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Article DOI: 10.1002/mop.30848
Internal Article ID: 14436044
Article: Dual-wideband band pass filter using folded cross-stub stepped impedance resonator
Journal: Microwave and Optical Technology Letters

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# Dual-wideband band pass filter using folded cross-stub stepped impedance resonator

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| Journal: | *Microwave and Optical Technology Letters* |
| Manuscript ID | Draft |
| Wiley - Manuscript type: | Research Article |
| Date Submitted by the Author: | n/a |
| Complete List of Authors: | Firmansyah, Teguh; University of Sultan Ageng Tirtayasa, Electrical Engineering<br>Praptodinoyo, Supriyanto; Universitas Sultan Ageng Tirtayasa, Electrical Engineering<br>Wiryadinata, Romi; Universitas Sultan Ageng Tirtayasa, Electrical Engineering<br>Suhendar, Suhendar; Universitas Sultan Ageng Tirtayasa, Electrical Engineering<br>Wardoyo, Siswo; Universitas Sultan Ageng Tirtayasa<br>Alimuddin, Alimuddin; Universitas Sultan Ageng Tirtayasa, Electrical Engineering<br>Chairunissa, Cindy; university of edinburgh<br>Alaydrus, Mudrik; University of Mercu Buana,<br>Wibisono, Gunawan; Universitas Indonesia, Electrical Engineering |
| Keywords: | dual-wideband band pass filter, stepped impedance resonator, transmission zero |
| | |

# Dual-wideband band pass filter using folded cross-stub stepped impedance resonator

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**Abstract:**

In this letter, a dual-wideband band pass filter (DW-BPF) using cross-stub stepped impedance resonator (CS-SIR) was simulated, fabricated, and measured accordingly. The CS-SIR was used to replace the conventional half-wavelength open stub resonators. Compare to the conventional resonator, the CS-SIR resonator has a wider fractional bandwidth and ease of fabrication. Furthermore, the DB-BPF was fabricated on microstrip with $\varepsilon r$= 4.4, h=0.8 mm, and tan $\delta$= 0.0265. The DW-BPF with CS-SIR achieves transmission-coefficients/fractional-bandwidth of 0.22 dB/94.19 % and 1.87 dB/33.52% at 1.14 GHz and 2.31 GHz, respectively. In order to reduce the filter size, a folded CS-SIR (FCS-SIR) was also proposed. As a result, this BPF size was reduced to 53%, with the BPF size of 0.30 $\lambda_G^2$ and 0.14 $\lambda_G^2$ for DW-BPF with CS-SIR and DW-BPF with folded CS-SIR, respectively. The $\lambda_G$ is the wavelength at the first frequency. Further, the DW-BPF with FCS-SIR achieves transmission coefficients/fractional bandwidth of 0.19 dB/89.08 % and 1.29 dB/31.90% at 1.21 GHz and 2.41 GHz, respectively. Measured results are in a very good agreement with the simulated results.



**Keywords:** dual-wideband band pass filter, stepped impedance resonator, transmission zero.

## 1. INTRODUCTION

A dual-band band pass filter (DB-BPF) is an important component of a radio transceiver for reducing interference and noise at two frequency bands simultaneously [1]. Therefore, the pursuit of a DB-BPF with good-performances has become a key trend in the field of research. A variety of design techniques is frequently used for DB-BPF design such as square loop dual mode resonator [2], defected ground structure (DGS) [3][4], spiral resonators [5], defected stepped impedance resonator (Defected-SIR) [6][7], slotted stepped impedance resonator (Slotted-SIR) [8], multilayer stepped impedance resonator (Multilayer-SIR) [9][10], meandering stepped impedance resonators (Meandering-SIR) [11], stub-loaded stepped impedance resonator (Stub-loaded SIR) [12], and coupled stepped impedance resonator (Coupled-SIR) [13]. However, the DB-BPFs proposed by [1-13] still possess a complex geometry and achieve a narrow bandwidth.

As a novelty in this letter, we propose a dual-wideband band pass filter (DW-BPF) using cross-stub stepped impedance resonator (CS-SIR). Figure 1 shows a CS-SIR which was used to replace the conventional half-wavelength open stub resonators. A folded CS-SIR (FCS-SIR) was also proposed to reduce the filter size. Thus, the BPF size is reduced to 53%. The proposed design could be validated by simulations and measurements. This letter is organized as follows: section 2 briefly describes the design of the proposed DW-BPF using CS-SIR, section 3 presents the simulated and experimental results, and finally, section 4 concludes this research.

## 2. PROPOSED DUAL-WIDEBAND BANDPASS FILTER

A half-wavelength open stub resonator structure was commonly used to design the conventional single-band microstrip BPF [1]. In this letter, the half-wavelength open stub resonator is converted to the stub stepped impedance resonator as shown in Figure 1. The CS-SIR structure consists of three transmission lines having different characteristic impedances $Z_N$ (N=1,2,3) with corresponding electrical lengths $\theta_N$ (N=1,2,3), respectively. Analyzing the input impedance $Z_{IN(SIR)}$ of the stepped impedance resonator section, the following equations can be derived:

$$Z_{IN(1)} = -jZ_1 \cot \theta_1 \quad (1)$$

$$Z_{IN(2)} = Z_2 \frac{Z_{IN(1)} + jZ_2 \tan \theta_2}{Z_2 + jZ_{IN(1)} \tan \theta_2} \quad (2)$$

$$Z_{IN(SIR)} = Z_{IN(3)} = Z_3 \frac{Z_{IN(2)} + jZ_3 \tan\theta_3}{Z_3 + jZ_{IN(2)} \tan\theta_3} \quad (3)$$

Equation (3) can also be expressed as:

$$Z_{IN(SIR)} = Z_1 \frac{Z_2(-jZ_3 \cot\theta_3 + jZ_2 \tan\theta_2) + jZ_1 \tan\theta_1 (Z_2 + Z_3 \cot\theta_3 \tan\theta_2)}{Z_1Z_2 + Z_1Z_3 \cot\theta_3 \tan\theta_2 + Z_2Z_3 \cot\theta_3 \tan\theta_1 - {Z_2}^2 \tan\theta_2 \tan\theta_1} \quad (4)$$

The resonant frequencies can be extracted from admittance condition $Y_{IN(SIR)} = 0$ or impedance condition $Z_{IN(SIR)} = \infty$ [1]. This can be obtained when:

$${Z_2}^2 \tan\theta_3 \tan\theta_1 \tan\theta_2 - Z_1Z_2 \tan\theta_3 - Z_1Z_3 \tan\theta_2 - Z_2Z_3 \tan\theta_1 = 0 \quad (5)$$

with the $Z_N$ (N=1,2,3) and $\theta_N$ (N=1,2,3) stand for the characteristic impedance and electrical length, respectively. For the same electrical length $\theta_1 = \theta_2 = \theta_3 = \theta$, the resonance condition can also be shortened as follows:

$$\tan^3\theta - K_1 \tan\theta - K_1K_2 \tan\theta - K_2 \tan\theta = 0 \quad (6)$$

which can also be expressed as:

$$\tan\theta \ (\tan\theta + \sqrt{K_1 + K_1K_2 + K_1})(\tan\theta - \sqrt{K_1 + K_1K_2 + K_1}) = 0 \quad (7)$$

where the impedance ratio $K_N$ (1,2) is defined by:

$$K_1 = \frac{Z_1}{Z_2}, \quad \text{and} \quad (8)$$

$$K_2 = \frac{Z_3}{Z_2} \quad (9)$$

respectively. Equation (4) shows that the resonator provides two resonating frequencies. Therefore, the resonator serves as a dual mode resonator to produce two resonant frequencies. The relationship of $K_1$, $K_2$, and θ is shown in Figure 2.

## 3. RESULT AND DISCUSSION

Figure 3 shows the schematic of the design DW-BPF using CS-SIR. The DW-BPF was fabricated on microstrip with εr= 4.4, h=0.8 mm, and tan δ= 0.0265. The DW-BPF consists of input/output port (I/O) line and two stub-SIR placed in a crossed manner. The DW-BPF was simulated by using Advanced Design System (ADS) software, whereby an RS-ZVA vector network analyzer (VNA) was used to test the fabricated prototype of DW-BPF. The dimensions are given as follows (all in millimeters): $L_1$ = 32, $L_2$ = 35, $L_3$ = 9.0, $L_4$ = 23, $L_5$ = 21, $W_1$ = 2.5, $W_2$ = 1.5, $W_3$ = 5.0, $W_4$ = 10, and $W_5$ = 7.0.

The dependency of the center frequency and fractional bandwidth on the impedance ratio ($W_1/W_2$) is given in Figure. 4a. The figure shows that by increasing the impedance ratio ($W_1/W_2$), the center frequencies will be stable. However, increasing impedance ratio ($W_1/W_2$) would raise the fractional bandwidth. Figure 4b also shows the stability of the center frequency and fractional bandwidth on the variance of impedance ratio ($W_3/W_2$). The chart shows that both center frequency and fractional bandwidth were not changed significantly. Figure 5(a) and 5(b) shows transmission coefficients ($S_{21}$) and reflection coefficients ($S_{11}$) in response to varied $W_1$, $W_3$, $L_1$, and $L_3$.

In order to reduce the filter size, a folded CS-SIR (FCS-SIR) was proposed as shown in Figure 6. The dimensions are given as follows (all in millimeters): $L_1$ = 32, $L_{2a}$ = 5, $L_{2b}$= 5, $L_{2c}$ = 20, $L_d$= 5, $L_3$ = 9.0, $L_4$ = 23, $L_5$ = 21, $W_1$ = 2.5, $W_{2a}$ =$W_{2b}$ =$W_{2c}$ = $W_{2d}$ = 1.5, $W_3$ = 5.0, $W_4$ = 10, and $W_5$ = 7.0. As a result, this BPF size was reduced to 53%. Furthermore, both DW-BPF using CS-SIR and folded CS-SIR (FCS-SIR) were accomplished with two pass bands. Figure 7 shows the surface current at filter with CS-SIR and FCS-SIR. It shows that the first center frequency will obtain maximum value of surface current at transmission line 2 ($W_2$, $L_2$) and the second center frequency will obtain maximum value of surface current at transmission line 1 ($W_1$, $L_1$) and transmission line 3 ($W_3$, $L_3$).

Figure 8 (a) shows a comparison between simulated and measured of DW-BPF using CS-SIR. A DW-BPF with CS-SIR achieves transmission-coefficients/ fractional-bandwidth of 0.22 dB/94.19 % and 1.87 dB/33.52% at 1.14 GHz and 2.31 GHz, respectively. The transmission zeros (TZ) of this filter are -28.29 dB, -21.36 dB, and -18.02 at 0.53 GHz, 1.79 GHz, and 2.86 GHz, respectively. Furthermore, figure 8 (b) shows a comparison between simulated and measured of DW-BPF using FCS-SIR. a DW-BPF with FCS-SIR achieves transmission coefficients/fractional bandwidth of 0.19 dB/89.08 % and 1.29 dB/31.90 % at 1.21 GHz and 2.41 GHz, respectively. The transmission zeros (TZ) of this filter are -27.94 dB, -21.25 dB, and -23.25 at 0.59 GHz, 1.90 GHz, and 3.04 GHz, respectively. Figure 9(a) shows a comparison of transmission coefficients ($S_{21}$) between DW-BPF using CS-SIR and DW-BPF using FCS-SIR. The measured group delays (GDs) of all pass bands below 5 ns are also depicted in Figure 9(b). Table 1 summarizes the comparison of the proposed dual band BPF. Finally, the measured results are in a very good agreement with the simulated results.



## 4. CONCLUSION

This letter proposes a dual-wideband band pass filter (DW-BPF) using cross-stub stepped impedance resonator (CS-SIR). The CS-SIR was used to replace the conventional half-wavelength open stub resonators. In order to reduce the filter size, a folded CS-SIR (FCS-SIR) also was proposed. As a result, this BPF size is reduced to 53%. Measured results are in a very good agreement with the simulated results. In comparison with the previous works, both of BPF using CS-SIR and BPF using FCS-SIR could produce wider bandwidth, good transmission coefficients, and ease of fabrication.

**Acknowledgments**

The work for this grant was supported by the Ministry of Research, Technology and Higher Education, Indonesian Government in Penelitian Kerjasama Perguruan Tinggi (Grand No. 267/UN43.9/PL/K/2016).

## References

1. M. A. S. Alkanhal, Dual-Band Bandpass Filters Using Inverted Stepped-Impedance Resonators, J of Electromagn Waves And Appl 23 (2009), 1211–1220.
2. B.Atallah, M. Jan, A.B. And, Dual-Band Bandpass Filter By Using Square-Loop Dual-Mode Resonator, Microwave Opt Technol Lett 50 (2008), 1567–1570.
3. A. Shervin, K. Mahboubeh, Improvement The Design of Microwave Dual-Band BPF by DGS Technique, Microwave Opt Technol Lett 58 (2016), 2133–2137.
4. X. Mi, S. Guoliang, X. Fang, Compact Dual-Band Bandpass Filters Based On A Novel Defected Ground Spiral Resonator, Microwave Opt Technol Lett 58 (2016), 1636–1640.
5. C.-Y. Hung, R.-Y. Yang, Y.-L. Lin, A Simple Method To Design A Compact And High Performance Dual-Band Bandpass Filter For Gsm And Wlan, Progress In Electromagnetics Research C 13 (2010), 187-193.
6. W. Bian, L. Chang-hong Liang, L.Qi, Q. Pei-yuan, Novel Dual-Band Filter Incorporating Defected SIR and Microstrip SIR, IEEE Microwave Wireless Compon Lett 18 (2008), 393–394.
7. W. Bian, L. Chang-hong Liang, Q. Pei-yuan, L.Qi, Compact Dual-Band Filter Using Defected Stepped Impedance Resonator, IEEE Microwave Wireless Compon Lett 18 (2008), 674–676.
8. S. Lan, G. Xuehui, Z, Xiaoyan, Compact Dual-Mode Dual-Band Bandpass Filter Using Slotted Stepped-Impedance Resonator, Microwave Opt Technol Lett 58 (2016), 1056–1060.
9. A. Djaiz, M. Nedil, A. M. Habib, T. A. Denidni, Compact Multilayer Dual-Band Filter Using Slot Coupled Stepped-Impedance-Resonators Structure, Microwave Opt Technol Lett 51 (2009), 1635–1638.

10. W. Min-Hang Weng, Y. Ru-Yuan, C. Yu-Chi Chang, W. Hung-Wei Wu, S. Kevin, Design of A Multilayered DualbandBandpass Filter WithTransmission Zeros, Microwave Opt Technol Lett 50 (2008), 2010–2013.

11. C. Fu-Chang, C. Qing-Xin, Filter Using Meandering SteppedImpedance Resonators, Microwave Opt Technol Lett 50 (2008), 2619–2612.

12. Z. Mingqi, T. Xiaohong, X, Fei, Compact Dual Band Transversal Bandpass Filter With Multiple Transmission Zeros and Controllable Bandwidths, IEEE Microwave Wireless Compon Lett 19 (2009), 347–349.

13. K. Changsoon, L. Tae Hyeon, S. Bhanu, S. Kwang Chul, Miniaturized Dual-Band Bandpass Filter Based On Stepped Impedance Resonators, Microwave Opt Technol Lett 59 (2017), 1116-1119.

TABLE 1. Summary of the proposed dual-wideband BPF comparison

| Ref | Method | Center Frequency (GHz) | Transmission coefficients(dB) | -3 dB FBW (%) |
|---|---|---|---|---|
| [2] | Square loop dual mode resonator | 3.45 / 6.65 | 0.70 / 1.20 | 14.49 / 8.27 |
| [3] | Defected ground structure (DGS) | 4.60 / 7.30 | 0.34 / 0.35 | 3.87 / 2.12 |
| [4] | Defected ground spiral resonator | 1.87 / 2.43 | 2.00 / 2.00 | 4.50 / 3.30 |
| [5] | Four spiral resonators | 1.80 / 2.40 | 1.6 / 2.5 | 5.60 / 3.00 |
| [6] | Defected stepped impedance resonator(Defected-SIR) | 2.35 / 3.15 | 0.50 / 1.5 | 3.90 / 2.80 |
| [7] | Defected stepped impedance resonator(Defected-SIR) | 1.85 / 2.35 | 0.50 / 1.00 | 5.50 / 4.50 |
| [8] | Slotted stepped impedance resonator (Slotted-SIR) | 2.40 / 3.50 | 1.80 / 2.9 | 4.10 / 1.40 |
| [9] | Multi layer stepped impedance resonator(Multilayer-SIR) | 2.45 / 5.80 | 1.35 / 0.98 | 3.06 / 2.16 |
| [10] | Multilayer stepped impedance resonator (Multilayer-SIR) | 2.40 / 5.20 | 1.20 / 1.50 | 5.40 / 7.30 |
| [11] | Meandering stepped impedance resonators (Meandering-SIR) | 2.40 /5.25 | 0.72 / 2.10 | 8.33 / 3.85 |
| [12] | Stub-loaded stepped impedance resonator (Stub-loaded SIR) | 2.40 / 5.20 | 1.20 / 2.00 | 8.00 / 5.00 |
| [13] | Coupled stepped impedance resonator (Coupled-SIR) | 2.4 / 3.8 | 0.50 / 1.00 | 8.33 / 5.26 |
| **This work** | Cross-stub stepped impedance resonator (CS-SIR) | 1.14 / 2.31 | 0.22 / 1.87 | 94.19 / 33.52 |
| | Folded cross-stub stepped impedance resonator (FCS-SIR) | 1.21 / 2.41 | 0.19 / 1.29 | 89.08 / 31.90 |

Figure 1.

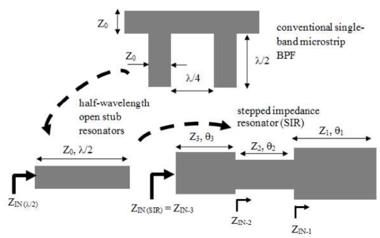


Figure 1. The conventional half-wavelength open stub resonator replaced by stub-stepped impedance resonator

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Figure 2.

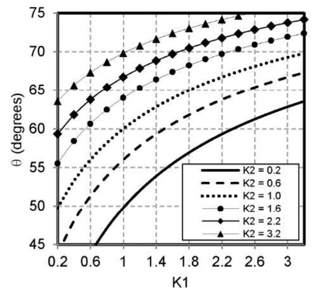


Figure 2. The relationship between impedance ratio ($K_1$, $K_2$) and electrical length ($\theta$)

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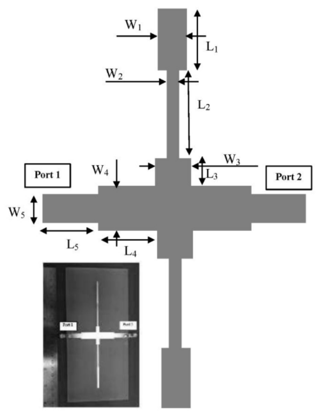
Figure 3.




The layout and photograph of the design DW-BPF using CS-SIR

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Figure 4.

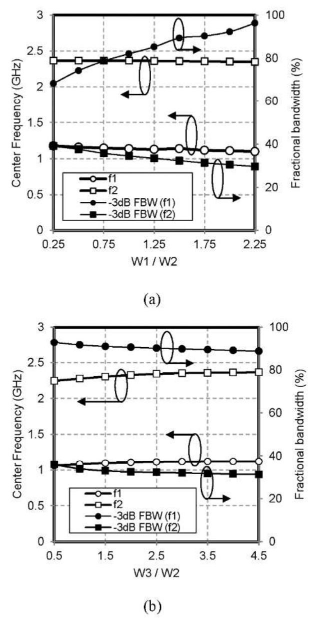


Figure 4. (a) The dependency of the center frequency and fractional bandwidth on the impedance ratio ($W_1/W_2$). (b) The stability of the center frequency and fractional bandwidth on the impedance ratio ($W_3/W_2$).

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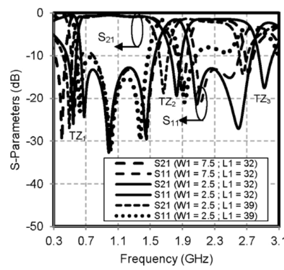
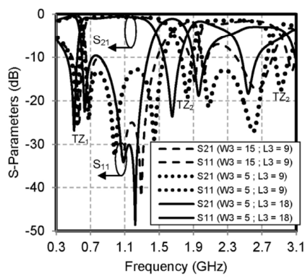
Figure 5.




(a)




(b)

Figure 5. (a) Transmission coefficients ($S_{21}$) and reflection coefficients ($S_{11}$) response with varied $W_1$ and $L_1$. (b) Transmission coefficients ($S_{21}$) and reflection coefficients ($S_{11}$) response with varied $W_3$ and $L_3$.

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Figure 6.

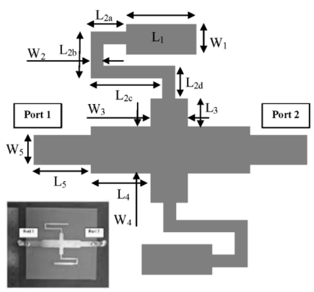


Figure 6. The layout and photograph of the design DW-BPF using Folded CS-SIR (FCS-SIR).

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Figure 7.

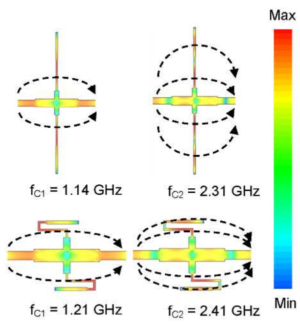


Figure 7. The surface current of the DW-BPF with CS-SIR and FCS-SIR

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Figure 8.

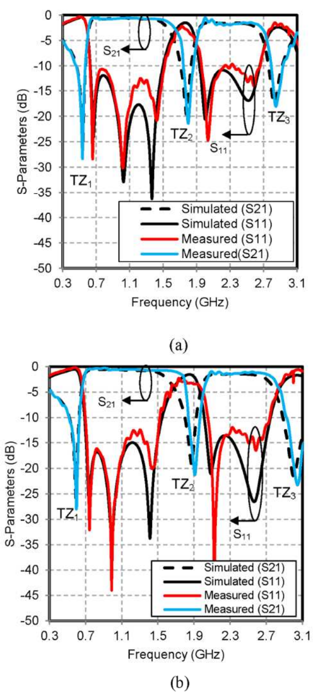


Figure 8. (a) Comparison between simulated and measured results of DW-BPF using CS-SIR. (b) Comparison between simulated and measured results of DW-BPF using FCS-SIR

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Figure 9.

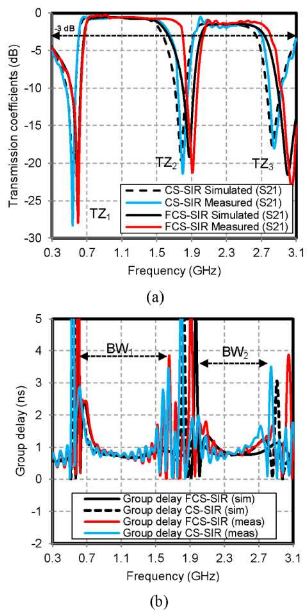


Figure 9. (a) Comparison of transmission coefficients ($S_{21}$) between DW-BPF using CS-SIR and DW-BPF using FCS-SIR. (b) Comparison of group delays (GDs)

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**Teguh Firmansyah** <teguhfirmansyah@untirta.ac.id> 22 Juli 2017 pukul 15.31
Kepada: supriyanto@untirta.ac.id

Cc Pak Supriyanto

---------- Forwarded message ----------
From: **Teguh Firmansyah** <teguhfirmansyah@untirta.ac.id>
Date: 2017-07-20 11:57 GMT+07:00
Subject: Re: MOP-17-0513 - Decision
To: kaichang@tamu.edu

Dear
Professor Kai Chang
Editor Microwave and Optical Technology Letters

My second author name (Full name) is incorrect. How do I add the update the authors?
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Supriyanto Praptodinoyo -> Supriyanto Praptodiyono
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Article ID: MOP30848
Article DOI: 10.1002/mop.30848
Internal Article ID: 14436044
Article: Dual-wideband band pass filter using folded cross-stub stepped impedance resonator
Journal: Microwave and Optical Technology Letters
Publication status : Article accepted on 10 July, 2017

Authors:
Teguh Firmansyah, -> OK (correct)
Supriyanto Praptodinoyo, -> Supriyanto Praptodiyono
Romi Wiryadinata, -> OK (correct)
Suhendar Suhendar, -> OK (correct)
Siswo Wardoyo, -> OK (correct)
Alimuddin Alimuddin, -> OK (correct)
Cindy Chairunissa, -> OK (correct)
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Dear Teguh Firmansyah,

Article ID: MOP30848
Article DOI: 10.1002/mop.30848
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