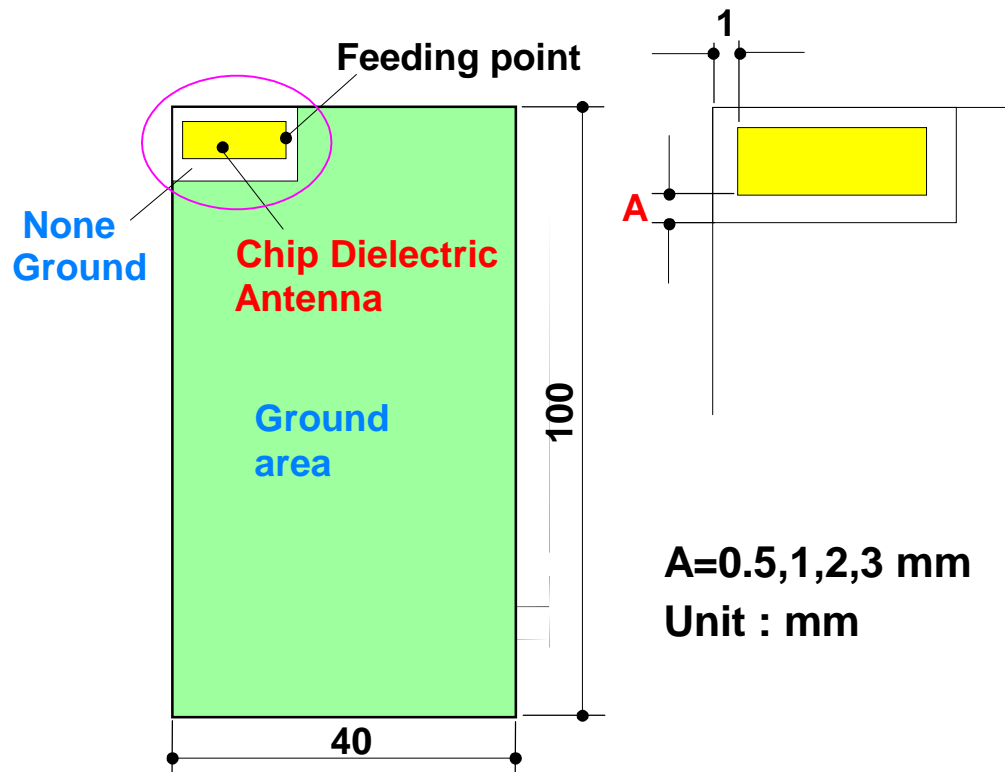


That's why

Low Cost

W 1 Series Application Data (1)

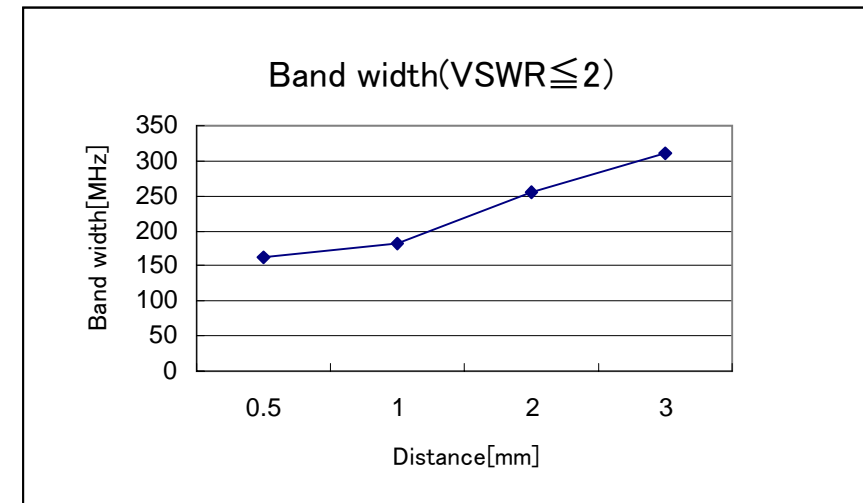
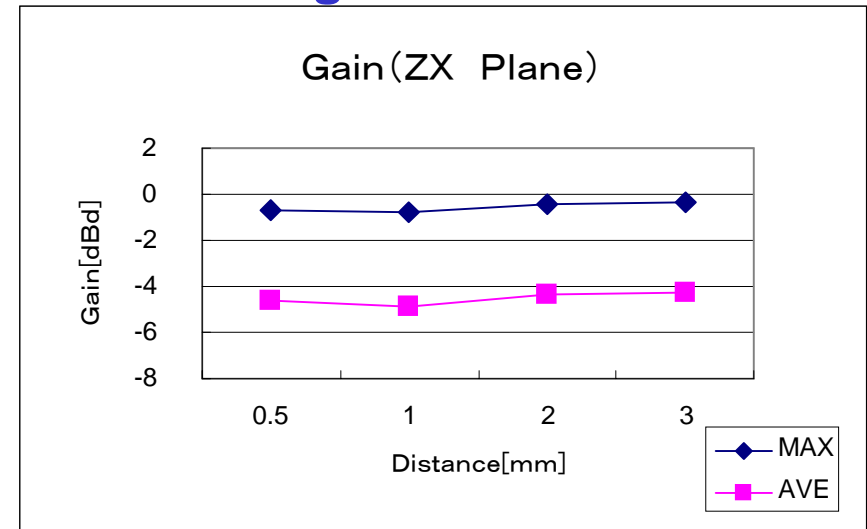
◆ The influence by the Distance [A] between CDA and ground



<Notice>

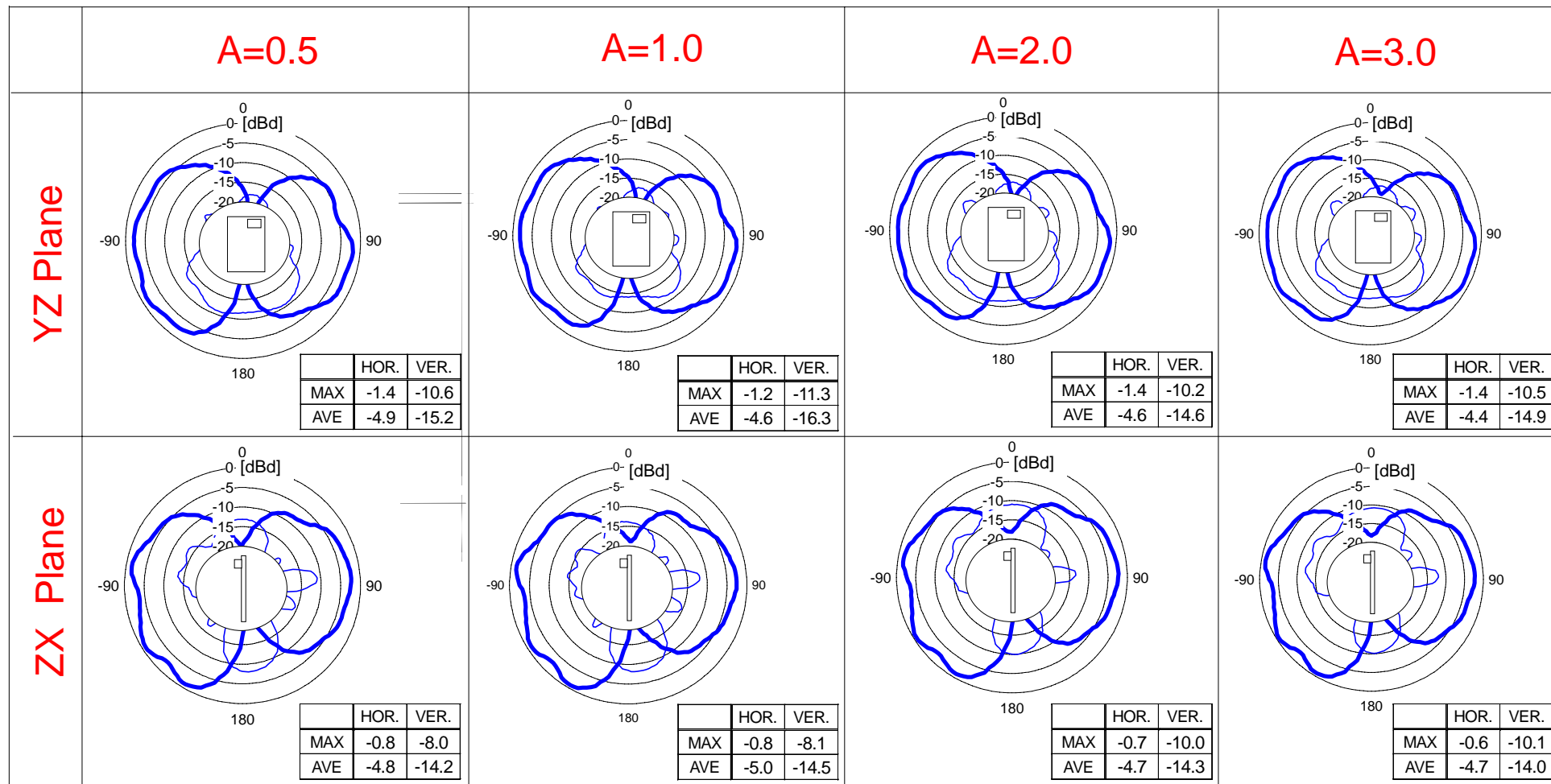
>Other conditions are same as Page 7.

>Matching circuit is changed for adjusting by each condition.



W 1 Series Application Data (1)

◆ The influence by the Distance [A] between CDA and ground



— horizontal — vertical

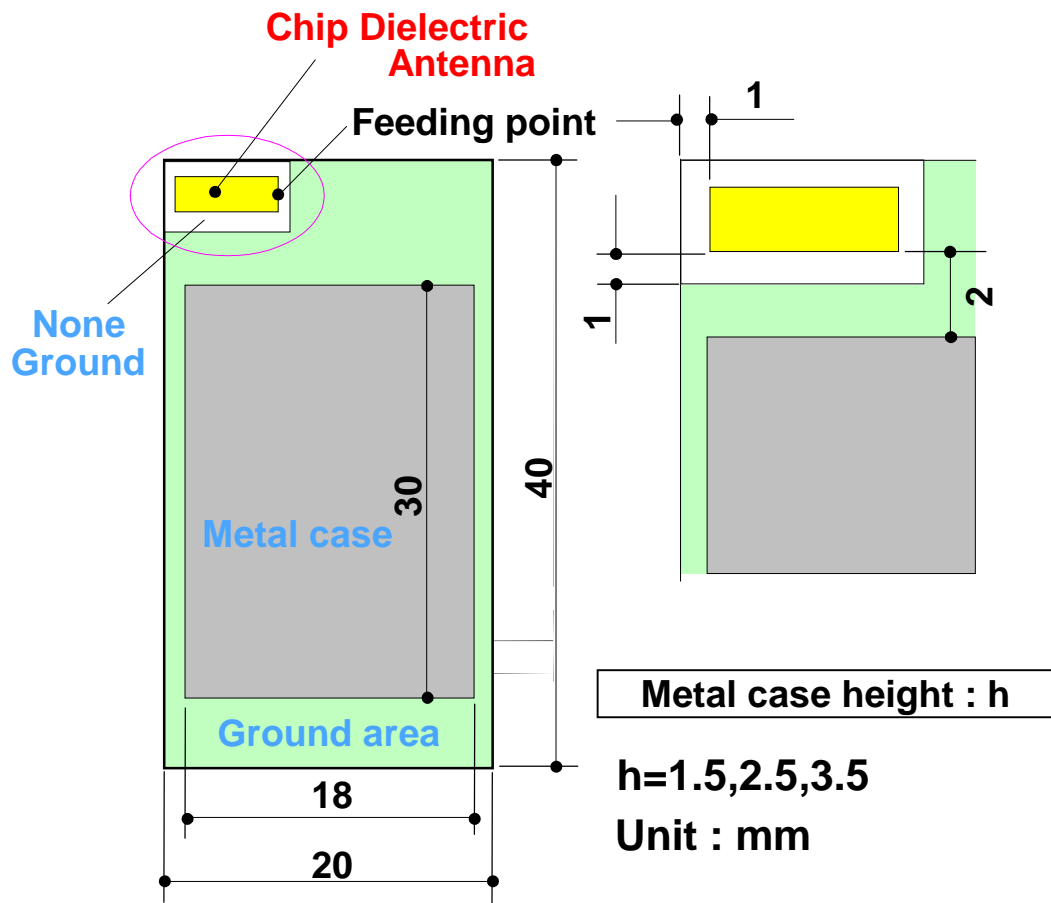
W 1 Series Application Data (1)

◆ The influence by the Distance [A] between CDA and ground

	A=0.5	A=1.0	A=2.0	A=3.0
Return Loss				
External Circuit	<p>L1=1.6 nH</p> <p>L2=1.3 nH</p>	<p>L1=1.8 nH</p> <p>L2=1.5 nH</p>	<p>L1=2.2 nH</p> <p>L2=1.8 nH</p>	<p>L1=2.2 nH</p> <p>L2=2.0 nH</p>
B.W.[MHz] (VSWR<2)	162.9 MHz	181.8 MHz	256.4 MHz	312.2 MHz

W 1 Series Application Data (2)

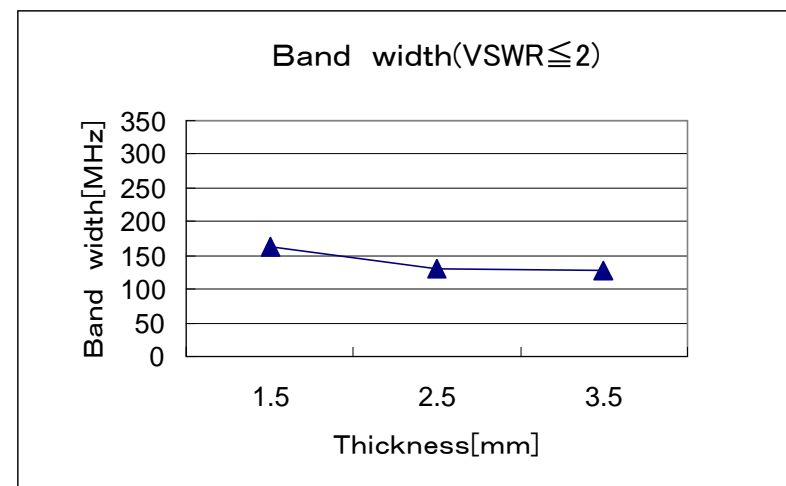
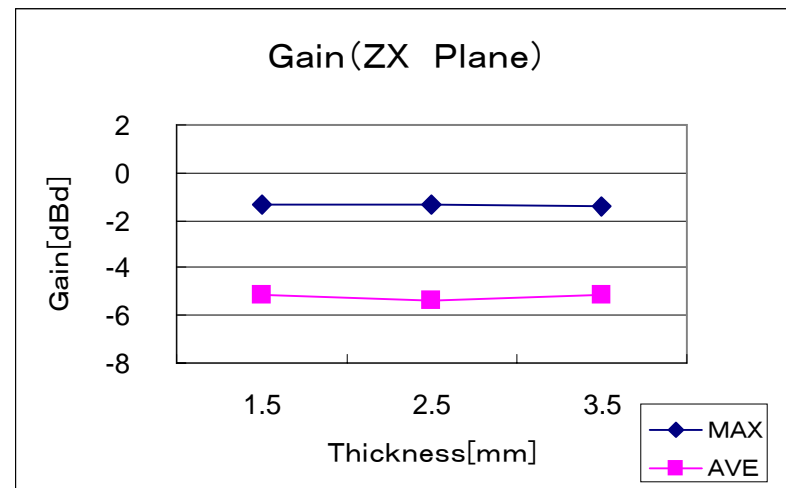
◆ The influence by the Metal case height [h]



<Notice>

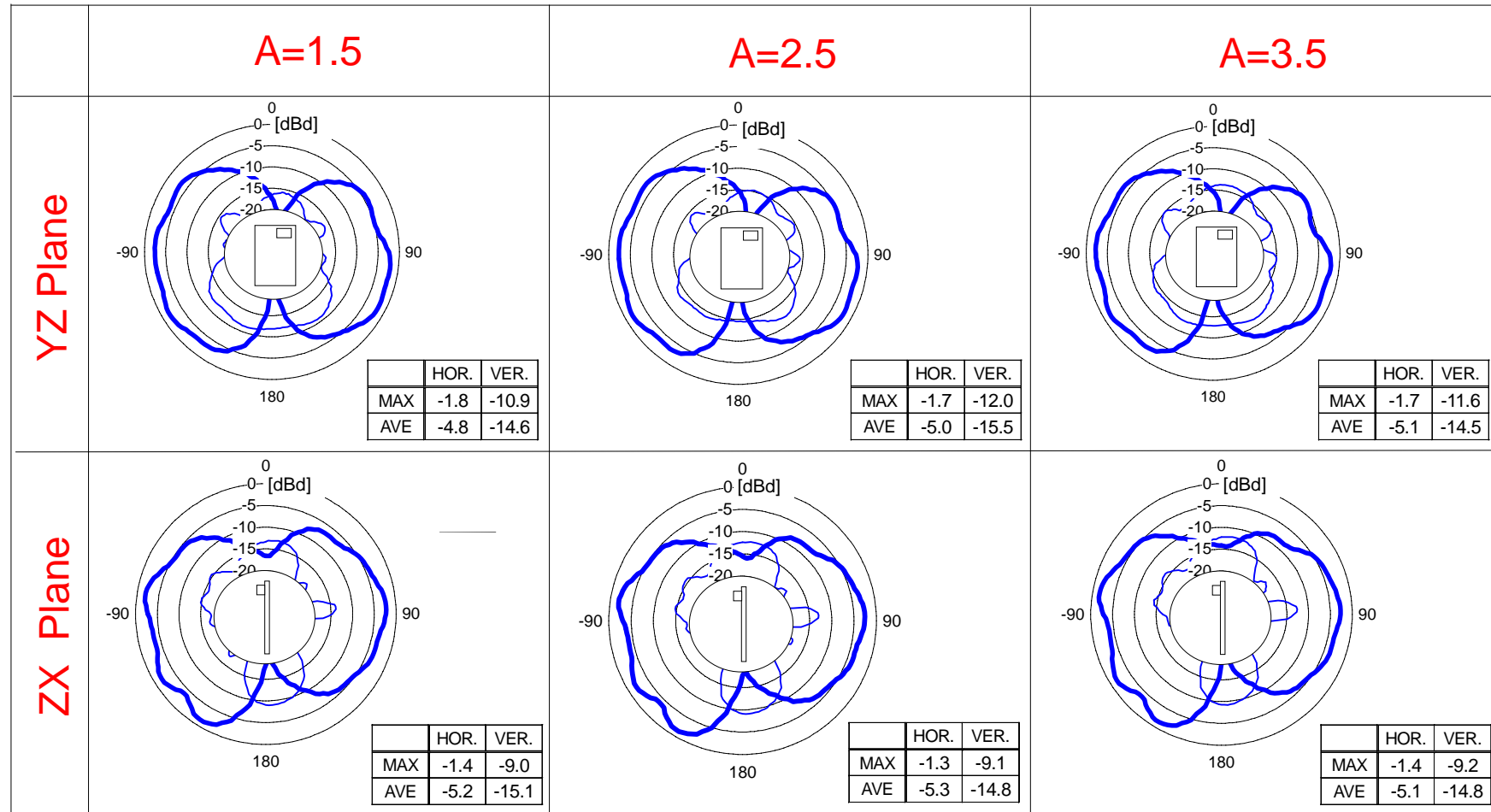
>Other conditions are same as Page 7.

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W 1 Series Application Data (2)

◆ The influence by the Metal case height [h]



— horizontal — vertical

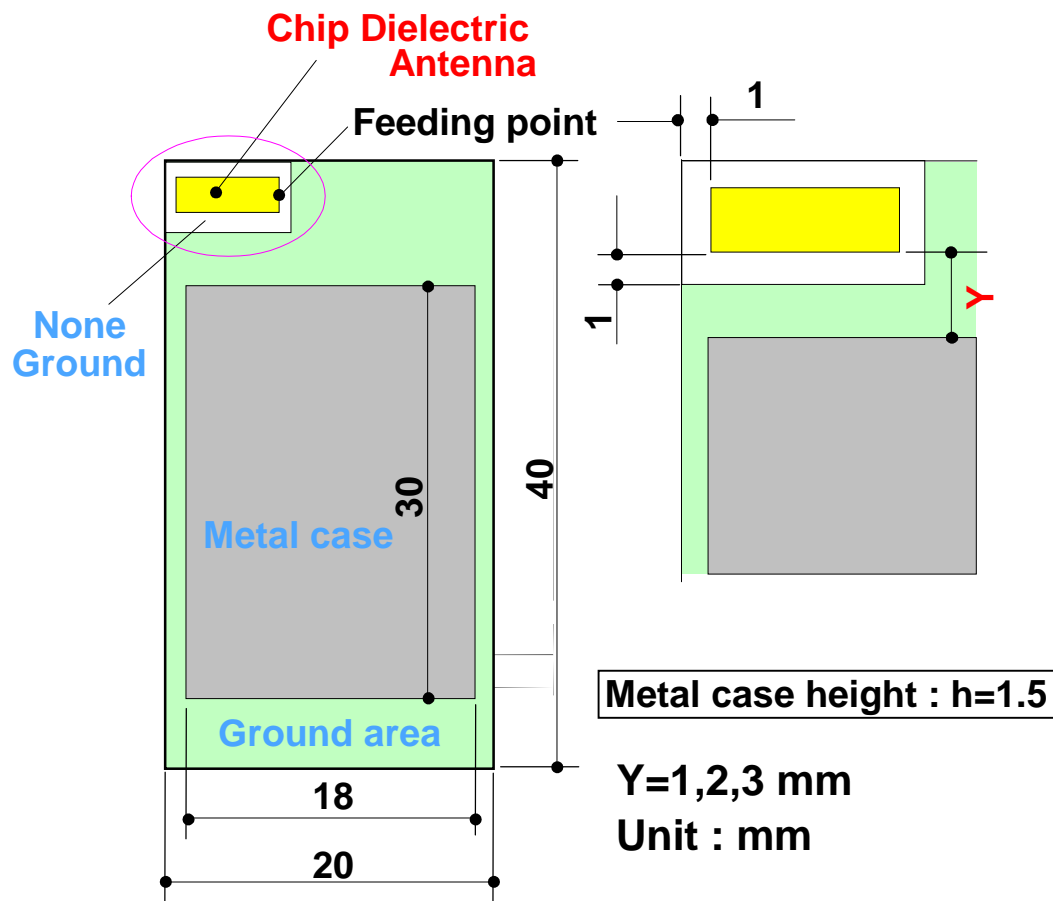
W 1 Series Application Data (2)

◆ The influence by the Metal case height [h]

	A=1.5	A=2.5	A=3.5
Return Loss			
External Circuit	$L1=1.8 \text{ nH}$ $L2=1.5 \text{ nH}$	$L1=1.8 \text{ nH}$ $L2=1.3 \text{ nH}$	$L1=1.8 \text{ nH}$ $L2=1.3 \text{ nH}$
B.W.[MHz] (VSWR<2)	164.5 MHz	128.8 MHz	127.3 MHz

W 1 Series Application Data (3)

◆ The influence by the Distance [Y] between CDA and Metal case

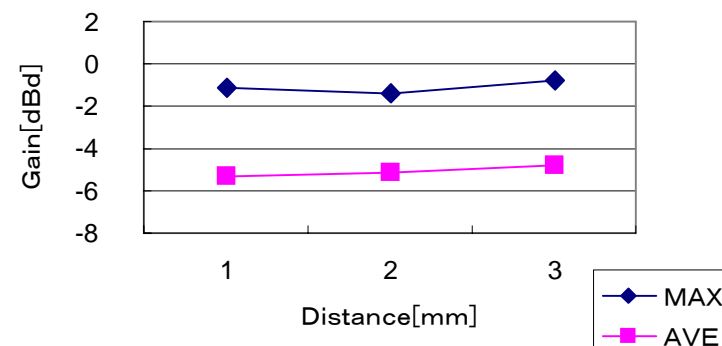


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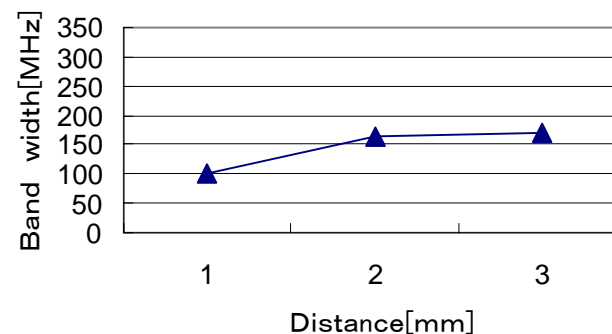
>Other conditions are same as Page 7.

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Gain (ZX Plane)

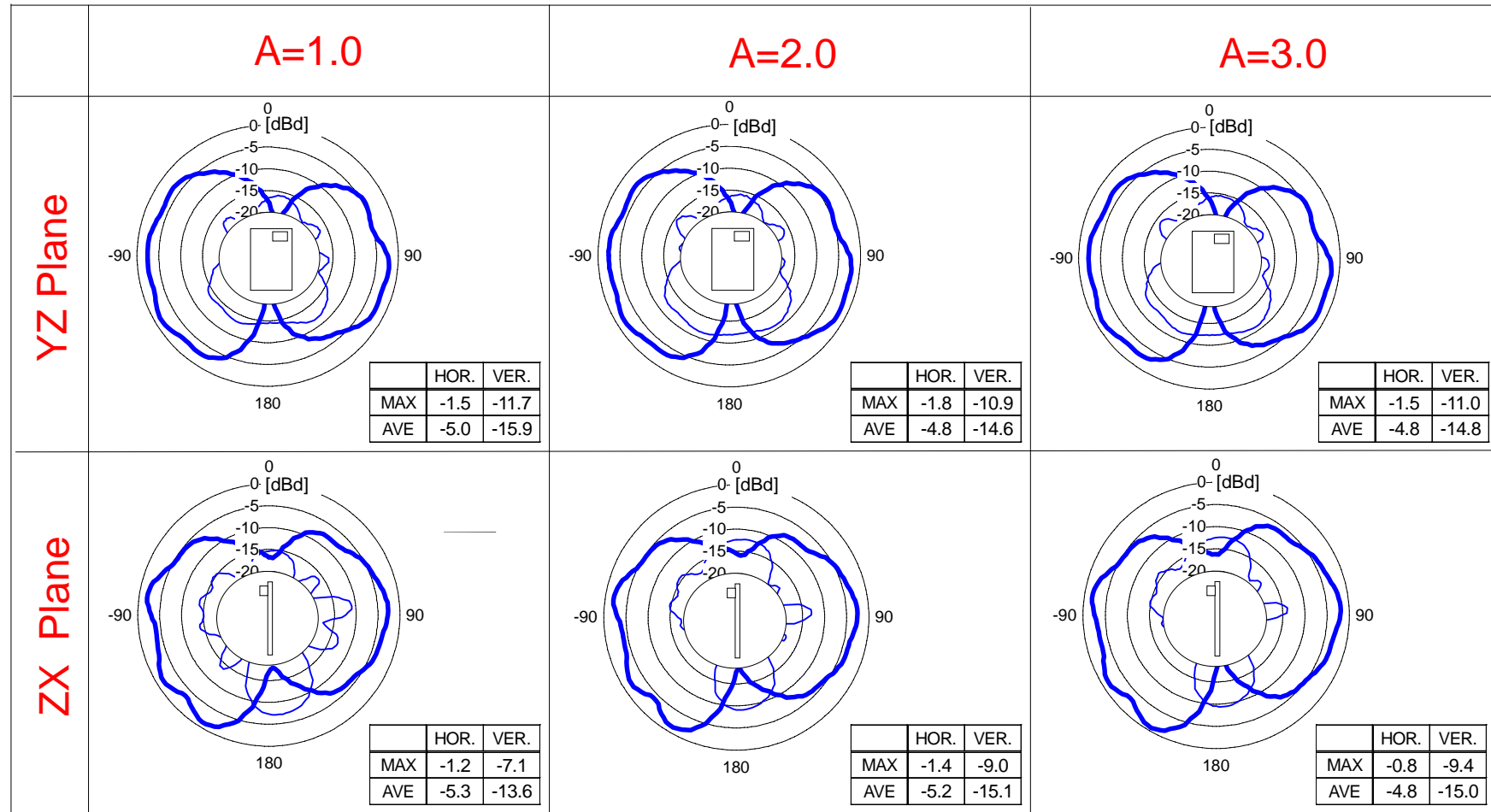


Band width (VSWR ≤ 2)



W 1 Series Application Data (5)

◆ The influence by the Distance [Y] between CDA and Metal case



— horizontal — vertical

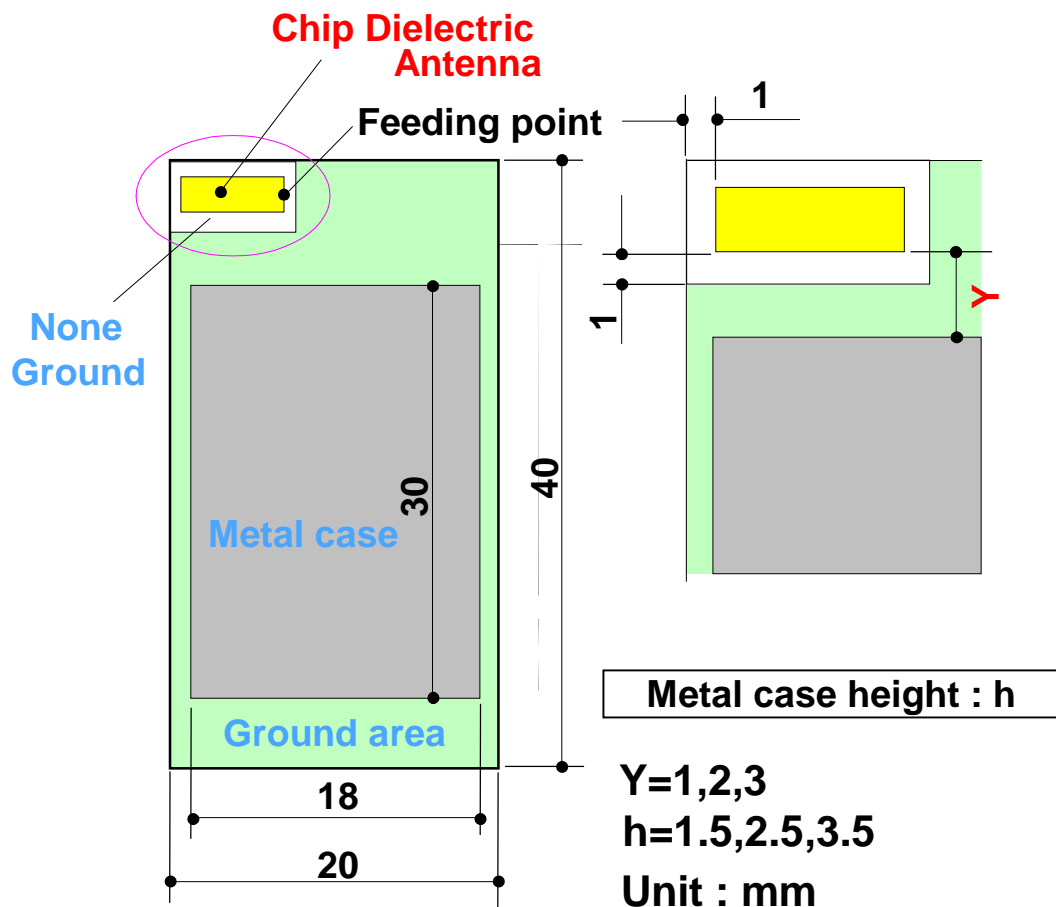
W 1 Series Application Data (5)

◆ The influence by the Distance [Y] between CDA and Metal case

	A=1.0	A=2.0	A=3.0
Return Loss	<p>CH1 S₁₁ log MAG 5 dB/ REF 0 dB 25 Jan 2003 15:40:54 2: 436.250 000 MHz Min BW: 100.000 007 MHz cent: 244.058024 MHz Q: 24.217 1 loss: -25.117 dB CENTER 2 436.000 000 MHz SPAN 500.000 000 MHz</p>	<p>CH1 S₁₁ log MAG 5 dB/ REF 0 dB 25 Jan 2003 15:47:00 2: 430.000 000 MHz Min BW: 100.000 007 MHz cent: 244.203362 MHz Q: 14.882 1 loss: -22.852 dB CENTER 2 430.000 000 MHz SPAN 500.000 000 MHz</p>	<p>CH1 S₁₁ log MAG 5 dB/ REF 0 dB 25 Jan 2003 16:10:24 2: 457.702 184 GHz Min BW: 100.000 007 MHz cent: 2457.702184 GHz Q: 14.882 1 loss: -17.095 dB CENTER 2 450.000 000 MHz SPAN 500.000 000 MHz</p>
External Circuit	<p>L1=1.8 nH L2=1.3 nH</p>	<p>L1=1.8 nH L2=1.5 nH</p>	<p>L1=2.0 nH L2=1.5 nH</p>
B.W.[MHz] (VSWR<2)	101.0 MHz	164.5 MHz	171.1 MHz

W 1 Series Application Data (4)

◆ The influence by the Distance [x] between CDA and Metal case



<Notice>

>Other conditions are same as Page 7.

>Matching circuit is changed for adjusting by each condition.

