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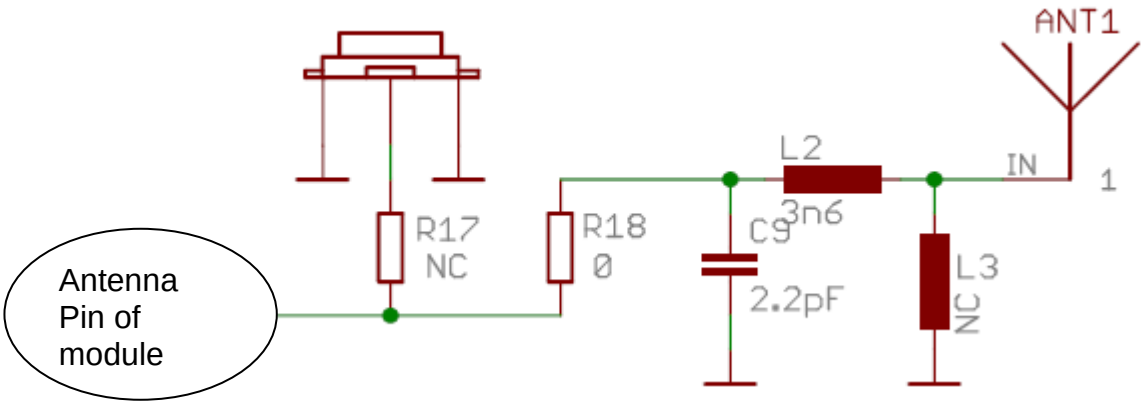
1. TRACE LAYOUT AND DIMENSIONS INCLUDING SPECIFIC DESIGN

1.1. DETAILED ENGINEERING REFERENCE

1.1.1. Answer 11 item 1a:

The antenna trace has to be matched to 50ohm impedance. To keep this the recommended antenna trace has to be used with the following components and design.

Schematic:



If using UFL connector R17 has to be mounted with 0Ohm resistor instead of R18.

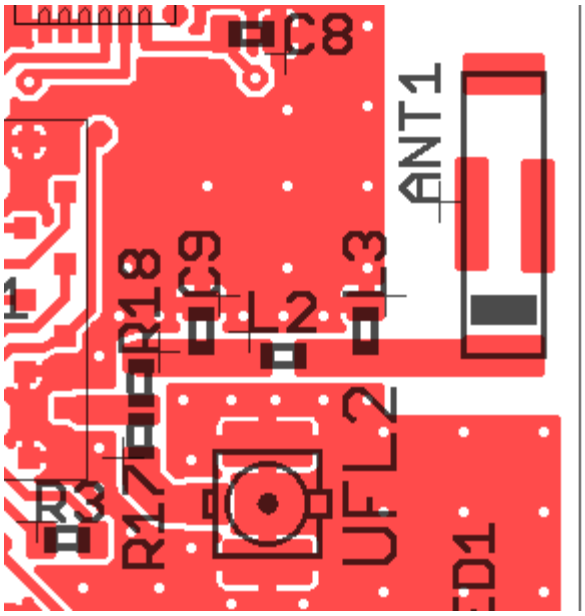
Layout of antenna trace:

Trace width 0.9mm

Trace distance to GND 0.2mm

Trace distance to L2 GND 35µm

Trace length shall not exceed 2cm



1.1.2. Answer 11 item 1b, c:

Only chip antennas listed below can be used:

Johanson partnumber 2450AT43B100

General Specifications

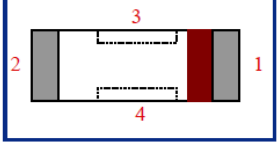
Part Number	2450AT43B100
Frequency Range	2400 - 2500 Mhz
Peak Gain	1.3 dBi typ. (XZ-V)
Average Gain	-0.5 dBi typ. (XZ-V)
Return Loss	9.5 dB min.

Input Power	2W max.
Impedance	50 Ω
Reel Quanity	1,000
Operating Temperature	-40 to +85°C
Storage Temperature	+5 to +35°C, Humidity: 45-75%RH, 12 mos. Max

P/N Suffix	**Packaging Style**	Bulk	Suffix = S	Eg. 2450AT43B100S
		T & R	Suffix = E	Eg. 2450AT43B100E
	Termination Style	100% Tin	Suffix = None	Eg. 2450AT43B100(E or S)
		Tin / Lead	Please consult Factory	

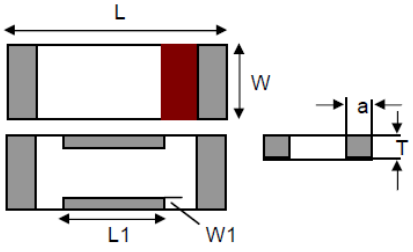
Terminal Configuration

No.	Function
1	Feed Point
2	NC
3	NC
4	NC



Mechanical Dimensions

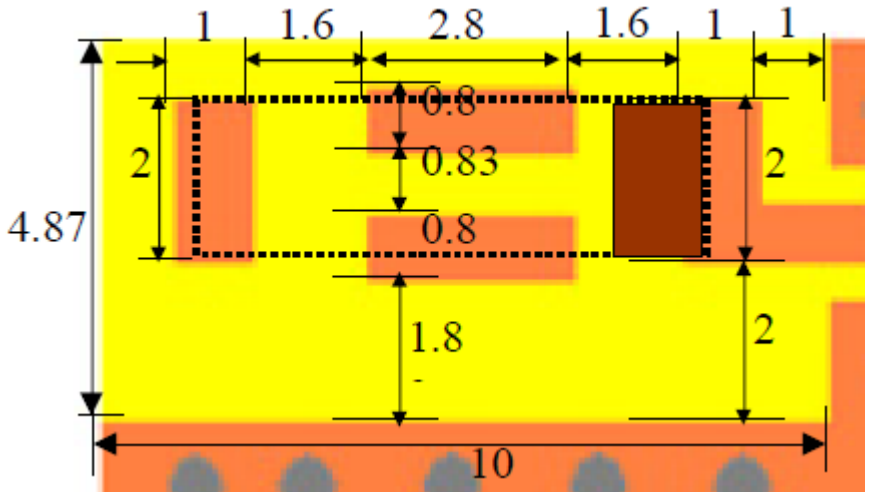
	In	mm
L	0.276 ± 0.008	7.00 ± 0.20
W	0.079 ± 0.008	2.00 ± 0.20
L1	0.102 ± 0.008	2.60 ± 0.20
W1	0.020 ± 0.008	0.50 ± 0.20
T	0.079 +.004/-.008	2.00 +0.1/-0.2
a	0.020 ± 0.012	0.50 ± 0.30



Mount these devices with brown mark facing up. Units: mm

Line width should be designed to provide 50Ω impedance matching characteristics.

* Note: Pins 3 & 4, although "NC", must be soldered to its PCB pads for proper electrical operation



1.1.3. Answer 11 item 1d:

Above data for PCB layout can be requested in original Cad format by writing an email to wireless@eu.panasonic.com

1.1.4. Answer 11 item 2:

If using an chip antenna R18, C9, L2 has to be mounted. For C9 the manufacturer has to be Murata 0402/COG/2.2pF/50V. For L2 the manufacturer has to be Murata with part number LQG15HN3N6S02.

1.1.5. Answer 11 item 3:

The impedance S12 of the antenna including the trace shall be measured with a network analyser.

Answer 11 Item 4:

In the production the output power of the radiated emissions shall be measured with a spectrum analyser.

2. HISTORY FOR THIS DOCUMENT

Revision Version	Date Datum	Modification / Remarks Änderungen / Bemerkungen
1.0	12.05.2015	Puplished Version for FCC Website