

Prüfbericht-Nr.: <i>Test Report No.:</i>	50085890 002	Auftrags-Nr.: <i>Order No.:</i>	244217792	Seite 1 von 17 <i>Page 1 of 17</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	244048914	Auftragsdatum: <i>Order date:</i>	14.02.2020	
Auftraggeber: <i>Client:</i>	AXENT Corporation Ltd. 3 Musick, Irvine CA 92618 USA			
Prüfgegenstand: <i>Test item:</i>	Tankless toilet			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	W330-06 FCC ID: 2AL4GPRIMUS			
Auftrags-Inhalt: <i>Order content:</i>	Class II Permission Change			
Prüfgrundlage: <i>Test specification:</i>	FCC CFR47 Part 15, Subpart C Section 15.249 ANSI C63.10: 2013			
Wareneingangsdatum: <i>Date of receipt:</i>	05.05.2020	Please refer to the External Photos		
Prüfmuster-Nr.: <i>Test sample No.:</i>	A002820295-001			
Prüfzeitraum: <i>Testing period:</i>	Refer to test report			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 21.05.2020 Elliot Zhang / PE Datum Name / Stellung <i>Date</i> <i>Name / Position</i>		 21.05.2020 Hongfei Wu / Reviewer Datum Name / Stellung <i>Date</i> <i>Name / Position</i>		
Sonstiges / Other The purpose of this report is to perform the C2PC tests since the power supply of the EUT was changed from DC to AC, so only the related tests were performed.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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TEST SUMMARY

5.1.1 CONDUCTED EMISSION

RESULT: Pass

5.2.1 RADIATED SPURIOUS EMISSION

RESULT: Pass

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1. General Remarks

1.1 Complementary Materials

Null.

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Shanghai) Co., Ltd.

Shanghai TUV Rheinland Building No. 177, 178 Lane 777, West Guangzhong Rd, Jing'an District, Shanghai, China

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 958801.

The Innovation, Science and Economic Development Canada has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance. The description of the test facility is listed under chambers filing number 2932F.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
3m Anechoic Chamber	Frankonia	SAC3	FJ129002	13.05.2022
EMI Test Receiver	R&S	ESCI	100280	31.10.2020
Spectrum Analyzer	R&S	FSV40	101258	31.10.2021
BiLog Antenna	Teseq	CBL 6112D	40530	13.02.2021
Log-periodic Antenna	R&S	HL050	100692	16.02.2021
Preamplifier	Taiwan EMC Instruments Corporation	EMC051845SE	980612	05.03.2021
Broadband Horn Antenna	Schwarzbeck	BBHA 9170	9170-305	09.07.2021
Preamplifier	Taiwan EMC Instruments Corporation	EMC184045SE	980596	05.03.2021
Thermohygrometer	Testo	608-H1	1241320614	13.10.2020
EMI test receiver	R&S	ESIB26	G1811380	06.03.2021
Artificial main network	R&S	ENV432	G1830003	01.11.2020
EMC measurement software	R&S	EMC32	G1824845	N/A

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	±0.39dB
	> 1GHz	±0.68dB
Radiated Emission	9kHz – 30MHz	±2.93dB
	30MHz - 1GHz	±5.34dB
	> 1GHz	±5.40dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is an intelligent toilet which contains a 2.4GHz wireless module module.

The aim of this report is to evaluate the 2.4GHz wireless module of the EUT.

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Description of EUT	
Product Name:	Tankless toilet
Brand Name:	AXENT
Model No.:	W330-06
Rated Voltage:	AC 120V, 60Hz
2.4GHz Wireless Module	
Frequency Range:	2411MHz
Modulation Type:	FSK
Antenna Type:	PCB
Antenna Gain:	0dBi

3.3 Independent Operation Modes

Test Mode	Frequency [MHz]	Operating Mode
TM1	2411	The EUT was set into continues transmitting mode

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

Null.

4.4 Countermeasures to achieve EMC Compliance

Null.

5. Test Results

5.1 Emission in the Frequency Range up to 30MHz

5.1.1 Conducted Emission

RESULT:**Pass**

Date of testing	: 20.05.2020
Ambient temperature	: 23.5°C
Relative humidity	: 40.6%
Atmospheric pressure	: 101kPa
Test requirement	: FCC Part 15.207 (a)
Test procedure	: ANSI C63.10: 2013
Test voltage	: AC 120V, 60Hz
Test modes applied	: TM1

Figure 1: Conducted Emission, L

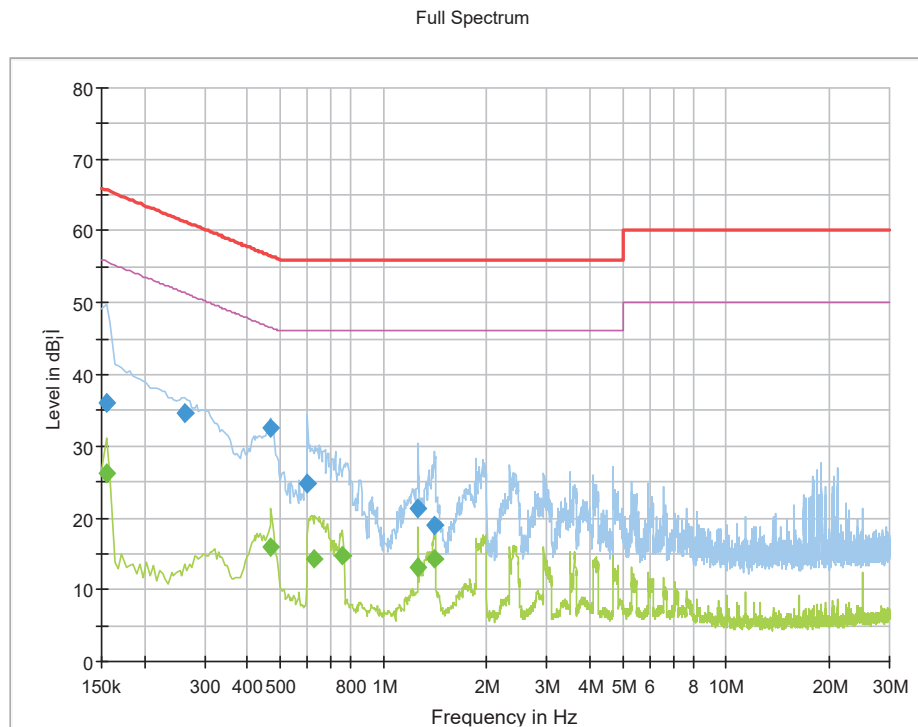


Table 4: Conducted Emission, L, Final Result_QPK

Frequency [MHz]	QuasiPeak [dBμV]	Limit [dBμV]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	Corr. (dB)
0.154500	36.13	65.75	29.62	1000.0	9.000	L1	9.5
0.262500	34.71	61.35	26.64	1000.0	9.000	L1	9.5
0.469500	32.47	56.52	14.05	1000.0	9.000	L1	9.6
0.600000	24.80	56.00	31.20	1000.0	9.000	L1	9.6
1.261500	21.24	56.00	34.76	1000.0	9.000	L1	9.6
1.410000	18.93	56.00	37.07	1000.0	9.000	L1	9.6

Table 5: Conducted Emission, L, Final Result_CAV

Frequency [MHz]	CAverage [dBμV]	Limit [dBμV]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	Corr. (dB)
0.154500	26.28	55.75	29.48	1000.0	9.000	L1	9.5
0.469500	16.00	46.52	30.52	1000.0	9.000	L1	9.6
0.627000	14.20	46.00	31.80	1000.0	9.000	L1	9.6
0.762000	14.82	46.00	31.18	1000.0	9.000	L1	9.6
1.261500	13.09	46.00	32.91	1000.0	9.000	L1	9.6
1.414500	14.30	46.00	31.70	1000.0	9.000	L1	9.6

Figure 2: Conducted Emission, N

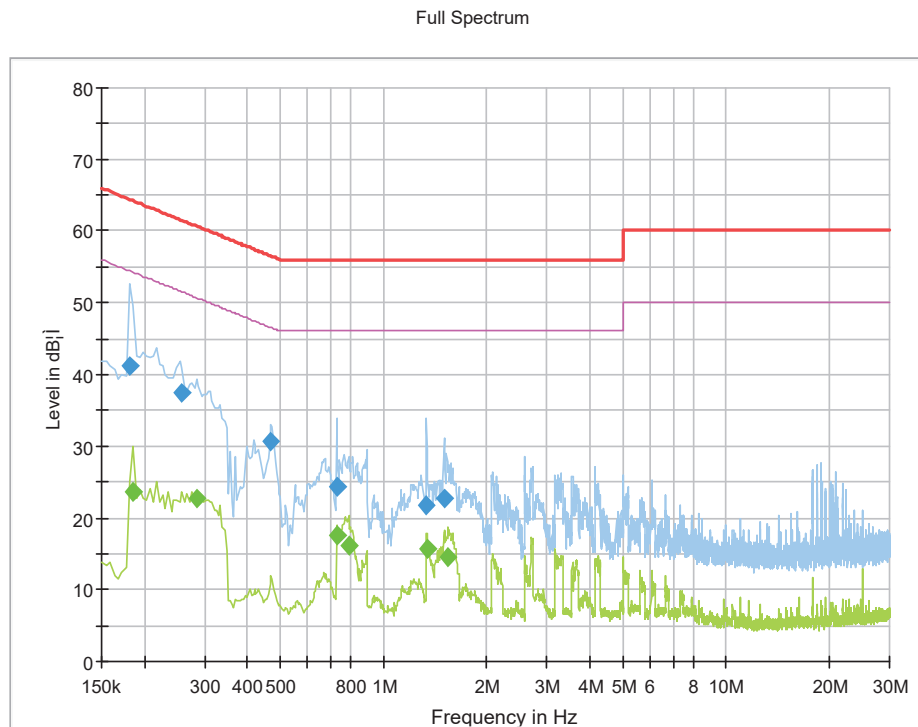


Table 6: Conducted Emission, N, Final Result_QPK

Frequency [MHz]	QuasiPeak [dBμV]	Limit [dBμV]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	Corr. (dB)
0.181500	41.26	64.42	23.16	1000.0	9.000	N	9.5
0.258000	37.42	61.50	24.08	1000.0	9.000	N	9.5
0.469500	30.65	56.52	25.88	1000.0	9.000	N	9.6
0.730500	24.38	56.00	31.62	1000.0	9.000	N	9.6
1.333500	21.64	56.00	34.36	1000.0	9.000	N	9.6
1.500000	22.58	56.00	33.42	1000.0	9.000	N	9.6

Table 7: Conducted Emission, N, Final Result_CAV

Frequency [MHz]	CAverage [dBμV]	Limit [dBμV]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Line	Corr. (dB)
0.186000	23.60	54.21	30.61	1000.0	9.000	N	9.5
0.285000	22.64	50.67	28.03	1000.0	9.000	N	9.5
0.730500	17.60	46.00	28.40	1000.0	9.000	N	9.6
0.789000	16.23	46.00	29.77	1000.0	9.000	N	9.6
1.338000	15.73	46.00	30.27	1000.0	9.000	N	9.6
1.545000	14.49	46.00	31.51	1000.0	9.000	N	9.6

5.2 Emission in the Frequency Range above 30MHz

5.2.1 Radiated Spurious Emission

RESULT:**Pass**

Date of testing	:	11.05.2020
Ambient temperature	:	23.2°C
Relative humidity	:	38.5%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.249(a) & FCC Part 15.249(e), FCC Part 15.249(d) & FCC Part 15.209;
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	AC 120V, 60Hz
Test modes applied	:	TM1
Kind of test site	:	3m Anechoic Chamber

Note: All the spurious emission found were close to the background noise.

Figure 3: Radiated Spurious Emission, TM1, 30MHz to 1GHz, H

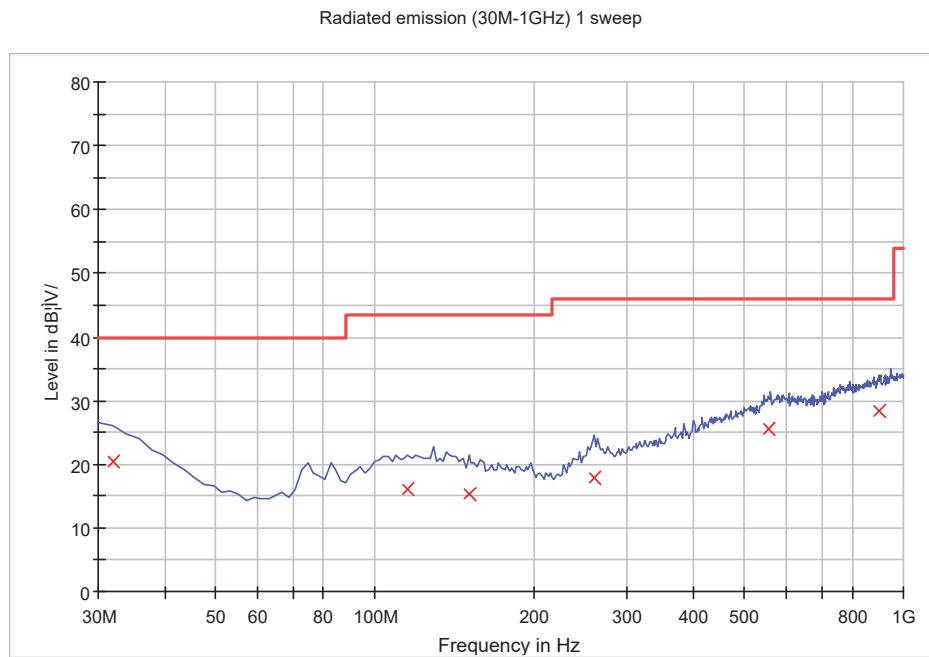


Figure 4: Radiated Spurious Emission, TM1, 30MHz to 1GHz, V

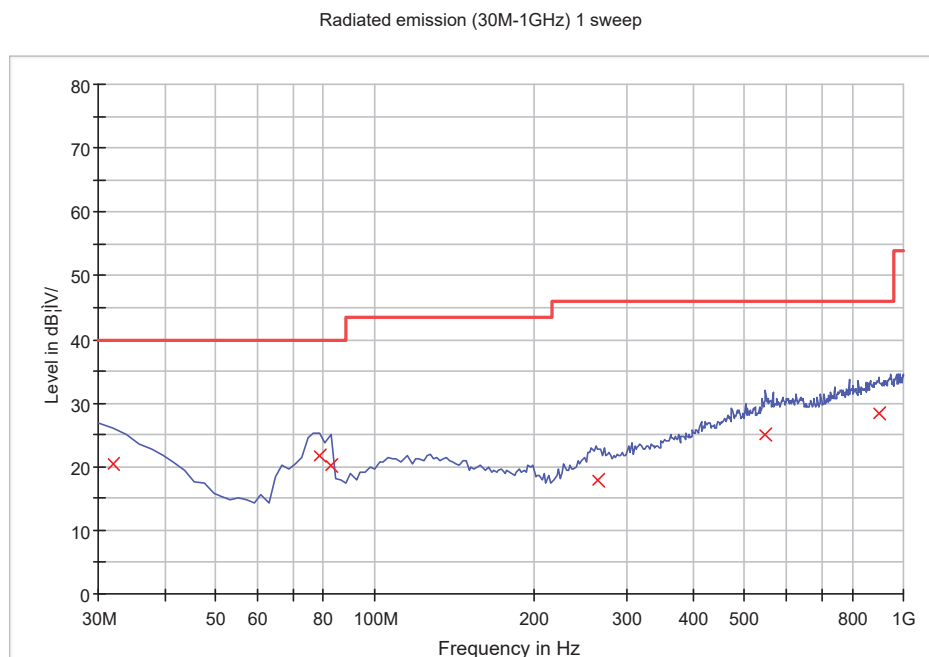


Figure 5: Radiated Spurious Emission, TM1, 1GHz to 18GHz, H

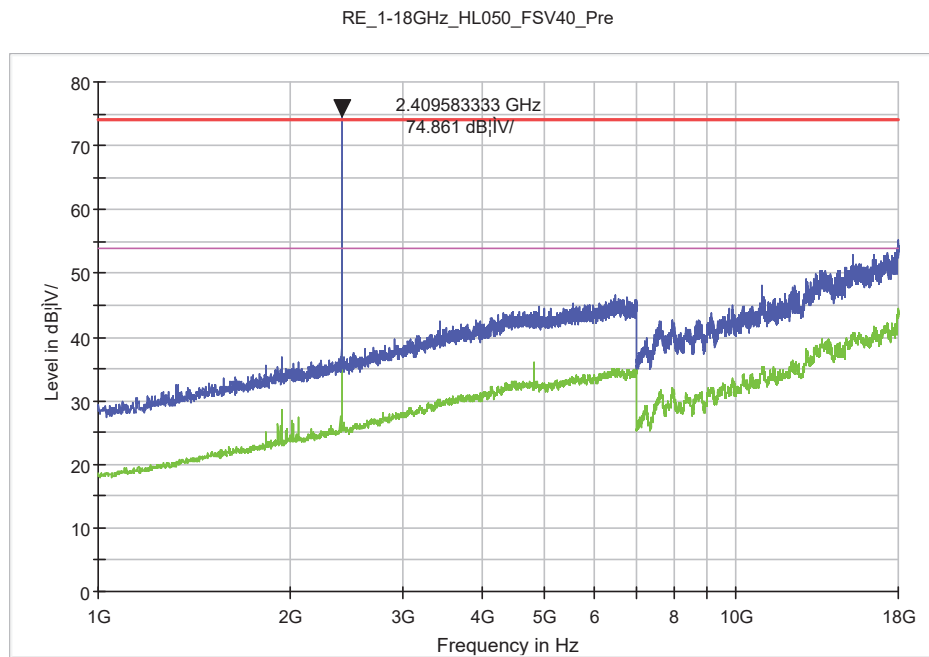


Figure 6: Radiated Spurious Emission, TM1, 1GHz to 18GHz, V

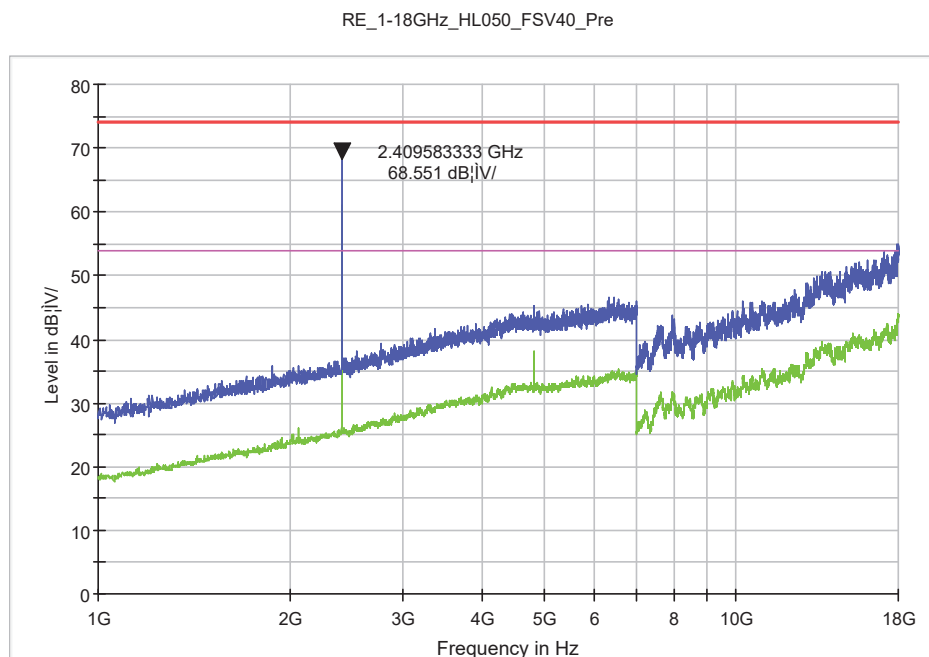


Figure 7: Radiated Spurious Emission, TM1, 18GHz to 25GHz, H

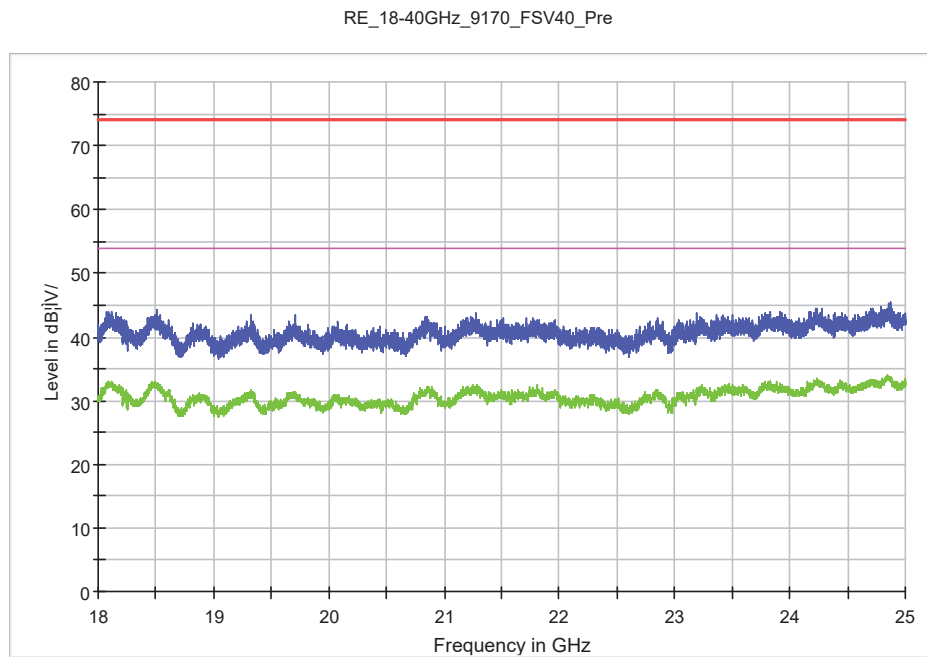
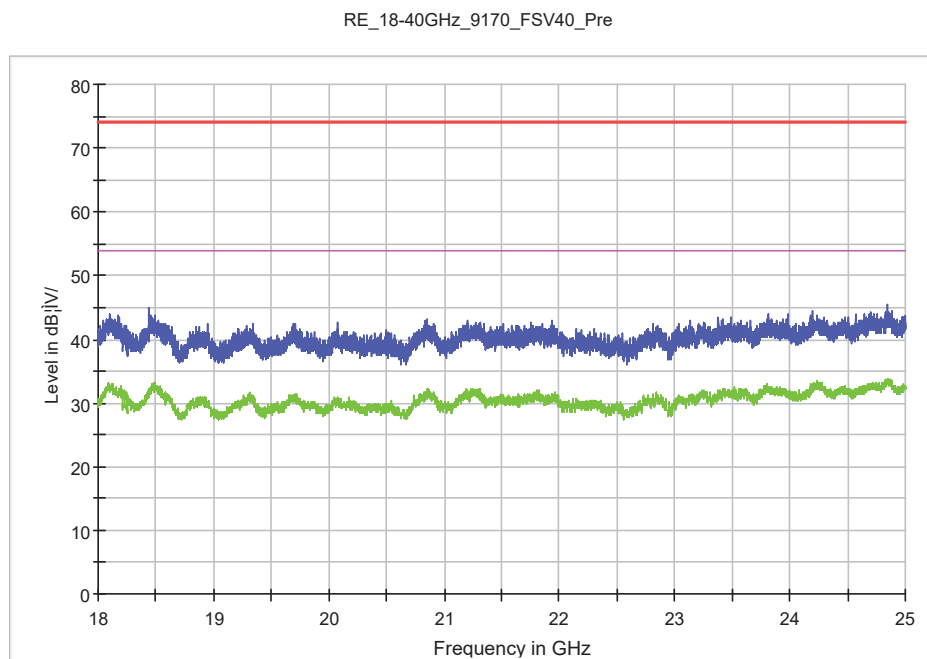


Figure 8: Radiated Spurious Emission, TM1, 18GHz to 25GHz, V



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