

5.1.5 Spurious Emission

RESULT:

Passed

Test standard	:	LP0002(2018): 3.10.1.5
Basic standard	:	LP0002(2018) Appendix II
Limits	:	Radiated emissions which fall in the restricted bands, as defined in LP0002(2018): 2.7 , must comply with the radiated emission limits specified in LP0002(2018): 2.8 Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in LP0002(2018): 2.8
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A, B

Remark: Testing was carried out within frequency range 30MHz to the tenth harmonic. For details refer to Appendix D. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report. Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.

5.1.6 Frequency Separation

RESULT:
Passed

Test standard : LP0002(2018): 3.10.1.6 (1)(A)
 Basic standard : LP0002(2018) Appendix II
 Limit : $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater

Test setup

Test Channel : Middle
 Operation Mode : A
 Ambient temperature : 24°C
 Relative humidity : 53%

Table 11: Test result of Frequency Separation (GFSK)

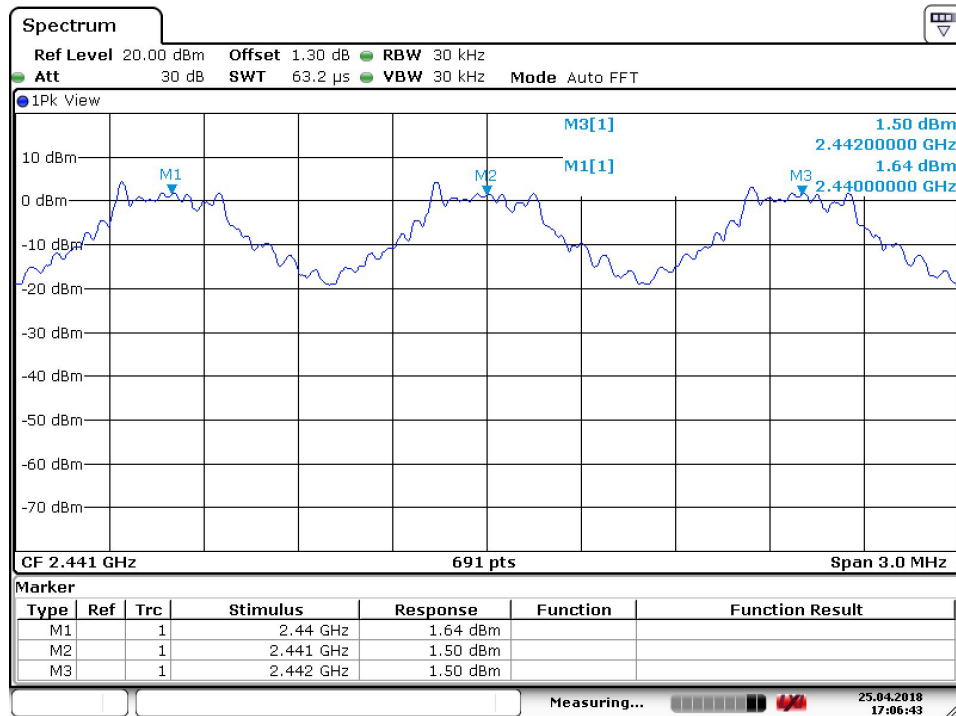
Channel	Channel Frequency (MHz)	Measured Channel Separation (MHz)	Limit (kHz)	Result
Record Channel	2441	1	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Record Channel adj 1	2440			
Record Channel adj 2	2442			

Table 12: Test result of Frequency Separation (8DPSK)

Channel	Channel Frequency (MHz)	Measured Channel Separation (MHz)	Limit (kHz)	Result
Record Channel	2441	1	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Record Channel adj 1	2440			
Record Channel adj 2	2442			

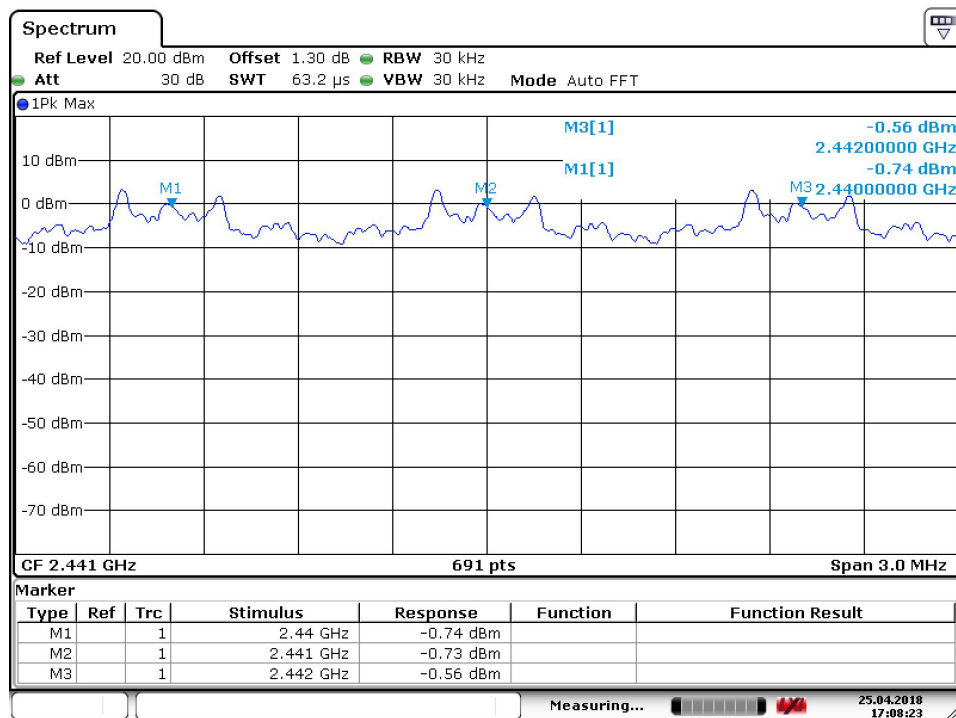
Test Plot of Frequency Separation

GFSK



Date: 25.APR.2018 17:06:42

8DPSK



Date: 25.APR.2018 17:08:23

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5.1.7 Number of hopping frequency**RESULT:****Passed**

Test standard : LP0002(2018): 3.10.1.6 (1)(A)(a)
Basic standard : LP0002(2018) Appendix II

Test setup

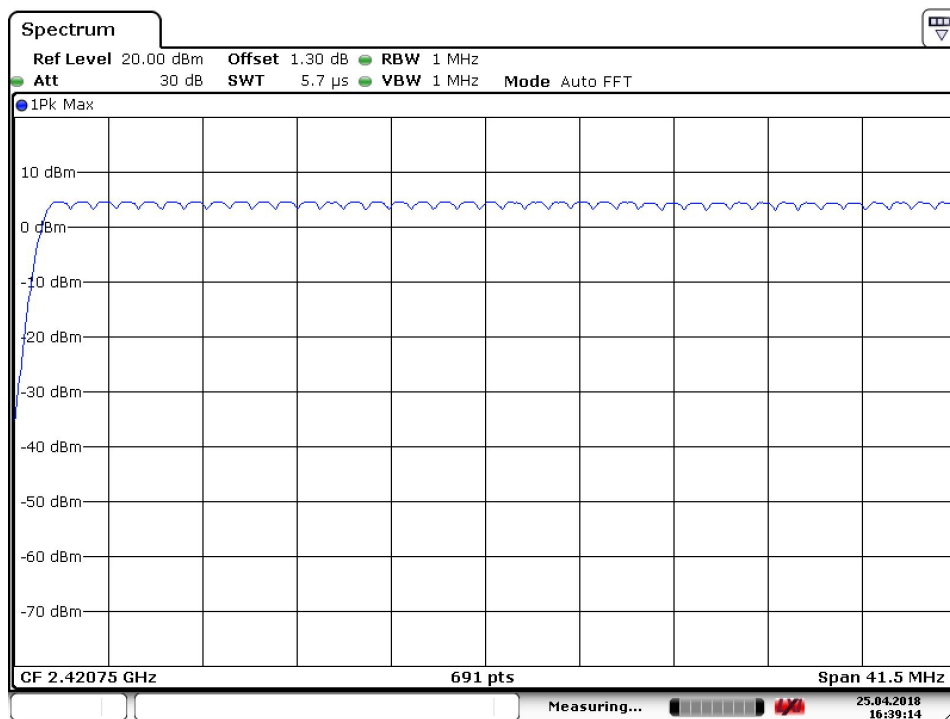
Test Channel : Hopping On
Operation Mode : C

Ambient temperature : 22-26°C
Relative humidity : 50-65%
Atmospheric pressure : 100-103 kPa

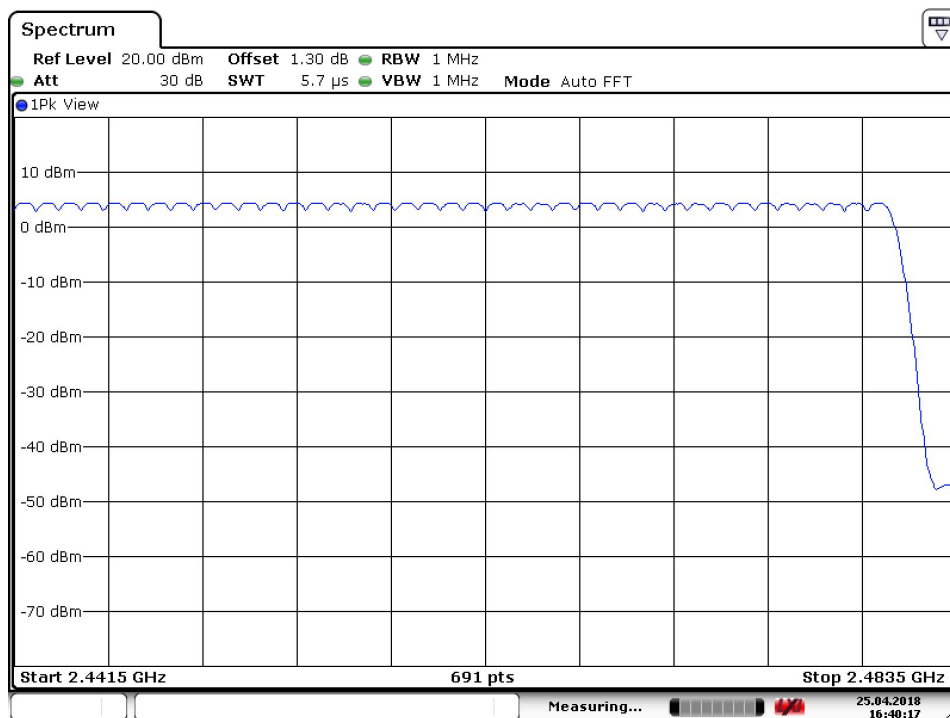
Table 13: Test result of Number of hopping frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
<u>2400</u> to <u>2483.5</u> MHz	79	≥15	Pass

Test Plot of Number of hopping frequencies GFSK

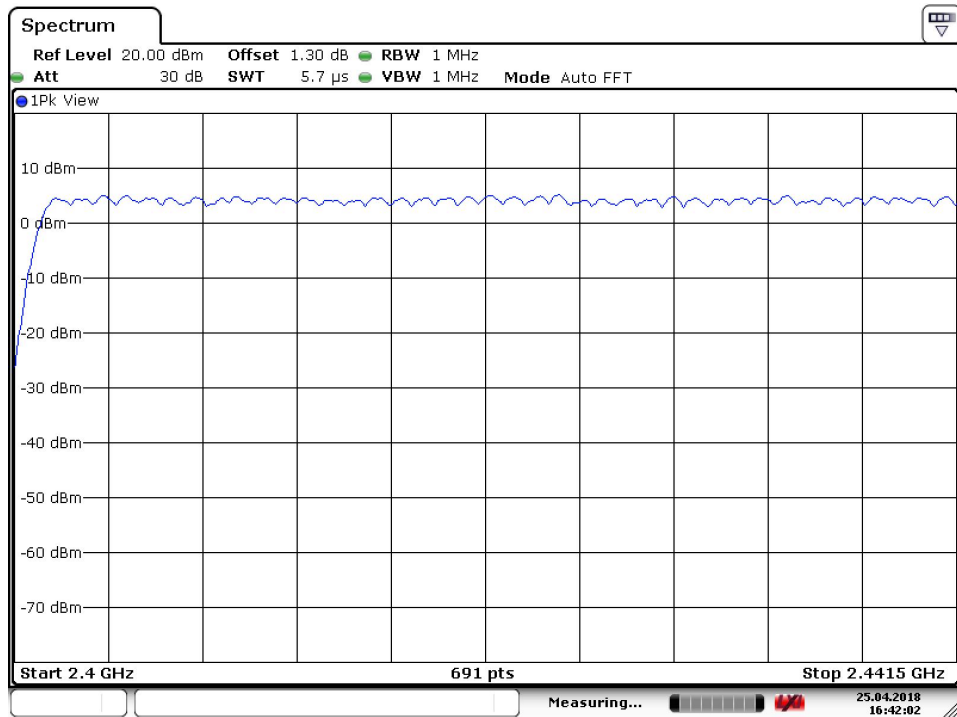


Date: 25.APR.2018 16:39:14

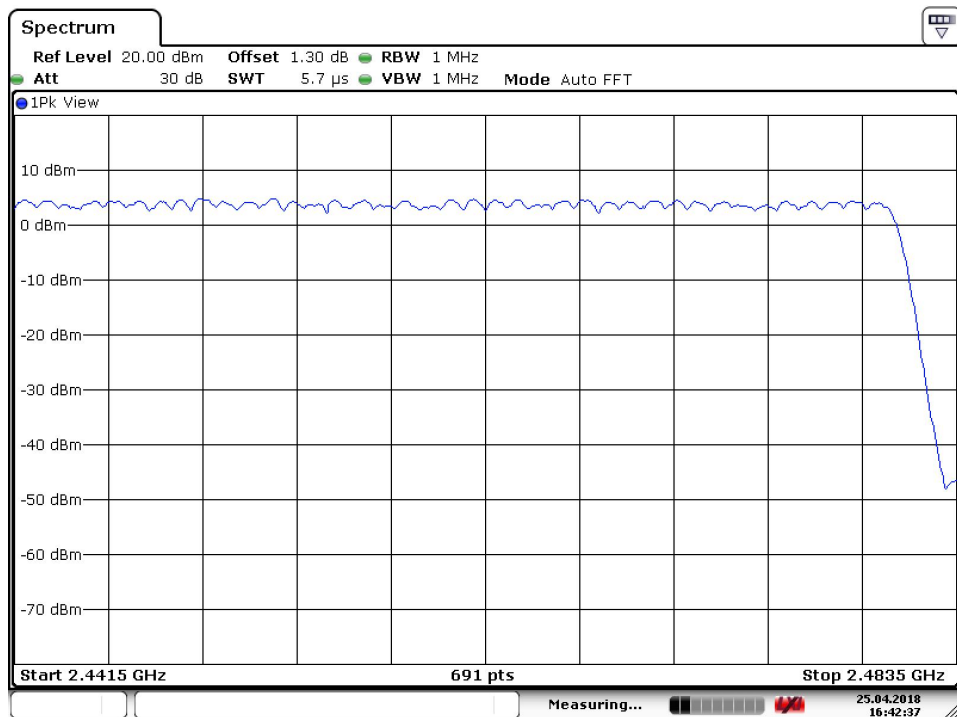


Date: 25.APR.2018 16:40:17

8DPSK



Date: 25.APR.2018 16:42:02



Date: 25.APR.2018 16:42:37

5.1.8 Time of Occupancy

RESULT:
Passed

Test standard : LP0002(2018): 3.10.1.6 (1)(A)(a)
 Basic standard : LP0002(2018) Appendix II
 Limits : 0.4s
 Kind of test site : Shield room

Test setup

Test Channel : Low
 Operation Mode : A

 Ambient temperature : 22-26°C
 Relative humidity : 50-65%
 Atmospheric pressure : 100-103 kPa

Table 14: Test result of Time of Occupancy

Data Mode	Captured Burst (s)	Dwell time (s)	On+Off time (s)	Limit (s)	Result
DH5	0.00294	0.3138	0.00377	0.4	Pass
3DH5	0.00293	0.375	0.00375	0.4	Pass

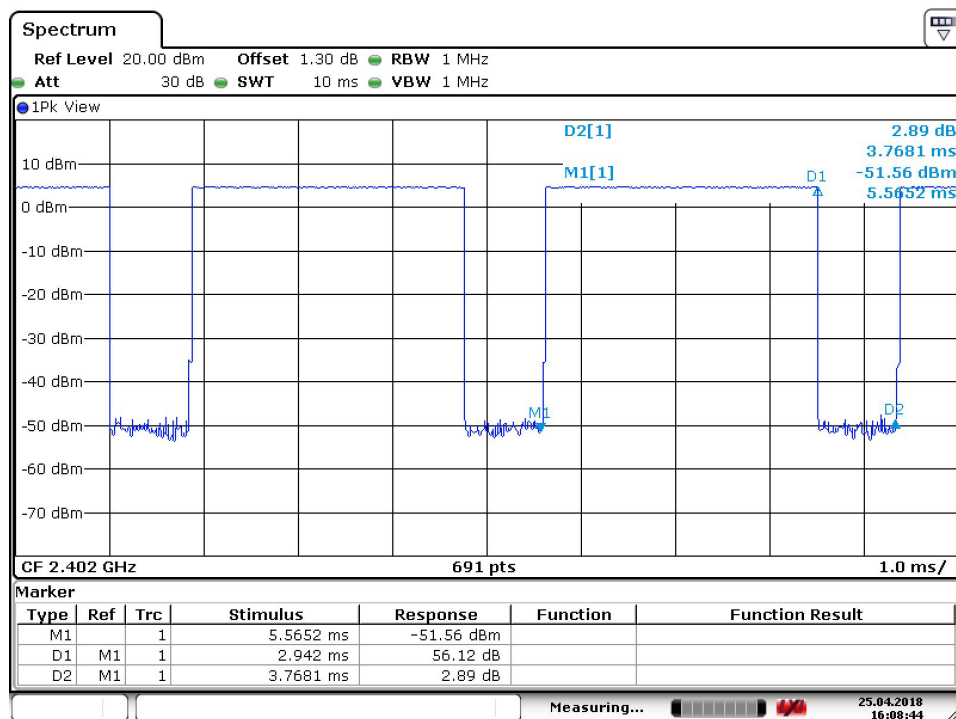
Note:

Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 (seconds/ channel) x 79 (channel) = 31.6 seconds.

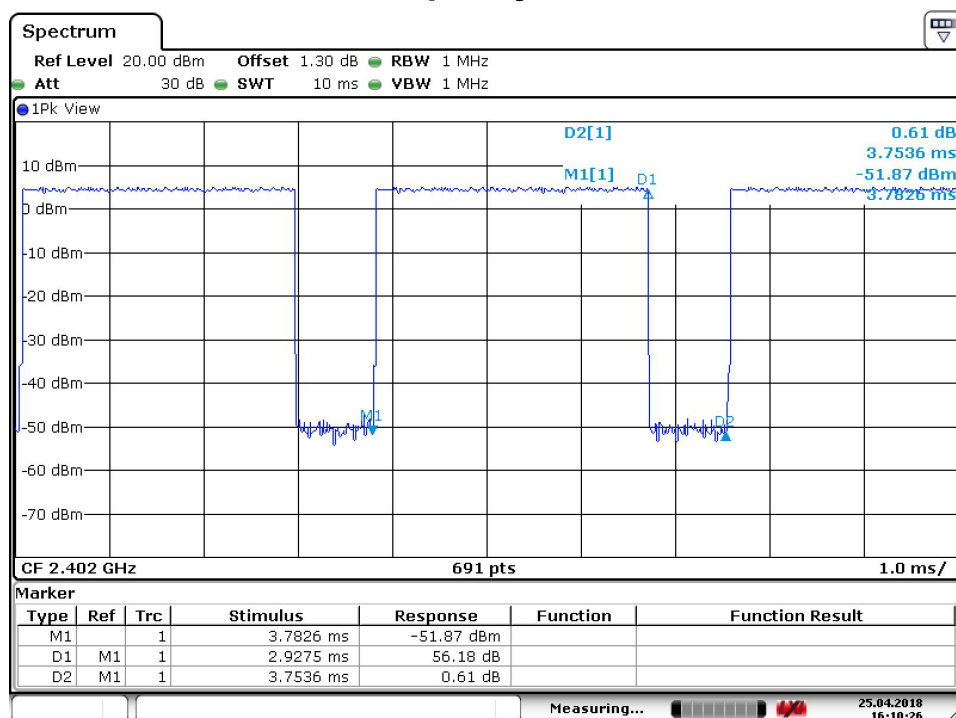
Hopping rate = 1 / (On+Off time) = 266 Hz

Test Plot of Time of Occupancy, GFSK modulation



Date: 25.APR.2018 16:08:44

Test Plot of Time of Occupancy, 8DPSK modulation



Date: 25.APR.2018 16:10:25

5.2 Mains Emissions

5.2.1 Mains Conducted Emissions

RESULT:**Passed**

Test standard : LP0002(2018): 2.3
Limits : Mains Conducted emissions as defined in
above test standards must comply with the
mains conducted emission limits specified
Kind of test site : Shielded Room

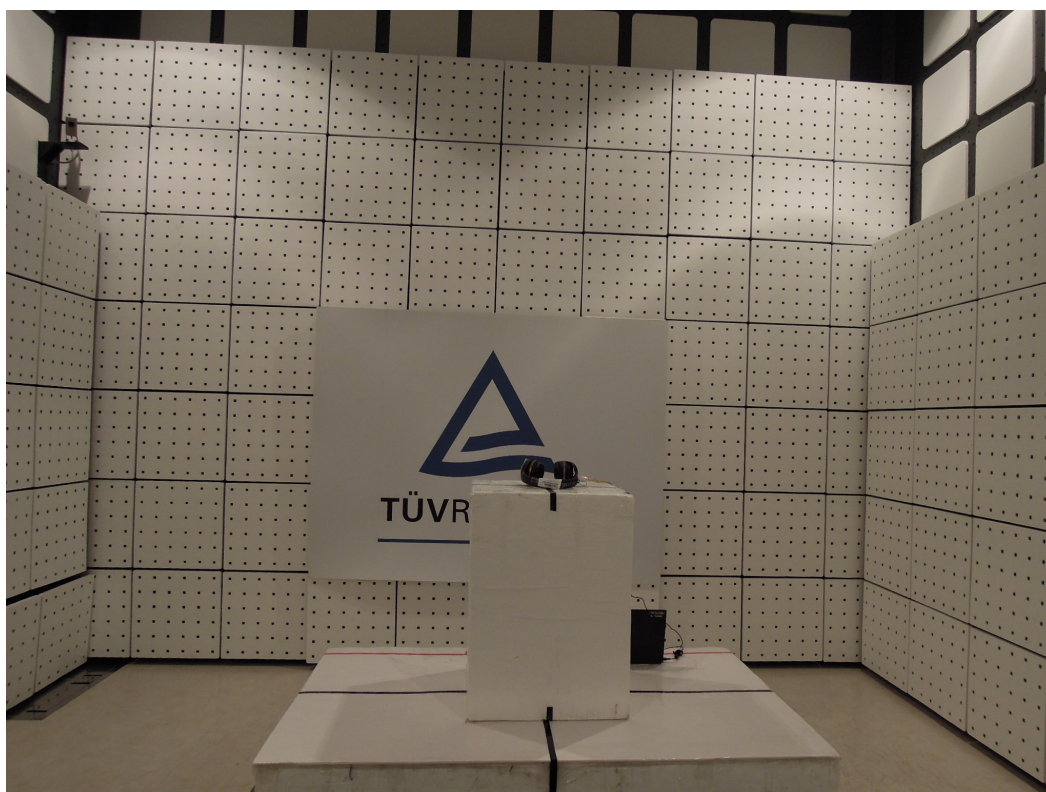
Test setup

Test Channel : Middle
Operation mode : A

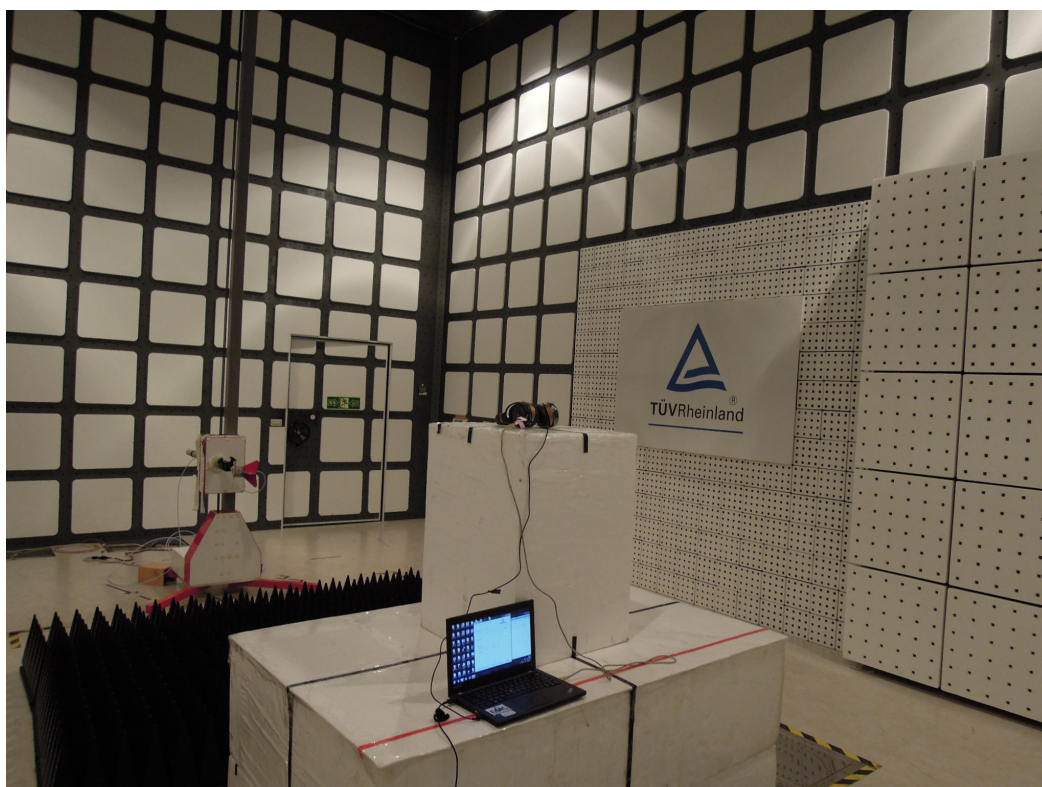
Remark: For details refer to Appendix D.

6. Photographs of the Test Set-Up

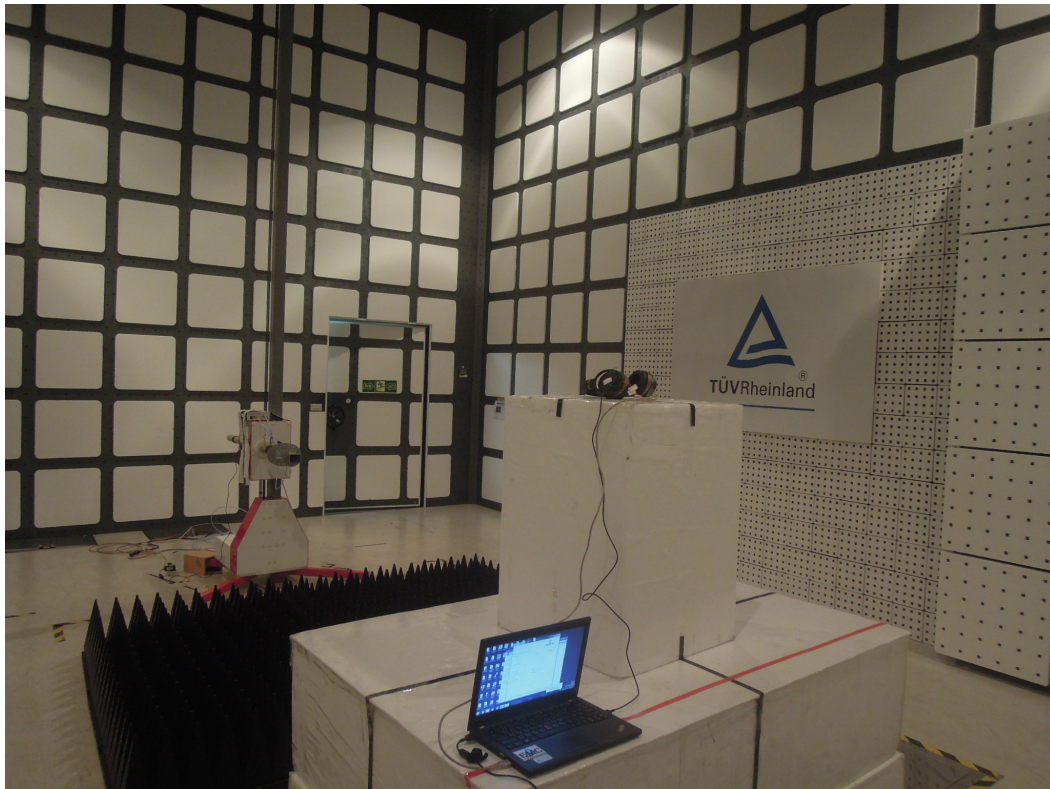
Photograph 1: Set-up for Spurious Emissions (Front View)



Photograph 2: Set-up for Spurious Emissions (Back View 1)



Photograph 3: Set-up for Spurious Emissions (Back View 2)



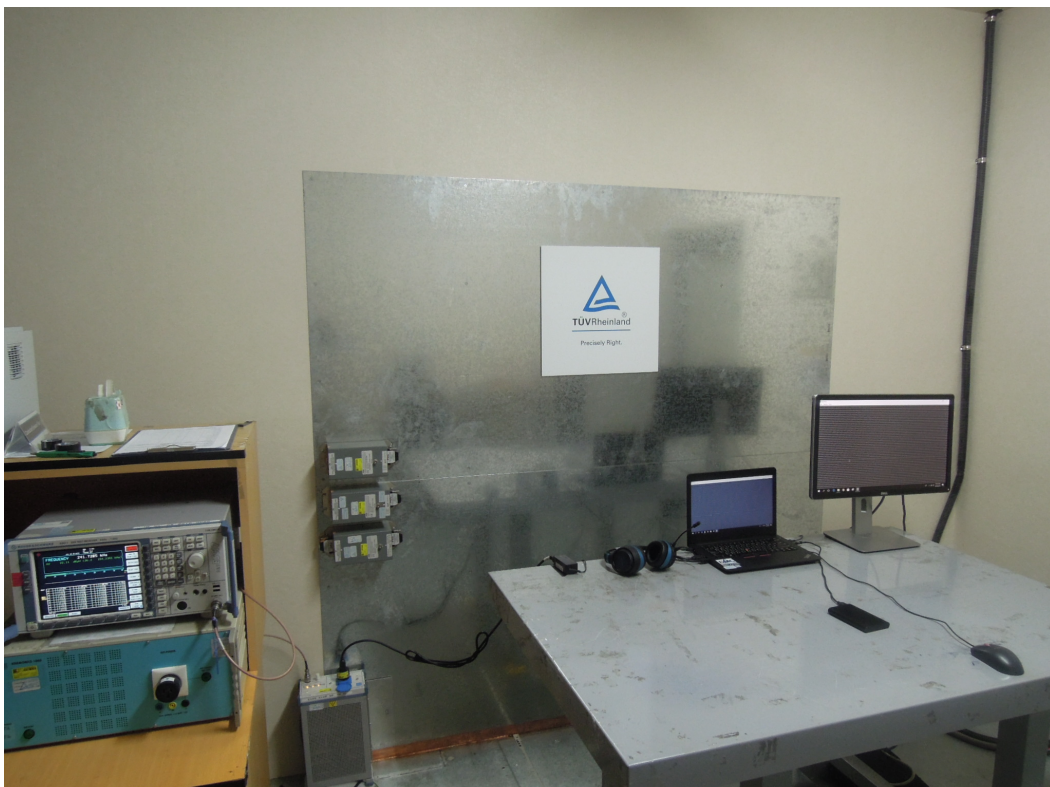
Photograph 4: Set-up for Conducted testing



Photograph 5: Set-up for Mains Conducted testing (Back View)



Photograph 6: Set-up for Mains Conducted testing (Front)



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