11.4

FAKULTI: FAKULTI KEJURUTERAAN ELEKTRIK

TAJUK: PERMOHONAN PELANJUTAN PEMBETULAN TESIS

BUTIRAN PELAJAR	KETERANGAN PELAJAR	ULASAN DAN TINDAKAN FAKULTI	KELULUSAN
NAMA : MUHAMMAD RIDDUAN BIN RAMLI **NO K/P @ ISID : 921024115125** **NO MATRIK : MKE153018** **PROGRAM : SARJANA FALSAFAH KEJURUTERAN ELEKTRIK** **JENIS PENGAJIAN : PENYELIDIKAN** **BENTUK PENDAFTARAN : SEPENUH MASA** **PENYELIA : PROF. IR. DR. SHARUL KAMAL BIN ABDUL RAHIM** **BIL SEM: 5 / 8** **STATUS : PEPERIKSAAN** **PEMERIKSA LUAR: PROF. MADYA DR. MOHD TARMIZI BIN ALI (UiTM)** **PEMERIKSA DALAM: DR. MOHAMAD RIJAL BIN HAMID** **PENGERUSI: PROF. DR. MOHAMAD KAMAL BIN A. RAHIM** **MUKASURAT : 1/1**	1.1 Pelajar telah menjalani peperiksaan lisan dan perlu menghantar tesis bagi tujuan pembetulan tesis. 1.2 Kronologi pelajar adalah seperti berikut : **Bil** / **Tarikh** / **Perkara** 1 / 25/01/2018 / Pelajar menghantar tesis bagi tujuan peperiksaan lisan. 2 / 28/03/2018 / Peperiksaan lisan dijalankan. Pelajar mendapat keputusan b2 (3 bulan). 3 / 28/06/2018 / Tarikh akhir pelajar perlu menghantar pembetulan tesis ke fakulti. 4 / 30/05/2018 / Pelajar menghantar surat permohonan untuk melanjutkan penghantaran pembetulan tesis pada 28/07/18. 1.3 Pelajar memohon masa tambahan masa selama 1(satu) bulan atas sebab yang berikut : i. Tambahan dan kekangan beban tugas di tempat kerja. ii. Perlu lebih masa untuk memperbaiki tesis di bahagian bab 4 dan 5. iii. Memastikan format serta bahasa tesis yang digunakan mencapai piawai yang ditetapkan oleh UTM.	1.1 Mesyuarat Jawatankuasa Peperiksaan Akademik pada 27 Jun 2018 telah mencadangkan permohonan pelanjutan pembetulan tesis ini dibawa ke Mesyuarat Jawatankuasa Akademik pada bulan Julai kerana Mesyuarat ini hanya membincangkan keputusan peperiksaan sahaja. 1.2 Mesyuarat Jawatankuasa Akademik Fakulti pada 15 Julai 2018 telah bersetuju permohonan pelanjutan tempoh penghantaran pembetulan tesis selama 1 bulan mulai 29 Jun 2018 hingga 28 Julai 2018 . 1.3 Lampiran dokumen yang berkaitan: i. Surat permohonan perlanjutan tarikh pembetulan tesis yang disokong oleh penyelia. ii. Salinan butiran perancangan pembetulan tesis.	Disokong / Tidak disokong **Dekan/TD (Akademik) & Cop Rasmi** **PROF. IR. DR. ABDERAZIR BIN MUSTAFA** **Chair** **School of Electrical Engineering** Tarikh : **Universiti Teknologi Malaysia** **81310 Johor Bahru** **Johor** 15/07/18 Setuju / Tidak Setuju (Ulasan) _____ _____ _____ **Pengerusi Mesyuarat Jawatankuasa Akademik Pengajian Siswazah Universiti (JAPSU) & Cop Rasmi** Tarikh : _____

Pengurus Akademik Pasca Siswazah

Fakulti Kejuruteraan Elektrik

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30 MAY 2018

Tuan,

RAYUAN PERMOHONAN MELANJUTKAN TEMPOH PEMBETULAN TESIS

Merujuk pada perkara di atas saya, MUHAMMAD RIDDUAN BIN RAMLI (MKE153018) ingin membuat rayuan mengenai tempoh tesis saya (Microstrip Grid Array Antenna For 5G Mobile Communication Applications) yang telah dijadualkan untuk dihantar sebelum atau pada 28 Jun 2018.

2. Untuk makluman pihak tuan, saya telah bekerja di industri. Baru-baru ini, rakan sekerja saya telah pergi ke Amerika selama 2 bulan atas urusan kerja. Oleh sebab itu, beban kerja saya telah bertambah dan kekangan masa untuk saya fokus dalam pembetulan tesis ini.

3. Disamping itu, terdapat beberapa pembetulan yang memerlukan masa untuk membaca dan memahami dengan lebih baik dalam memperbaiki skop kerja tersebut. Justeru, saya memerlukan masa yang lebih untuk melengkapkan pembetulan tesis ini.

4. Saya amat memerlukan tempoh masa lanjutan untuk saya memperbaiki tesis terutamanya di bahagian bab 4 dan 5. Saya juga perlu memastikan kualiti tesis mencapai paiwai yang ditetap oleh UTM. Saya lampirkan senarai pembetulan yang telah dilakukan bersama surat rayuan ini.

Saya amat menghargai sekiranya Tuan dapat mempertimbangkan permohonan saya untuk melanjutkan tempoh penghantaran tesis selama sebulan dari 28 Jun hingga 28 Julai 2018. Kerjasama pihak tuan amat saya hargai.

Sekian, terima kasih.

Yang benar,

Muhammad Ridduan Bin Ramli

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Disokong oleh,

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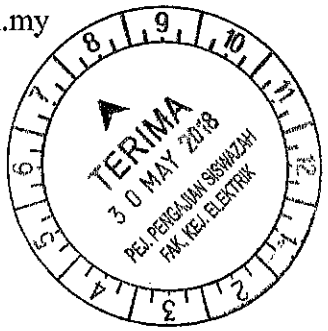

Required Corrections Based on Chapters

Title

Corrections Required	Amendments Made	Location
Title	Micro Grid Array Antenna for Fifth Generation Wireless Communication System	Cover page

General Comments

Corrections Required	Amendments Made	Location
Explain on theoretical why the result	**Not done**	
Need to check the equation	Already check and corrected the equation	Page 31

Abstract

Corrections Required	Amendments Made	Location
Viva Session Report		
No comment	Nil	Nil
Internal		
The abstract is good. It describes method and procedure. The main outcomes and results are also properly addressed.	Nil	Nil
External		
Ok	Nil	Nil

Chapter 1

Corrections Required	Amendments Made	Location
Viva Session Report		
Problem statement, the limitation of the MGAA need to explain. Need to relate MGAA into the problem statement and the objective of the thesis.	Done	Page 2
Internal		
The introduction is good. Perhaps the author can add 5G system specification like efficiency, BW, and gain requirement.	Already add the 5G system specification on BW, efficiency and gain.	Page 1
Page 3-Define MGAA before using short form	Has define the full name of MGAA	Page 3
The problem statement is good but quite general. The problem statement should include summary of the findings on specific 5G antennas obtained from literature survey i.e i- state of the art of existing MGAA showing achievement and their limitation ii- research gap identification.	Done	Page 2

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Then indicate how this research will solve the aforementioned problems and how this work will reduce the research gap		
External		
Objective 1&2 look same thing & same meaning – combine. all the objective is not properly address the problem statement very well. Objective must match with problem statement.	Done	Page 3

Chapter 2

Corrections Required	Amendments Made	Location
Viva Session Report		
Need to highlight why 15 GHZ	Done	Page 9
Second paragraph, the sentence is not correct, rephrased	Done paraphrased	Page 10
Reflection coefficient need to rephrase. Review need to review critically and find the gap in the problem statement	Done	Page 10
Need to add on MGAA theoretical and equation	Already add on MGAA theoretical and equation	Page20
Internal		
Page 9-State why 15 GHz is chosen as the operating frequency	Done	Page 9
Page 10-Rephrase second sentence of section 2.3.1	Done	Page 10
Page 22-Explain parallel resonance in MGAA theory section	Done	Page 21
The review starts with 5G technology.	Done	Page 16
Section 2.3 should be replaced with the theory of MGAA, how it works, etc	Already replaced section 2.3 with theory of MGAA	Page20
The main review is started in sec 2.5 with non MGAA antennas. It should be critically reviewed one by one and antenna type, BW, gain and size of the antennas should be compared in table 2.1 instead. From here then you can justify why MGAA has been chosen as the proposed design.	Already critically reviewed one by one on antenna type, BE, gain and size of the antenna	Page 20
Review on MGAA antennas. Section 2.6, 2.6.1, 2.6.2, and 2.6.3 shall be combined. This shall be critically one by one and highlight important parameters which includes gain, BW, size, geometry shape and feeding method. The parameters shall be summarized and compared in one table instead.	Already combined all this sub-section into section 2.3 and all the reviewed paper have ben critically reviewed one by one and highlighted on important parameters.	Page 20
External		
Section 2.3-2.4, all information from text book (recommended remove from thesis)	Done	Page 10
Page 18- add citation for statement line 3-6 in first paragraph	Done	Page 18

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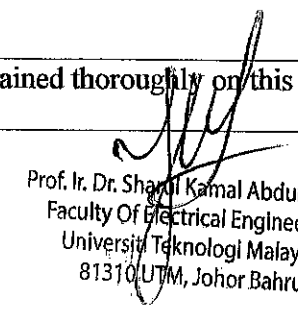
Chapter 3

Corrections Required	Amendments Made	Location
Viva Session Report		
Please explain thoroughly page 37 on 3.3.3. How dielectric constant of the substrate will influence the performance	Already explained on dielectric constant of the substrate will influence the performance	Page 34
Need to rephrase, page 40, 3.4- antenna measurement; define what E & H plane in the measurement set up. Show the current distribution. How do you determine E & H in the methodology.	**Not done**	
Internal		
Design procedure of single cell MGAA is explained but some parameter is not well explained such as the initial value of ws. The feed position is not explained at all. Describe how the optimizer is used in CST.	Has defined the feed position and design procedure of MGAA	Page 35
The pattern and gain measurement method are not clear and has to be explained. State whether the pattern measurement system is 3D or 2D system. Explain E- and H-plane in x-y-z axis. Explain how gain measurement is done	**Not done**	
Page 31- equation 3.1 is wrong/typo	Already corrected the equation 3.1	Page 31
Page 37- explain how dielectric constant influence the antenna performance	Already explained on dielectric constant of the substrate will influence the performance	Page 34
Page 37- explain the motivation why PDMS is chosen at the first place. Also explain the motivation to compare Taconic, FR4 and Rogers since it was known that Rogers has the lowest loss tangent hence better performance.	**Not done**	
External		
Page 30- in flow chart: combine all boxes 1-4 into literature review.	Done	Page 30
After state "optimization & analysis" add "feedback of"		
Page 34- figure 3.4- how the modification of the shape can be happened?	Done	Page 34
Page 37- sec 3.3.3- is very hard to compare the result when using different properties of material. This process is not cover in problem statement and objective	Done	Page 37

Chapter 4

Corrections Required	Amendments Made	Location
Viva Session Report		
How do you choose the feed point? Describe thoroughly the feed point for microstrip grid array antenna	**Not done**	
Page 47- need to explain thoroughly on this page	Already explained thoroughly on this page	Page 47



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Page 51- need to explain why at 14 GHz not 15 GHz	**Not done**	
Page 52- please define all the x, y, z. Need to explain	**Not done**	
Page 53- why gain at 14 GHz is less. Need to explain	**Not done**	
Page 54- how to relate the first design a, b, c, d with this design	**Not done**	
Internal		
Page 45- state the initial value of wl and ws. Label xyz axis in figure 4.1. explain why the cell of the antenna in fig 4.1 d is not symmetrically distributed with respect to the feed point	**Not done**	
Page 46- define antenna a, b, c and d in the text. Show 15 GHz line in fig 4.2 & 4.3. explain why antenna-b gain is the highest among all at 15 GHz?	**Not done**	
Page 47- explain why as number of cell blocks increased the s11 and gain become better. Explain why after 8 cell blocks the gain has not changed much? In section 4.2.1, state whether antenna a,b,c also optimized	Already add on the explanation on this statement and in section 4.2.1, the antenna a, b, c also has been optimized	Page 47
Page 48- how the optimization is done. Why the optimization did not consider 15 GHz as the peak resonance frequency	**Not done**	
Page 50- show the s11 result for table 4.1 configuration		
Page 51- figure 4.9. why the optimization did not consider 15 GHz as the peak resonance frequency	**Not done**	
Page 53- explain the relationship between peak s11 figure 4.9 and max gain figure 4.11?	**Not done**	
Page 54- explain how do you come out with figure 4.12 design?	**Not done**	
Page 57- figure 4.14 has nice s11 at 15 GHz. why can't you obtain the same for fig 4.9 and 4.13	**Not done**	
Page 59- explain why rogers produce the smallest backlobe?	Already explained on this statement	Page 59
External		
Section 4.2.2: how about the result of antenna when bending condition? : the process of fabrication in this section never mention in previous chapter. Must be explain in chapter 3	Not cover on this bending condition.	
Page 53- explain why gain is not reflect to the s11 results. Resonant frequency at 15 GHz but gain is lower than other freq. efficiency also high at 14 GHz?	**Not done**	
All graphs in this chapter should have marking at 15 GHz. easy to read	Done	

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Chapter 5

Corrections Required	Amendments Made	Location
Viva Session Report		
Need to explain the shift enhancement BW	**Not done**	
Need to explain the feed point. Why you choose the feed point	**Not done**	
Page 80- table 5.3, size should be compared using wavelength value	Already compared the sized using wavelength	Page 80
Page 72- need to explain figure 5.10 to 5.11. please explain	**Not done**	
Figure 5.2.3- add angle on 22 degree	Done	Page 73
Internal		
Page 62- explain why diamond shape enhances gain and bandwidth?	**Not done**	
Page 63- explain why feed point is positioned on the second level of the cell	**Not done**	
Page 64- fig 5.2, state other parameter value when l is varied. Show l<13.48	Already done on this l parameter	Page 64
Page 65- explain why l=14.85 mm is chosen	Already explained on this statement	Page 65
Page 67- which parameter should be optimize first and why?	**Not done**	
Page 68- state whether gain is measured/simulated at their max value or at certain angle	The gain is measured and simulated at their max value	Page 68
Page 69- explain why the beam is tilted? How do you determine E and H plane for diamond shape MGAA	**Not done**	
Page 72- fig 5.11, gain is higher at 17 GHz vs 15 GHz but s11 is the other way round. How do you explain this behavior?	**Not done**	
Page 73- the geometry is claimed to be symmetry but it refer to the feed point it is not. Explain this	**Not done**	
Page 76- fig5.15. how do you select the feed position	**Not done**	
Page 77- indicate the out of phase and in phase current in fig 5.16	**Not done**	
Page 80- table 5.3, size should be compared using wavelength value	Already compared the sized using wavelength	Page 80
Page 83- explain why the gain decrease as the angle increase	**Not done**	
External		
Page 72- the increasing of the gain in fig 5.11 is not reflect with the results of s11 as indicate in figure 5.10	**Not done**	
Page 74- table 5.2: study of combination of R is not comprehensive. Why at "vi: 5,1,4,2"	**Not done**	
Table 5.3 : can't compare the result with different type of antenna material and different frequency	**Not done**	

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Table 5.4: check value of "a"-> 20° or 22°?	Already checked value "a" which is 20°	Page 73
Figure 5.25: s11 result was look not matching with figure 5.22?	Done	Page 73

Chapter 6

Corrections Required	Amendments Made	Location
Viva Session Report		
Should compare with the existing from the review	Already compare with the existing reviewed	Page 89
Internal		
The thesis conclude that the objectives have been achieved. Comparison between the design are shown. Please also compare the performance with the existing MGAA in term of bandwidth (%)	Already compare the performance with the existing MGAA in term of BW	Page 89
External		
No comment	Nil	Nil

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