



[Cheetah]

Yageo 3216 PIFA mode at 2.4GHz Chip Antenna for Compal



Version 04

LTCC R&D, Wireless Components BU

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Application Note of 2.4GHz Antenna

Purpose

Our customer need Yageo to evaluate dual band ceramic chip antenna in 2.4 GHz application. Therefore Yageo carried out an evaluation report for reference.

Test condition:

- (A) Chip antenna information:
- Type: 3216 PIFA (3.2 * 1.6 * 1.2 mm)
 - Part number: CAN4311712112453K
 - Clearance size: 5 * 6 mm

Fig.1 System overview



Application Note of 2.4GHz Antenna



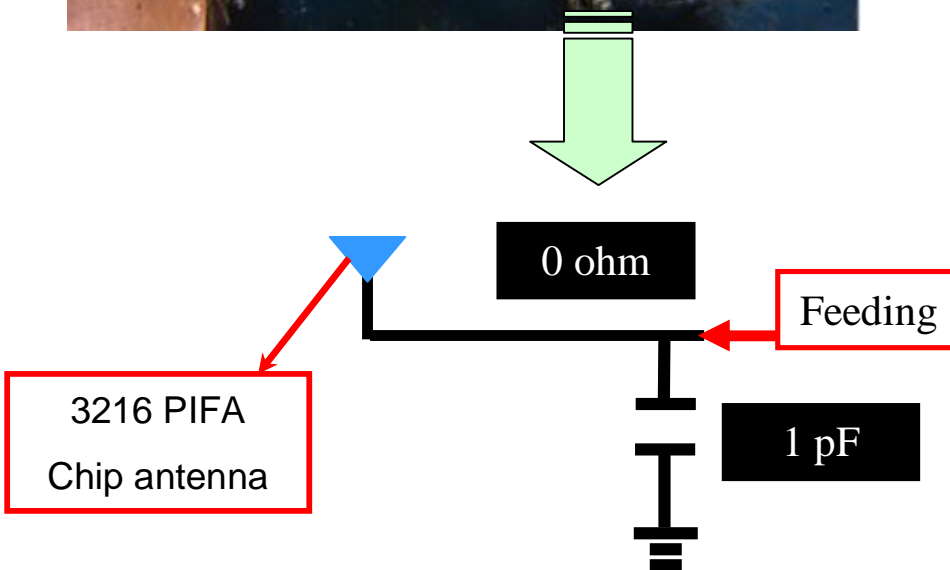
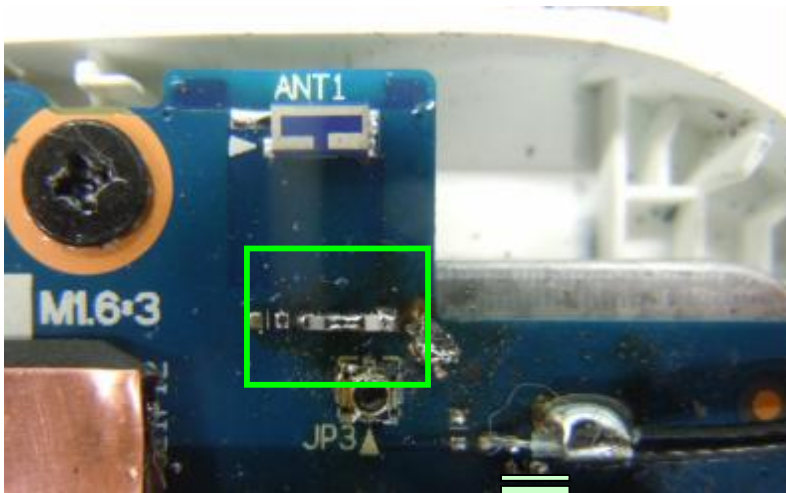
Application Note of 2.4GHz Antenna

Matching Circuit

3216 PIFA mode antenna matching circuit:

- Shunt: 1 pF [P/N: CC0402CRNP09BN1R0 (Yageo)]
- Series: 0 ohm
- Chip antenna: 3216 PIFA mode (P/N: CAN4311712112453K)

Fig.2 Position and Matching Circuit





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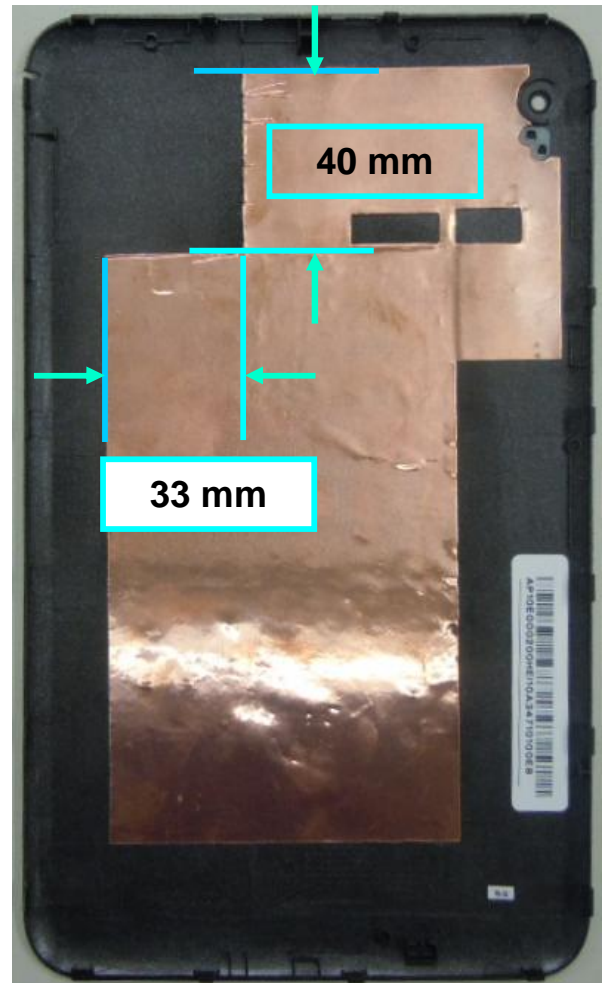
Antenna Window Improvement

To modify antenna window for improving antenna efficiency as
do not change original matching circuit value.

Fig.3 Original antenna window



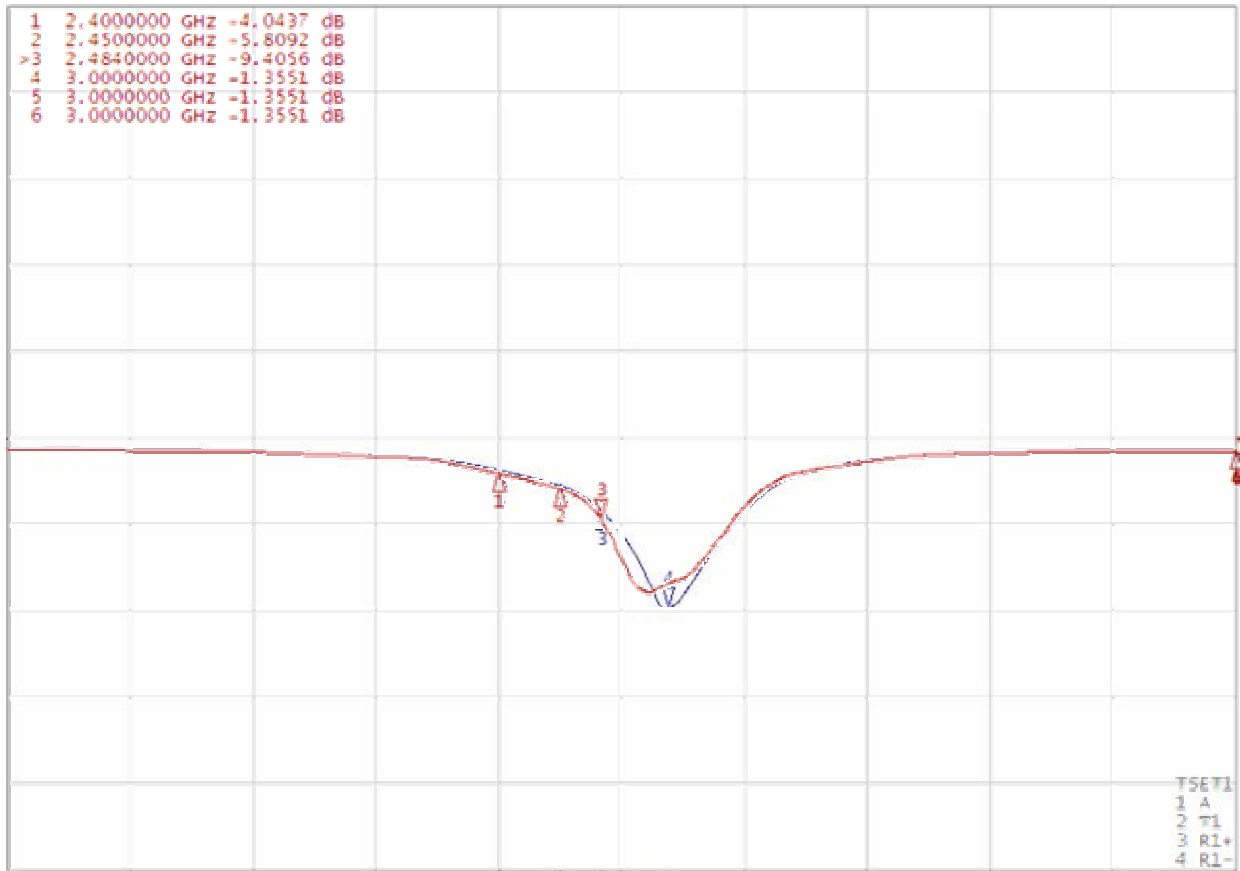
Fig.4 Original antenna window





Application Note of 2.4GHz Antenna

The Measurement of S-Parameter



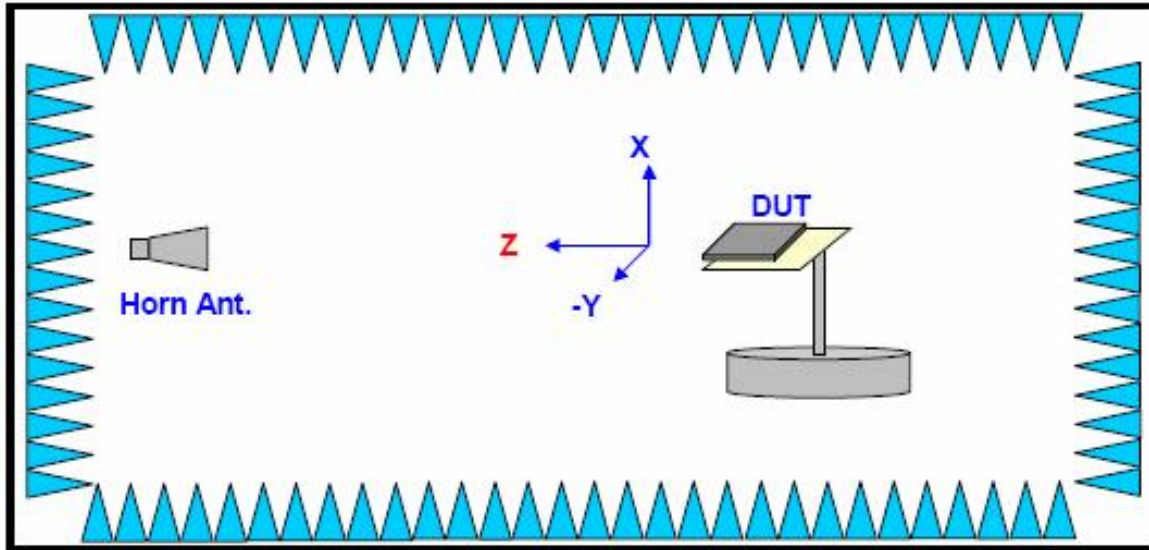
	Frequency (MHz)	S11 (dB)
Original rear cover	2400	-3.4
	2450	-5.3
	2484	-8.3
	Frequency (MHz)	S22 (dB)
Modify copper dimension of rear cover	2400	-4.0
	2450	-5.8
	2484	-9.4

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ETS Chamber





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Conclusion

From the test result, only modify copper of rear cover, that frequency bandwidth just has a little shift to lower band.

Yageo still suggest customer to change matching circuit as V3 report.

	Frequency (MHz)	S11 (dB)	Peak gain (dBi)	Ave. gain (dBi)	Efficiency (%)
Original rear cover	2400	-3.4	-2.2	-5.8	26.2
	2450	-5.3	-0.2	-4.1	38.8
	2484	-8.3	0.1	-3.7	41.7
	Frequency (MHz)	S22 (dB)	Peak gain (dBi)	Ave. gain (dBi)	Efficiency (%)
Modify copper dimension of rear cover	2400	-4.0	-2.3	-5.7	26.7
	2450	-5.8	-0.3	-4.0	39.7
	2484	-9.4	-0.4	-3.6	43.3



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