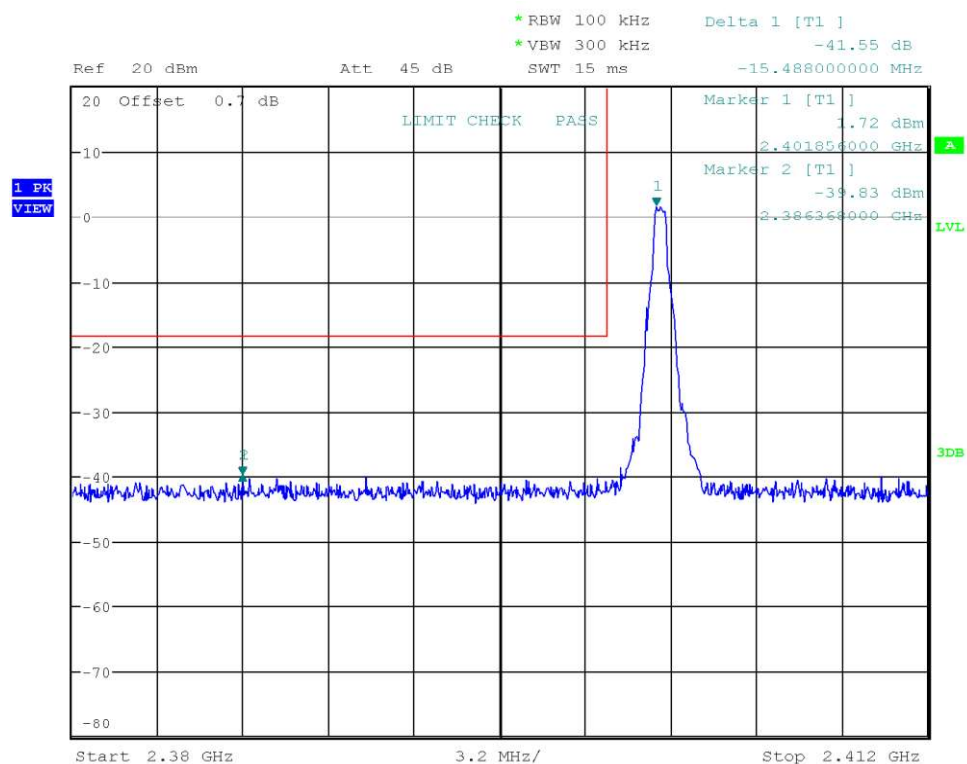


Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2406-2604
Applicant:	Somnium Space LTD.
Model Description:	Head-Mounted Display / VR headset
Model:	VR1
Test Sample ID:	49299
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-09-11
Mode:	Transmit Radio 2
Band-edge	Lower
In-band Frequency [MHz]:	2401.856
Max. in-band Level [dBm/100 kHz]:	1.722
Out-of-band Frequency [MHz]:	2386.368
Max. out-of-band Level [dBm/100 kHz]:	-39.826
Attenuation [dB]:	-41.55



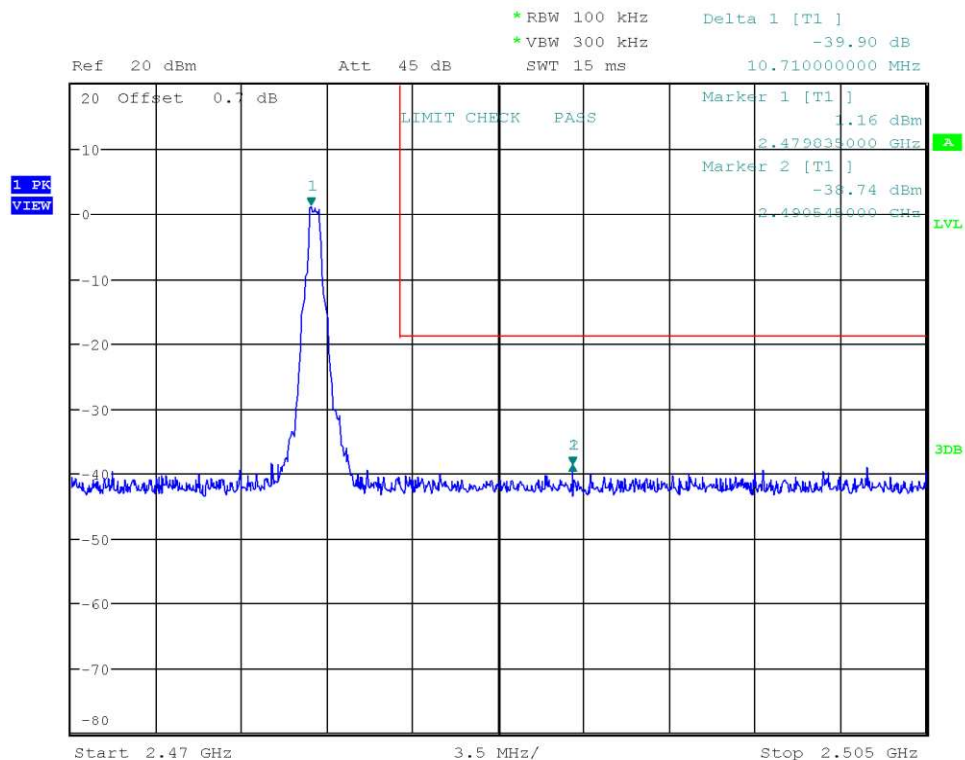
Date: 11.SEP.2024 13:16:31

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 7.8.6, 6.10.4
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Mode: Transmit Radio 2
 Band-edge: Upper
 In-band Frequency [MHz]: 2479.835
 Max. in-band Level [dBm/100 kHz]: 1.159
 Out-of-band Frequency [MHz]: 2490.545
 Max. out-of-band Level [dBm/100 kHz]: -38.742
 Attenuation [dB]: -39.9



Date: 11.SEP.2024 13:17:46

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.7 Test Conditions and Results - Conducted spurious emissions

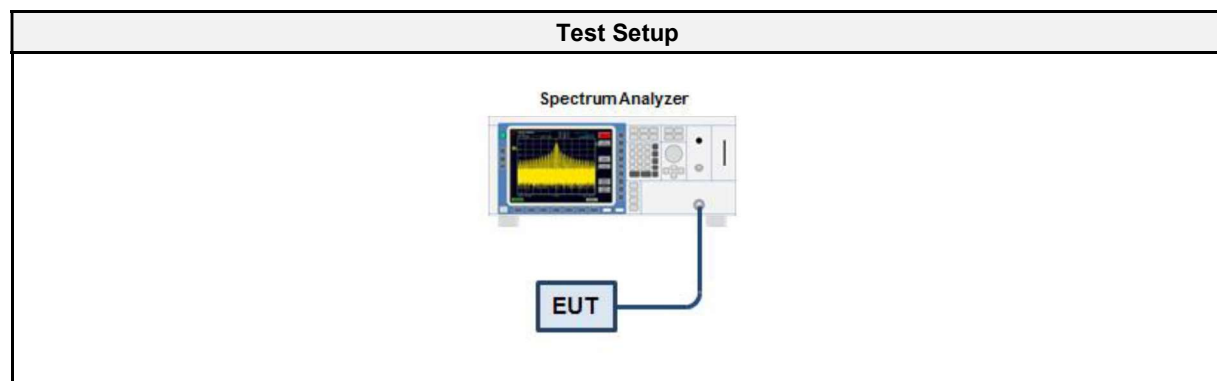
3.7.1 Information

Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 3 (section 5.5)
Measurement Uncertainty	± 4.25 dB
Measurement Method	ANSI C63.10 11.11
Operator	Florian Voigt
Date	2024-09-11

3.7.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.7.3 Setup



3.7.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2024-07	2025-07
Cable	Huber+Suhner	Sucoflex 102EA	EF00779 CAABR	2024-04	2025-04

3.7.5 Procedure

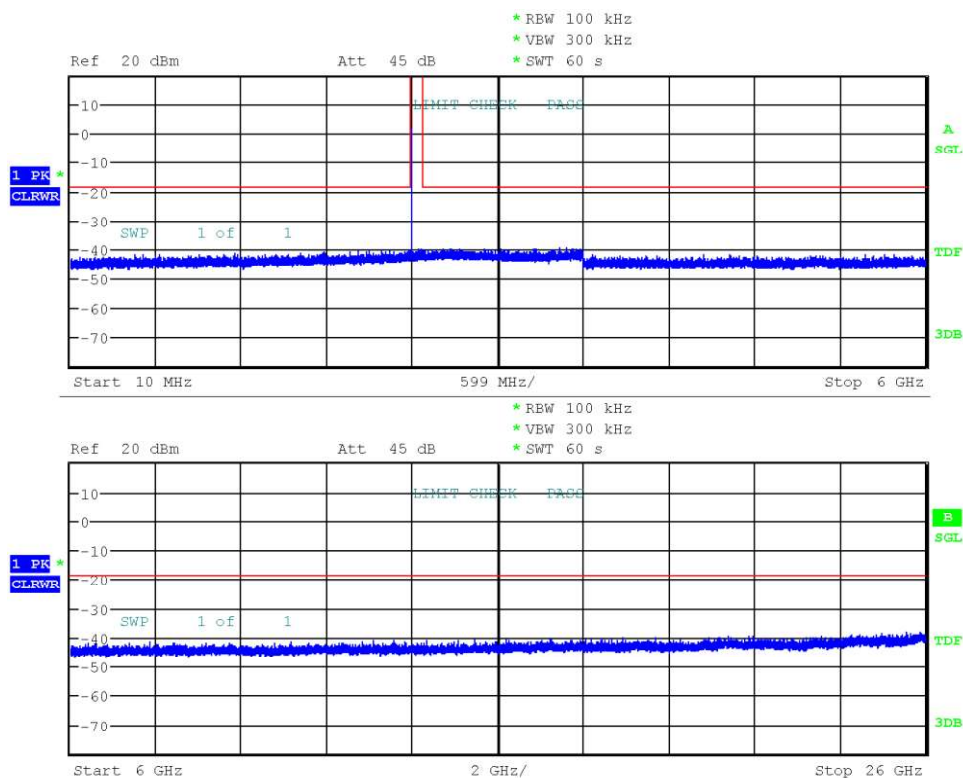
Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Span set around lower band edge and detector is set to peak and max hold 3. Resolution bandwidth is set to 100 kHz 4. Markers are set to peak emission levels outside frequency band

3.7.6 Results

Test Results		
Mode	Channel [MHz]	Verdict
Transmit Radio 1	2402	PASS
Transmit Radio 1	2440	PASS
Transmit Radio 1	2480	PASS
Transmit Radio 2	2402	PASS
Transmit Radio 2	2440	PASS
Transmit Radio 2	2480	PASS

Conducted Spurious Emissions

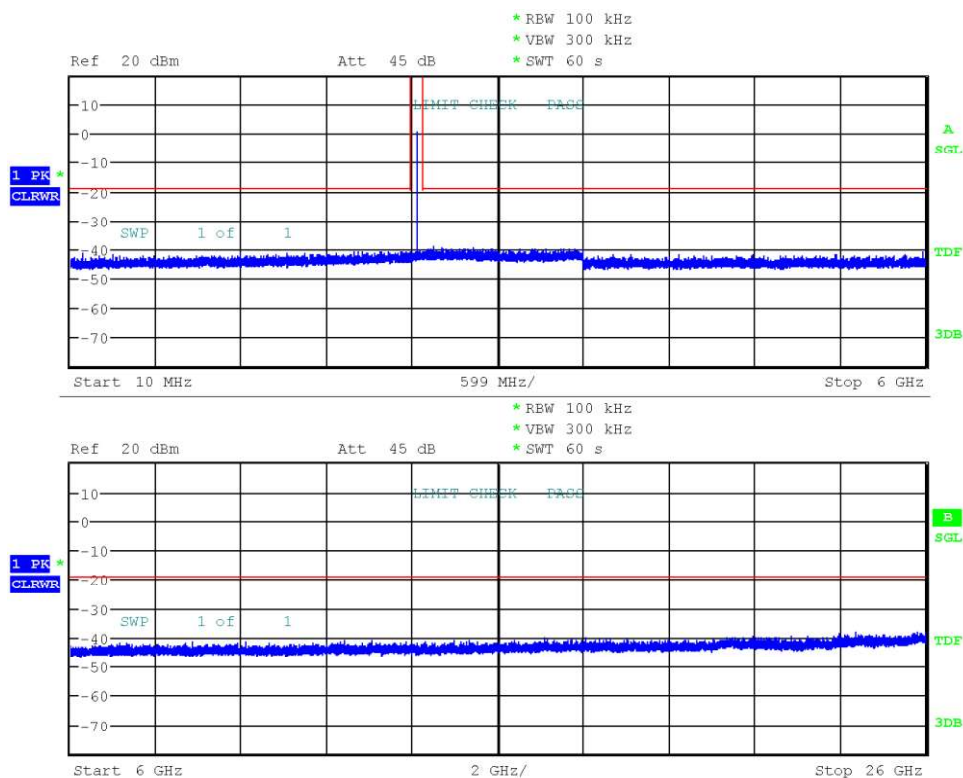
Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: Transmit Radio 1, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Max. in-band Frequency [MHz]: 2401.8
 Max. in-band Level [dBm/100 kHz]: 1.5
 Out-of-band Limit [dBm/100 kHz]: -18.5



Date: 11.SEP.2024 13:33:44

Conducted Spurious Emissions

Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: Transmit Radio 1, Channel: 38, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Max. in-band Frequency [MHz]: 2439.8
 Max. in-band Level [dBm/100 kHz]: 1.2
 Out-of-band Limit [dBm/100 kHz]: -18.8



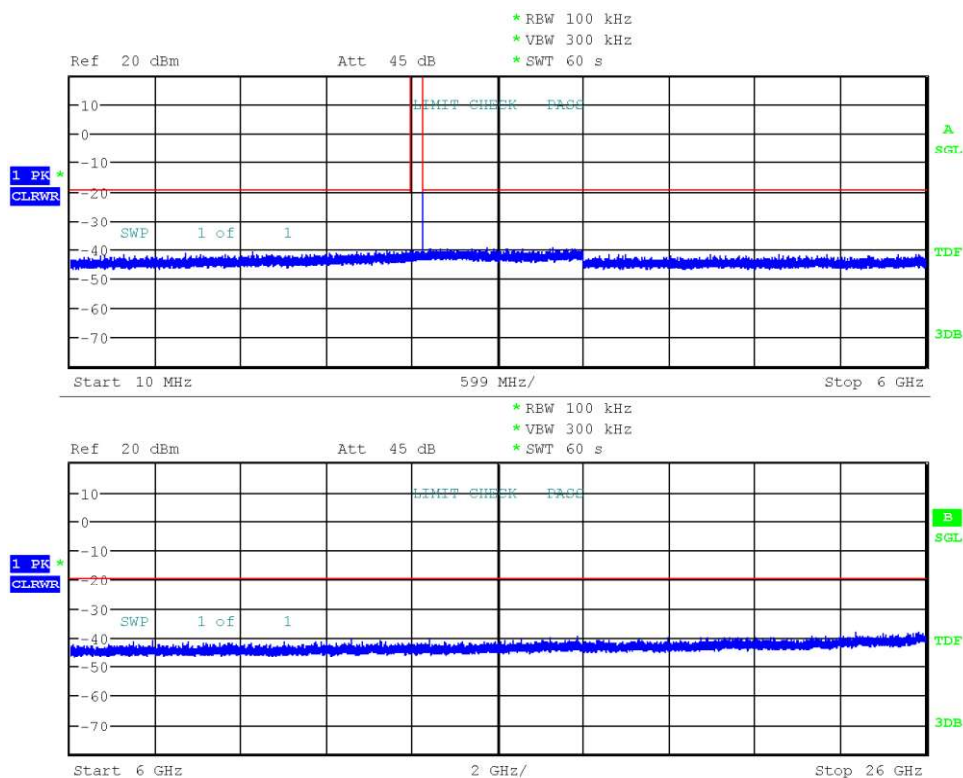
Date: 11.SEP.2024 13:38:07

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: Transmit Radio 1, Channel: 78, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Max. in-band Frequency [MHz]: 2479.8
 Max. in-band Level [dBm/100 kHz]: 0.6
 Out-of-band Limit [dBm/100 kHz]: -19.4



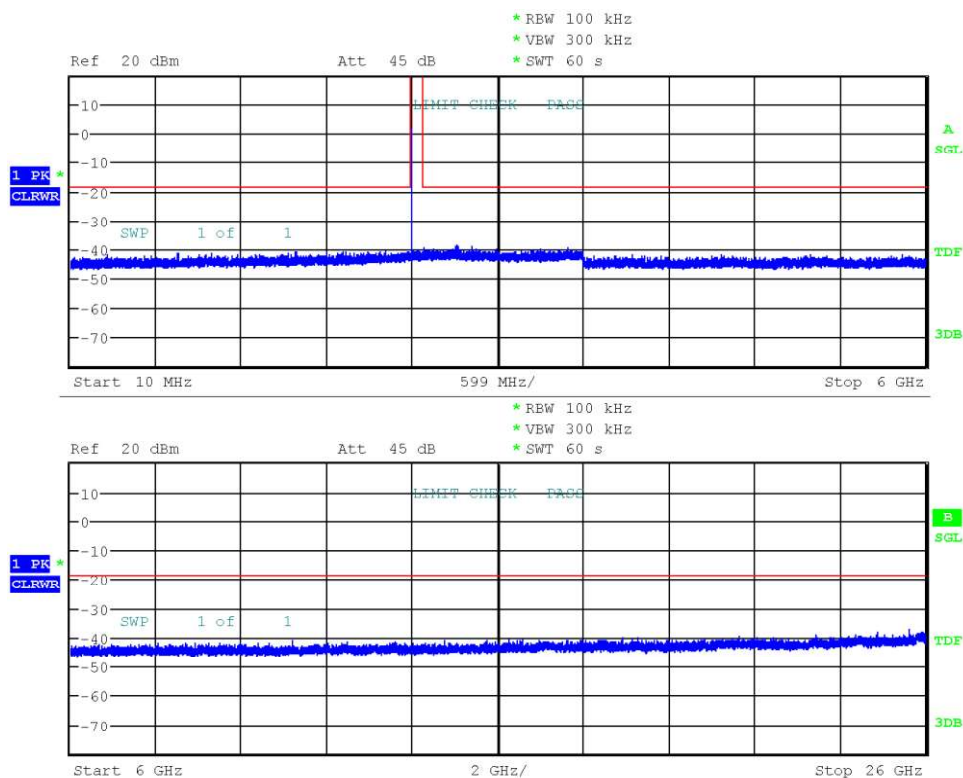
Date: 11.SEP.2024 13:42:09

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: Transmit Radio 2, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Max. in-band Frequency [MHz]: 2401.8
 Max. in-band Level [dBm/100 kHz]: 1.7
 Out-of-band Limit [dBm/100 kHz]: -18.3



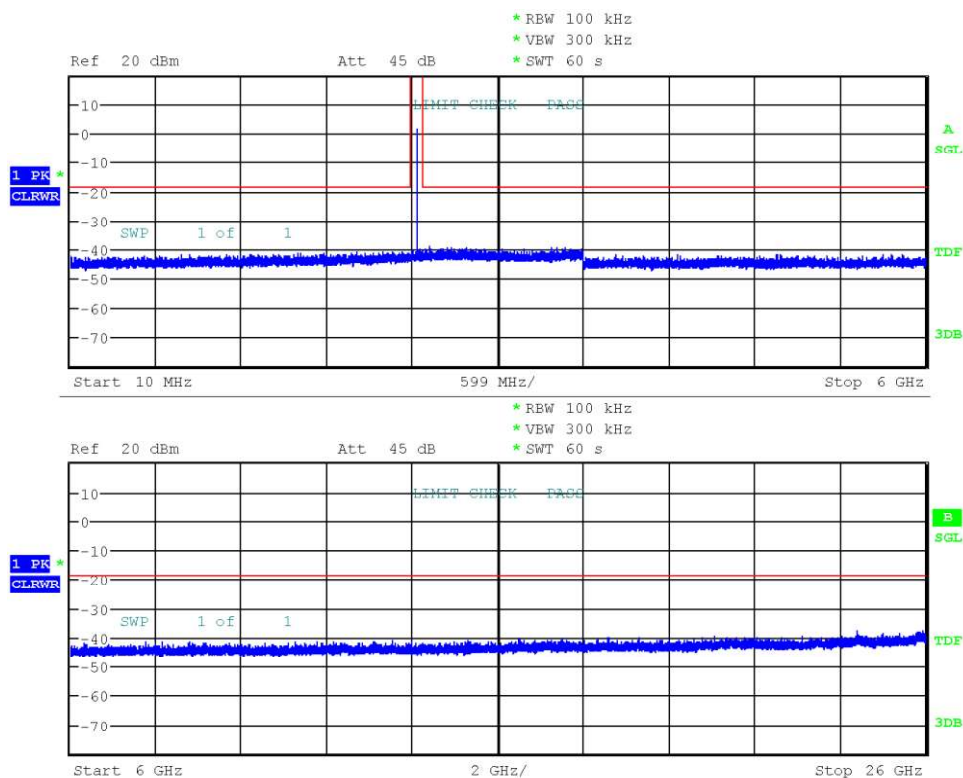
Date: 11.SEP.2024 13:48:18

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: Transmit Radio 2, Channel: 38, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Max. in-band Frequency [MHz]: 2439.8
 Max. in-band Level [dBm/100 kHz]: 1.5
 Out-of-band Limit [dBm/100 kHz]: -18.5



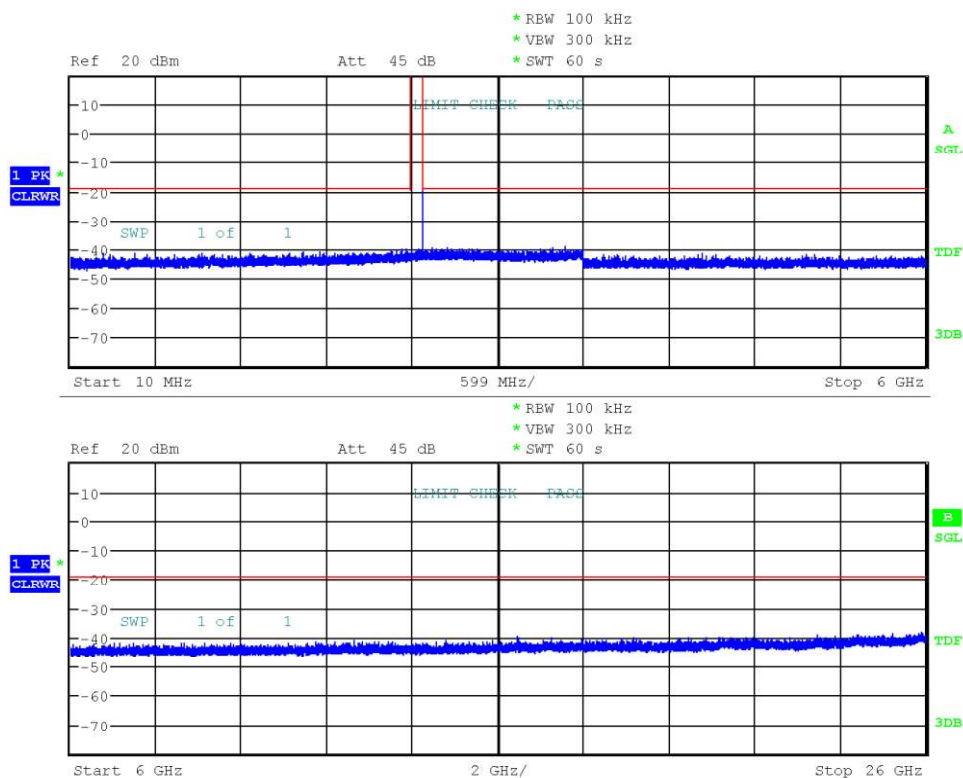
Date: 11.SEP.2024 14:08:03

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2406-2604
 Applicant: Somnium Space LTD.
 Model Description: Head-Mounted Display / VR headset
 Model: VR1
 Test Sample ID: 49299
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: Transmit Radio 2, Channel: 78, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2024-09-11
 Max. in-band Frequency [MHz]: 2479.8
 Max. in-band Level [dBm/100 kHz]: 1.0
 Out-of-band Limit [dBm/100 kHz]: -19.0



Date: 11.SEP.2024 14:11:13

Test Report No.: G0M-2406-2604-TFC247DT-V03

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.8 Test Conditions and Results - Transmitter radiated emissions

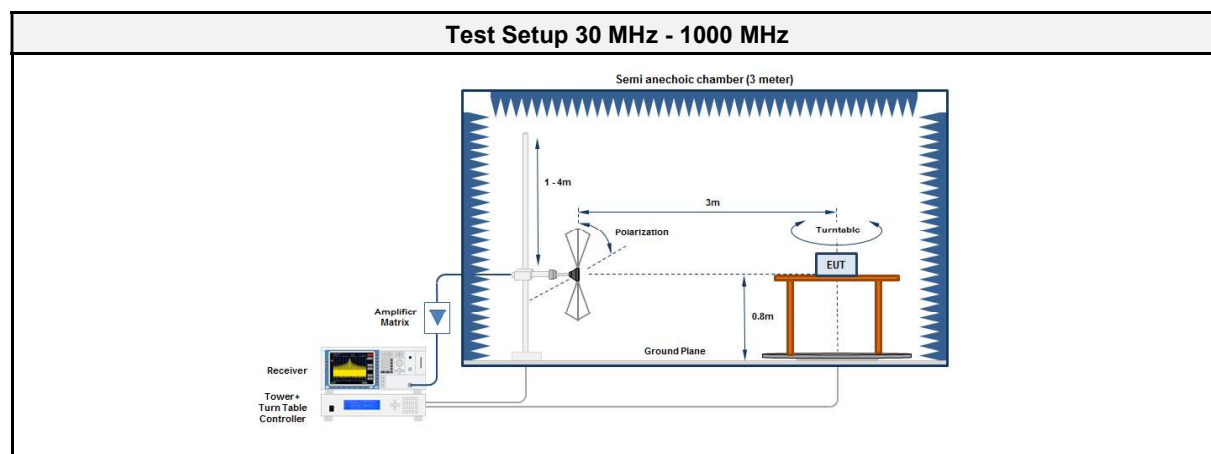
3.8.1 Information

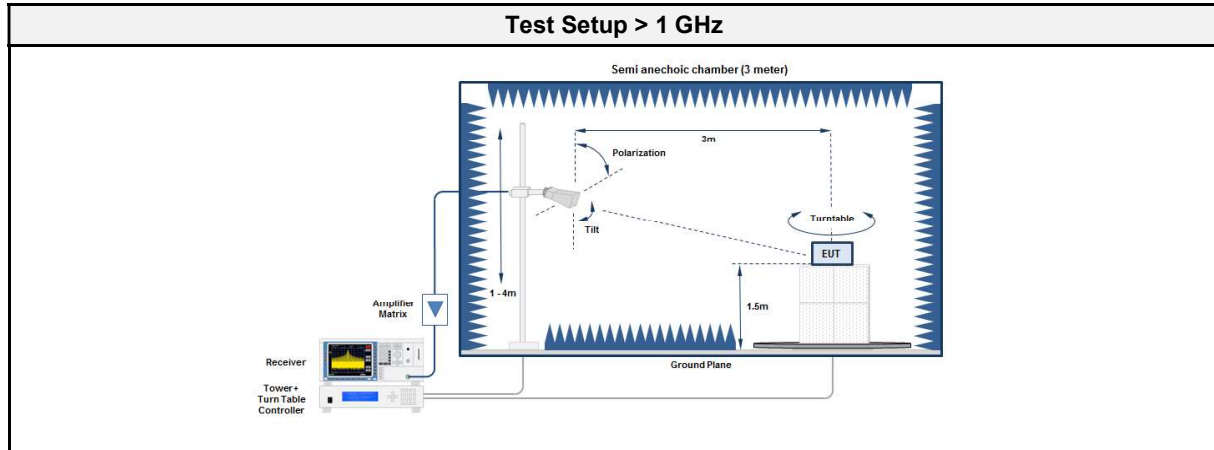
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISSED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Florian Voigt
Date	2024-09-09 + 2024-09-10 + 2024-12-03

3.8.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [$\mu\text{V/m}$]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.8.3 Setup





3.8.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2023.2.6

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2024-07	2027-07
EMI Test Receiver	R&S	ESW44	EF01856	2024-04	2025-04
Antenna	Schwarzbeck	VULB 9168	EF01824	2022-10	2025-10

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF01011	2024-07	2027-07
EMI Test Receiver	R&S	ESW44	EF01856	2024-04	2025-04
Antenna	Schwarzbeck	BBHA 9120D	EF01561	2021-11	2024-11
Antenna	Schwarzbeck	BBHA 9120D	EF00019	2023-12	2026-12
Antenna	Amplifier Research	AT4560	EF00302	2023-09	2025-09

3.8.5 Procedure

Test Procedure 30 MHz - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector

3.8.6 Duty cycle evaluation measurement description

For the single emission with the frequency of 5400 MHz, a duty cycle evaluation measurement has been done. EUT and measurement antenna was positioned for maximum emission level. At maximized position, the emission measurement was repeated 2 times. First time with a high transmitter duty cycle and a second time with a low transmitter duty cycle. For this measurement the averaging time was set to 100 ms. Purpose is to show that transmitter duty cycle has no effect on resulting emission level, so emission can be excluded from duty cycle corrections. Test results are shown in ANNEX B.

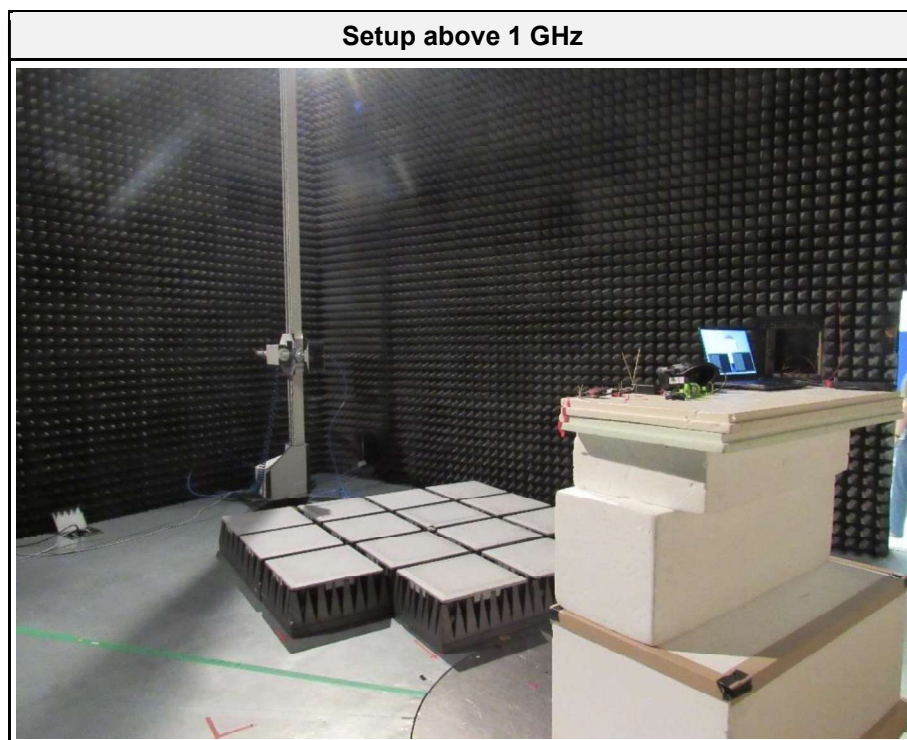
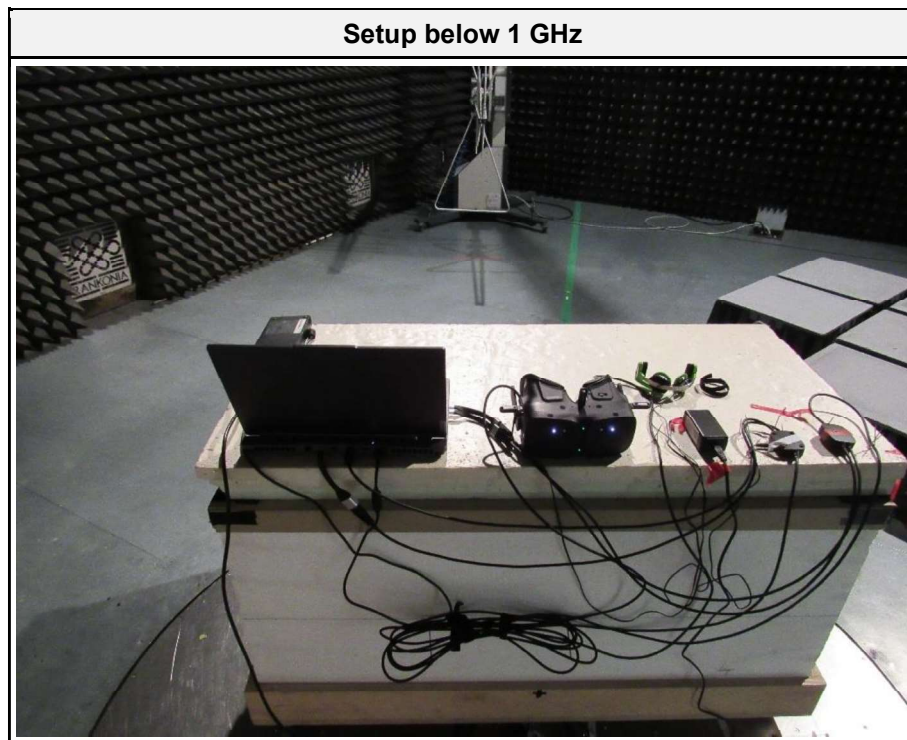
3.8.7 Results

Test Results – below 1 GHz							
Mode	Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
Transmit Radio 1 + Transmit Radio 2	2402 2440	37.7194	33	qpk	hor	40	-7.03
Transmit Radio 1 + Transmit Radio 2	2402 2440	262.803	31.1	qpk	ver	46	-14.9
Transmit Radio 1 + Transmit Radio 2	2440 2480	37.76	20.4	qpk	hor	40	-19.59
Transmit Radio 1 + Transmit Radio 2	2440 2480	264.0933	30	qpk	ver	46	-16.04
Transmit Radio 1 + Transmit Radio 2	2480 2402	134.6967	25.6	qpk	hor	43.5	-17.92

Test Results – above 1 GHz								
Mode	Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Corrected ² Avg. Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
Transmit Radio 1 + Transmit Radio 2	2402 2440	4982.6815	59.21	N/A	pk	ver	74	-14.79
Transmit Radio 1 + Transmit Radio 2	2402 2440	4982.6815	42.07	43.28	avg	ver	54	-10.72
Transmit Radio 1 + Transmit Radio 2	2402 2440	5400.0221	53.46	N/A	pk	hor	74	-20.54
Transmit Radio 1 + Transmit Radio 2	2402 2440	5400.0221	50.49	Note 1	avg	hor	54	-3.51
Transmit Radio 1 + Transmit Radio 2	2402 2440	5400.05	56.35 Note 3	N/A	pk	ver	74	-17.65
Transmit Radio 1 + Transmit Radio 2	2402 2440	5400.05	53.44	Note 1, 3	avg	ver	54	-0.56
Transmit Radio 1 + Transmit Radio 2	2440 2480	4991.9	56.47	N/A	pk	ver	74	-17.53
Transmit Radio 1 + Transmit Radio 2	2440 2480	4991.9	39.23	40.44	avg	ver	54	-13.56
Transmit Radio 1 + Transmit Radio 2	2440 2480	5400.0885	53.47	N/A	pk	ver	74	-20.53
Transmit Radio 1 + Transmit Radio 2	2440 2480	5400.0885	50.83	Note 1	avg	ver	54	-3.17
Transmit Radio 1 + Transmit Radio 2	2480 2402	4984.5333	52.95	N/A	pk	ver	74	-21.05
Transmit Radio 1 + Transmit Radio 2	2480 2402	4984.5333	38.46	39.67	avg	ver	54	-14.33
Transmit Radio 1 + Transmit Radio 2	2480 2402	5400.00	56.68 Note 3	N/A	pk	ver	74	-17.32

Transmit Radio 1 + Transmit Radio 2	2480 2402	5400.00	53.51	Note 1, 3	avg	ver	54	-0.49
Transmit Radio 1 + Transmit Radio 2	2480 2402	5400.0062	53.61	N/A	pk	hor	74	-20.39
Transmit Radio 1 + Transmit Radio 2	2480 2402	5400.0062	51.15	Note 1	avg	hor	54	-2.85
Transmit Radio 1	2402	1128.0067	40.13	N/A	pk	ver	74	-33.87
Transmit Radio 1	2402	1128.0067	36.89	38.1	avg	ver	54	-15.9
Transmit Radio 1	2402	2317.93	40.18	N/A	pk	ver	74	-33.82
Transmit Radio 1	2402	2317.93	33.51	34.72	avg	ver	54	-19.28
Transmit Radio 1	2440	1127.96	40.14	N/A	pk	ver	74	-33.86
Transmit Radio 1	2440	1127.96	36.54	37.75	avg	ver	54	-16.25
Transmit Radio 1	2440	2201.2467	41.69	N/A	pk	ver	74	-32.31
Transmit Radio 1	2440	2201.2467	35.13	36.34	avg	ver	54	-17.66
Transmit Radio 1	2480	1128.053	41.17	N/A	pk	ver	74	-32.83
Transmit Radio 1	2480	1128.053	37.44	38.65	avg	ver	54	-15.35
Transmit Radio 1	2480	2483.527	40.49	N/A	pk	ver	74	-33.51
Transmit Radio 1	2480	2483.527	32.49	33.7	avg	ver	54	-20.3
Transmit Radio 1	2480	3915.533	41.27	N/A	pk	hor	74	-32.73
Transmit Radio 1	2480	3915.533	33.82	35.03	avg	hor	54	-18.97
Transmit Radio 2	2402	1127.9633	40.06	N/A	pk	ver	74	-33.94
Transmit Radio 2	2402	1127.9633	36.62	37.83	avg	ver	54	-16.17
Transmit Radio 2	2402	2352.0067	41.12	N/A	pk	ver	74	-32.88
Transmit Radio 2	2402	2352.0067	33.02	34.23	avg	ver	54	-19.77
Transmit Radio 2	2440	1127.8667	40.98	N/A	pk	ver	74	-33.02
Transmit Radio 2	2440	1127.8667	37.2	38.41	avg	ver	54	-15.59
Transmit Radio 2	2480	1175.98	39.48	N/A	pk	ver	74	-34.52
Transmit Radio 2	2480	1175.98	36.5	37.71	avg	ver	54	-16.29
Transmit Radio 2	2480	2488.4654	42.72	N/A	pk	hor	74	-31.28
Transmit Radio 2	2480	2488.4654	31.23	32.44	avg	hor	54	-21.56
Note 1: Duty cycle correction factor (DCCF) is not applied to measured average value, because it is proved by the measurements in ANNEX B, that average value is independent of transmitter duty cycle. Note 2: All non-excluded averaged measurement values are corrected by the DCCF of 1.21 dB Note 3: Used the worst case measurement values listed in ANNEX B instead of the measurements listed in ANNEX A								

3.8.8 Setup Photos



3.9 Test Conditions and Results - Receiver radiated emissions

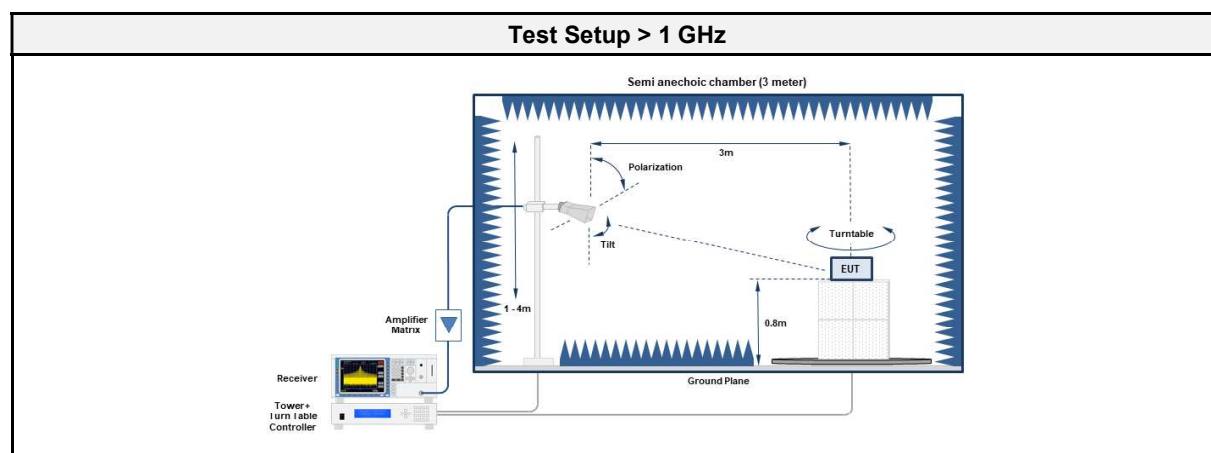
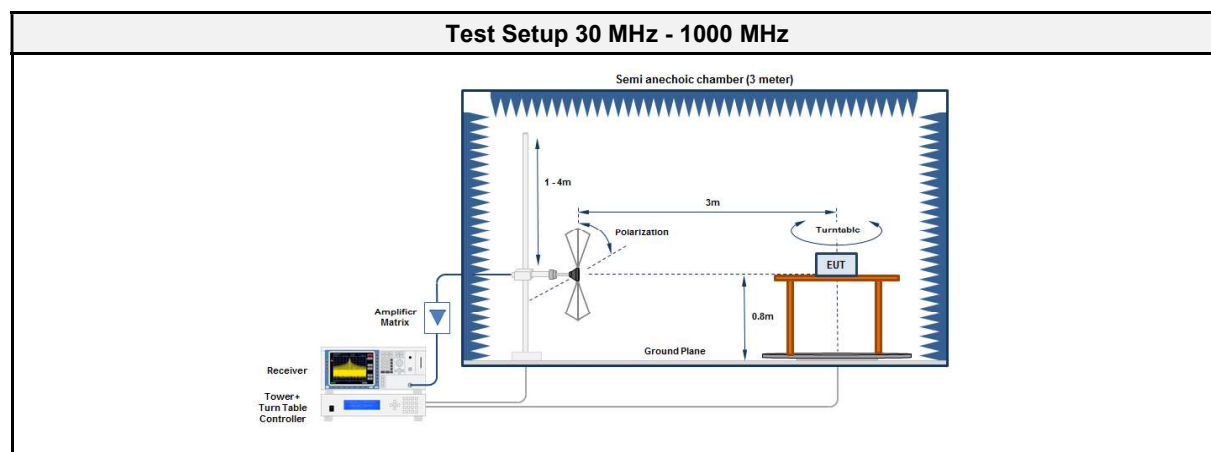
3.9.1 Information

Test Information	
Reference	ISED RSS-247, Issue 3 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	Florian Voigt
Date	2024-09-09

3.9.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [$\mu\text{V/m}$]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.9.3 Setup



3.9.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2023.2.6

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2024-07	2027-07
EMI Test Receiver	R&S	ESW44	EF01856	2024-04	2025-04
Antenna	Schwarzbeck	VULB 9168	EF01824	2022-10	2025-10

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF01011	2024-07	2027-07
EMI Test Receiver	R&S	ESW44	EF01856	2024-04	2025-04
Antenna	Schwarzbeck	BBHA 9120D	EF01561	2021-11	2024-11

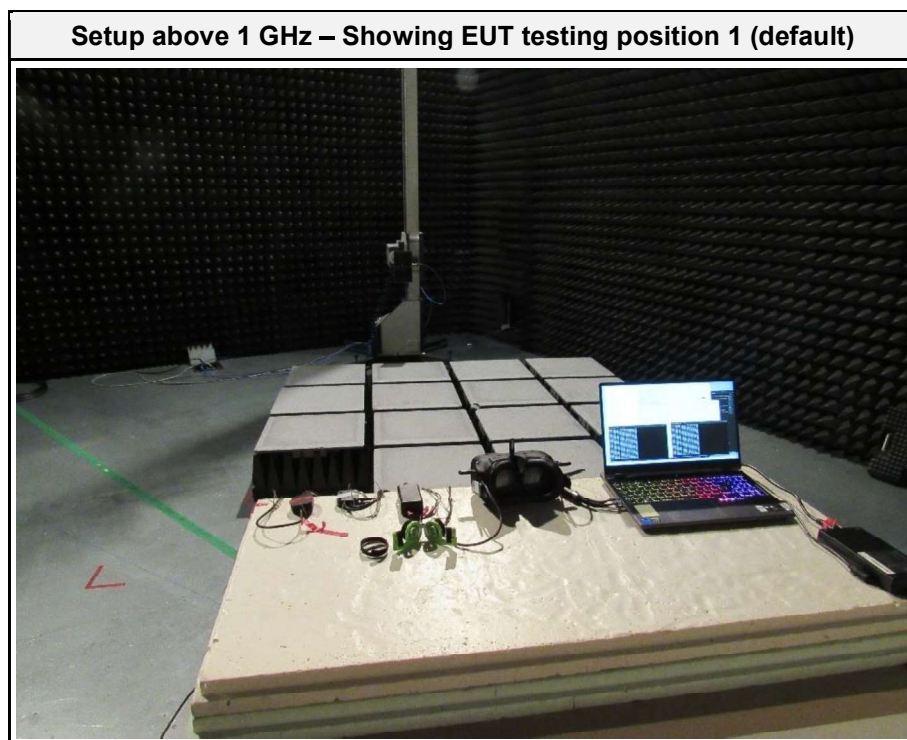
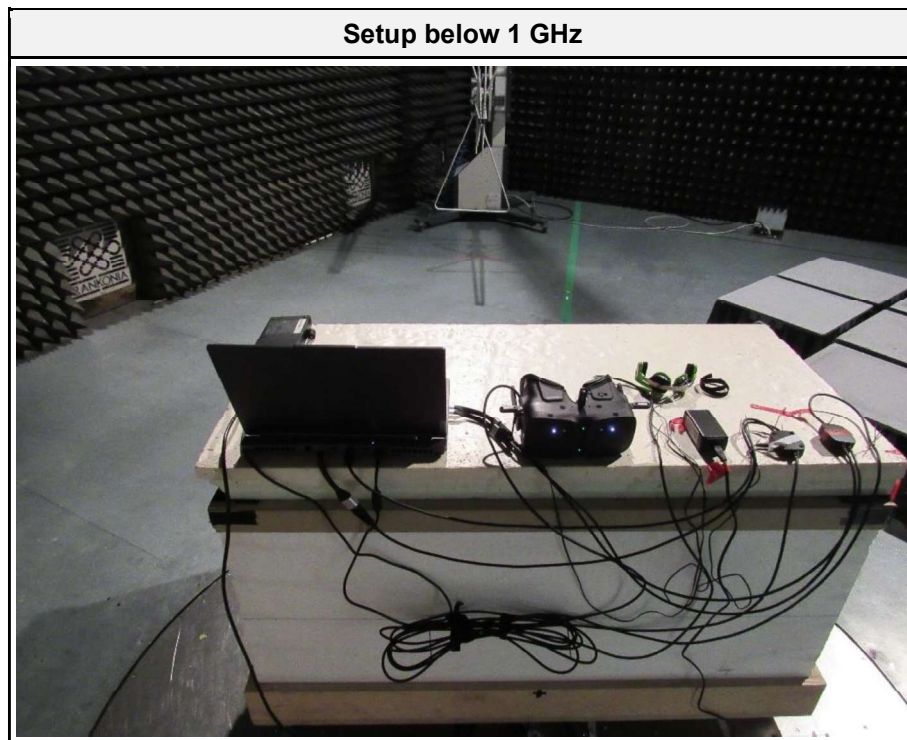
3.9.5 Procedure

Test Procedure
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground 2. EUT is set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector

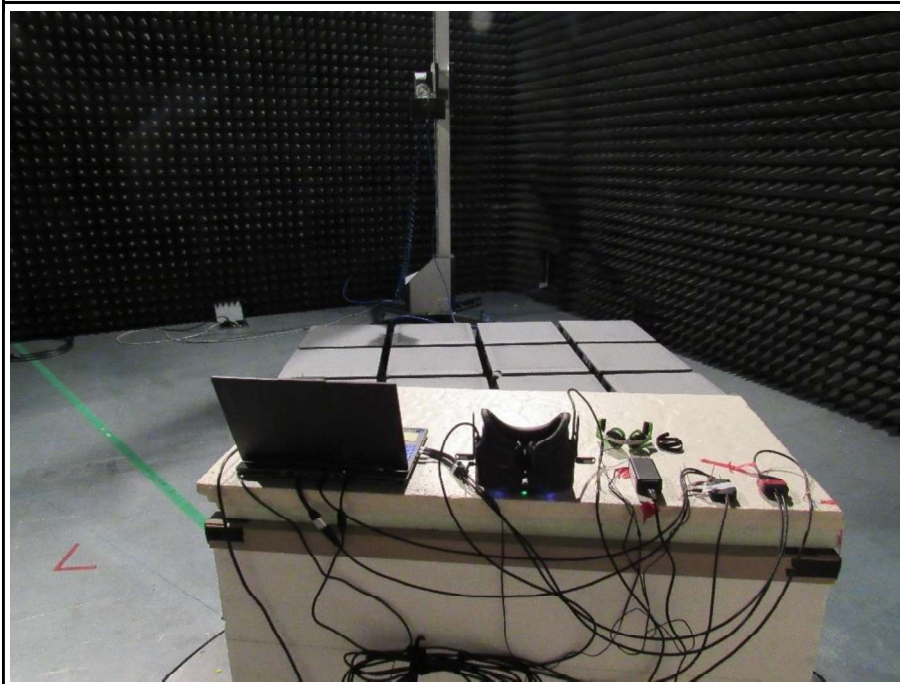
3.9.6 Results

Test Results							
Mode	Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
Receive Radio 1 Receive Radio 2	2440 2440	35.0724	26.4	qpk	hor	40	-13.61
Receive Radio 1 Receive Radio 2	2440 2440	92.2448	25	qpk	hor	43.5	-18.52
Receive Radio 1 Receive Radio 2	2440 2440	207.5966	32.1	qpk	hor	43.5	-11.42
Receive Radio 1 Receive Radio 2	2440 2440	422.7339	34.4	qpk	ver	46	-11.59
Receive Radio 1 Receive Radio 2	2440 2440	2010.871	48.35	pk	ver	73.98	-25.63
Receive Radio 1 Receive Radio 2	2440 2440	2010.871	37.41	avg	ver	53.98	-16.57
Receive Radio 1 Receive Radio 2	2440 2440	2080.4	50.28	pk	hor	73.98	-23.7
Receive Radio 1 Receive Radio 2	2440 2440	2080.4	39.8	avg	hor	53.98	-14.18
Receive Radio 1 Receive Radio 2	2440 2440	4982.056	58.61	pk	hor	73.98	-15.37
Receive Radio 1 Receive Radio 2	2440 2440	4982.056	40.93	avg	hor	53.98	-13.05
Receive Radio 1 Receive Radio 2	2440 2440	4983.267	57.46	pk	ver	73.98	-16.52
Receive Radio 1 Receive Radio 2	2440 2440	4983.267	40.4	avg	ver	53.98	-13.58
Receive Radio 1 Receive Radio 2	2440 2440	4990.4	55.17	pk	ver	73.98	-18.81
Receive Radio 1 Receive Radio 2	2440 2440	4990.4	38.57	avg	ver	53.98	-15.41
Receive Radio 1 Receive Radio 2	2440 2440	4992.4	56.83	pk	hor	73.98	-17.15
Receive Radio 1 Receive Radio 2	2440 2440	4992.4	38.62	avg	hor	53.98	-15.36
Receive Radio 1 Receive Radio 2	2440 2440	5400.016	54.4	pk	hor	73.98	-19.58
Receive Radio 1 Receive Radio 2	2440 2440	5400.016	52.17	avg	hor	53.98	-1.81
Receive Radio 1 Receive Radio 2	2440 2440	5400.016	55.27	pk	ver	73.98	-18.71
Receive Radio 1 Receive Radio 2	2440 2440	5400.016	53.4	avg	ver	53.98	-0.58
Comment: For measurements of EUT in different orientations, only the worst case horizontal and vertical results out of all 3 orientations are selected and shown in this table.							

3.9.7 Setup Photos



Setup above 1 GHz – Showing EUT testing position 2



Setup above 1 GHz – Showing EUT testing position 3

