



EMI – TEST REPORT

Type / Model Name : M210SE

Product Description : Handheld Data Terminal (RFID)

Applicant : ACD Elektronik GmbH

Address : Engelberg 2

88480 ACHSTETTEN

GERMANY

Manufacturer : ACD Elektronik GmbH

Address : Engelberg 2

88480 ACHSTETTEN

GERMANY

Test Result according to the standards
listed in clause 1 test standards:

POSITIVE

Test Report No. : T41553-01-00WP

19. July 2017
Date of issue



Deutsche
Akkreditierungsstelle
D-PL-12030-01-01
D-PL-12030-01-02

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results
without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15, Subpart A - General (September, 2016)

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September, 2016)

Part 15, Subpart C, Section 15.205	Restricted bands of operation
Part 15, Subpart C, Section 15.207	Conducted limits
Part 15, Subpart C, Section 15.209	Radiated emission limits, general requirements
Part 15, Subpart C, Section 15.215	Additional provisions to the general radiated emission limitations
Part 15, Subpart C, Section 15.225	Operation within the band 13.110 – 14.010
Part 15, Subpart C, Section 15.247	Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

FCC Rules and Regulations Part 15, Subpart E – Unlicensed National Information Infrastructure Devices (September, 2016)

Part 15, Subpart E, Section 15.407	Operation within the bands 5.15 - 5.25 GHz, 5.25 - 5.35 GHz, 5.47 - 5.725 GHz and 5.725 - 5.85 GHz
ANSI C63.10: 2013	Testing Unlicensed Wireless Devices
ETSI TR 100 028 V1.3.1: 2001-03	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Uncertainties in the Measurement of Mobile Radio Equipment Characteristics—Part 1 and Part 2
KDB 558074 D01 v04	Guidance for performing compliance measurements on digital transmission systems (DTS) operating under §15.247
KDB 789033 D02 v01r04	Guidelines for compliance Testing of Unlicensed National Information Infrastructure (U-NII) devices, May 2, 2017.

2 SUMMARY

2.1 Test results

FCC Rule Part	Description	Result
15.207	AC power line conducted emissions	passed
15.209	Spurious emissions	passed
15.247	Average radiated output power	passed
15.407	Average radiated output power	passed

2.2 GENERAL REMARKS:

The EUT is approved as battery operated RFID reader under the FCC ID: O2FM210SE. As accessory a docking station DS210 is available for the device. In the docking station, the M210SE can be charged and transfer data. While charging the M210SE is able to transmit. Additionally a WLAN module (FCC ID: TWG-SDCM40NBT) is integrated into the device. All modules can transmit simultaneously while charging in the docking station DS210.

To show further compliance of the device, AC power line conducted emissions, spurious emissions from 30 MHz – 40 GHz and the average radiated output power of the WLAN module has been remeasured. During the measurements, all radio modules were active and simultaneously transmitting in a typical use of the device.

For Frequencies below 1 GHz simultaneous transmission of RFID and the middle WLAN channels (CH6 and CH60) are measured.

FCC ID: O2FM210SE

2.3 FINAL ASSESSMENT:

The equipment under test fulfills the EMI requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 10 July 2017

Testing concluded on : 18 July 2017

Checked by:

Tested by:

Klaus Gegenfurtner
Teamleader Radio

Willibald Probst
Radio Team

FCC ID: O2FM210SE

3 EQUIPMENT UNDER TEST

3.1 Photo documentation of the EUT – Detailed photos see attachment A

3.2 Power supply system utilised

Power supply voltage : 7.2 V DC Li-ion Battery
15 V DC (external power supply, while in docking station)

All tests were carried out with the AC/DC power supply supplied by the manufacturer.

3.3 Short description of the equipment under test (EUT)

The EUT is a mobile handheld Data Terminal with an integrated RFID reader, operating at 13.56 MHz (FCC ID: O2FM210SE). Additionally, a WLAN module (FCC ID: TWG-SDCMSD40NBT) is integrated into the device. It can be charged and operated in a docking station (DS210), which is available as accessory. While in the docking station, all radio modules can transmit simultaneously.

Number of tested samples: 1
Serial number: 163000032527

EUT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- charging in the docking station DS210 and simultaneous transmission of all radio modules

To achieve simultaneous transmission of all radio modules, the individual modules were operated in a operation mode typical for the device. RFID is operated in continuous tag reading mode. For WLAN an active connection is established to a suitable companion device, from which the M210SE is continuously pinged.

EUT configuration:

The following peripheral devices and interface cables were connected during the measurements:

- TAG	Model : Mifare
- WLAN companion device	Model : Cisco Aironet 1260
Notebook	Model : Dell Latitude D620
- Docking Station	Model : DS210
- AC/DC power supply	Model : Adapter Tech., Model STD-15026

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

**CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY**

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor $k = 2$. The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 / 11.2003 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, CSA Group Bayern GmbH, is below the measurement uncertainty as defined by CISPR. Therefore, no special measures must be taken into consideration with regard to the limits according to CISPR. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	$\pm 3.29 \text{ dB}$
20 dB Bandwidth	Center frequency of EuT	95%	$\pm 2.5 \times 10^{-7}$
99% Occupied Bandwidth	Center frequency of EuT	95%	$\pm 2.5 \times 10^{-7}$
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	$\pm 3.53 \text{ dB}$
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	$\pm 3.71 \text{ dB}$
Radiated Spurious Emissions	1000 MHz to 10000 MHz	95%	$\pm 2.34 \text{ dB}$
Peak conducted output power	Center frequency of EuT	95%	$\pm 3.53 \text{ dB}$
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	$\pm 2.15 \text{ dB}$

4.4 Measurement protocol for FCC

4.4.1 General information

4.4.1.1 Test methodology

Conducted and radiated disturbance testing is performed according to the procedures set out by the International Special Committee on Radio Interference (CISPR) Publication 22, European Standard EN 55022 as shown under section 1 of this report.

4.4.1.2 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral using the appropriate impedance characteristic or left unterminated. Where appropriate, cables are manually manipulated with respect to each other thus obtaining maximum disturbances from the unit.

4.4.1.3 Details of test procedures

The test methods used comply with CISPR Publication 22, EN 55022 - "Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement" and with ANSI C63.4 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". In compliance with 47 CFR Part 15 Subpart A, Section 15.38 testing for FCC compliance may be achieved by following the procedures set out in ANSI C63.4 and applying the CISPR 22 limits.

5 TEST CONDITIONS AND RESULTS

5.1 Conducted emissions

For test instruments and accessories used, see section 6 Part A 4.

Legend for tables:

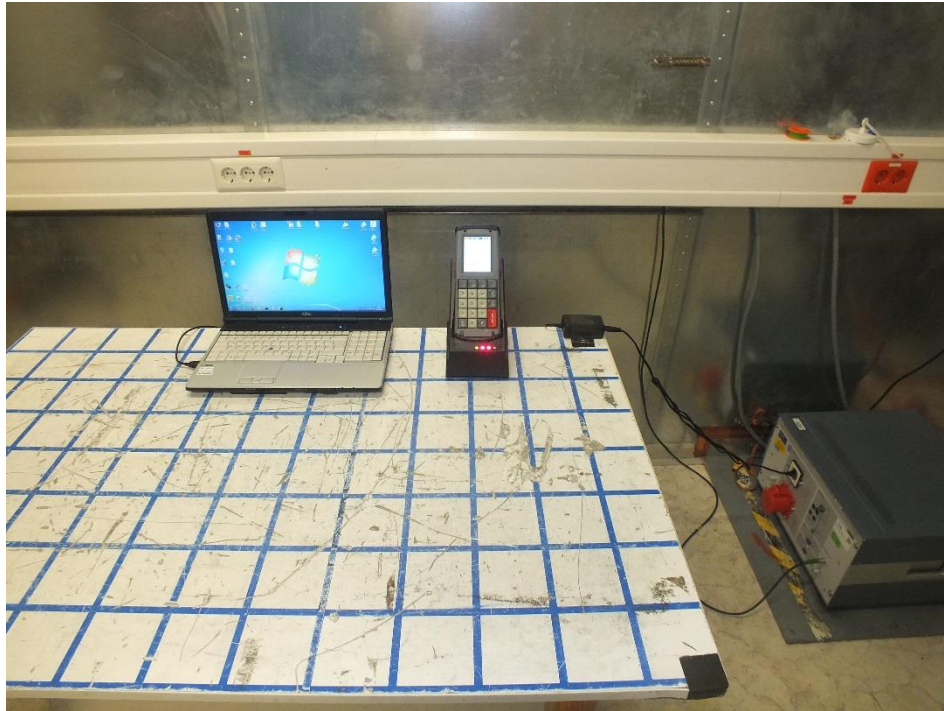
QP-L ... QuasiPeak reading including correction factor
AV-L ... Average reading including correction factor
D-Limit... Measured value to limit delta (margin)

5.1.1 Description of the test location

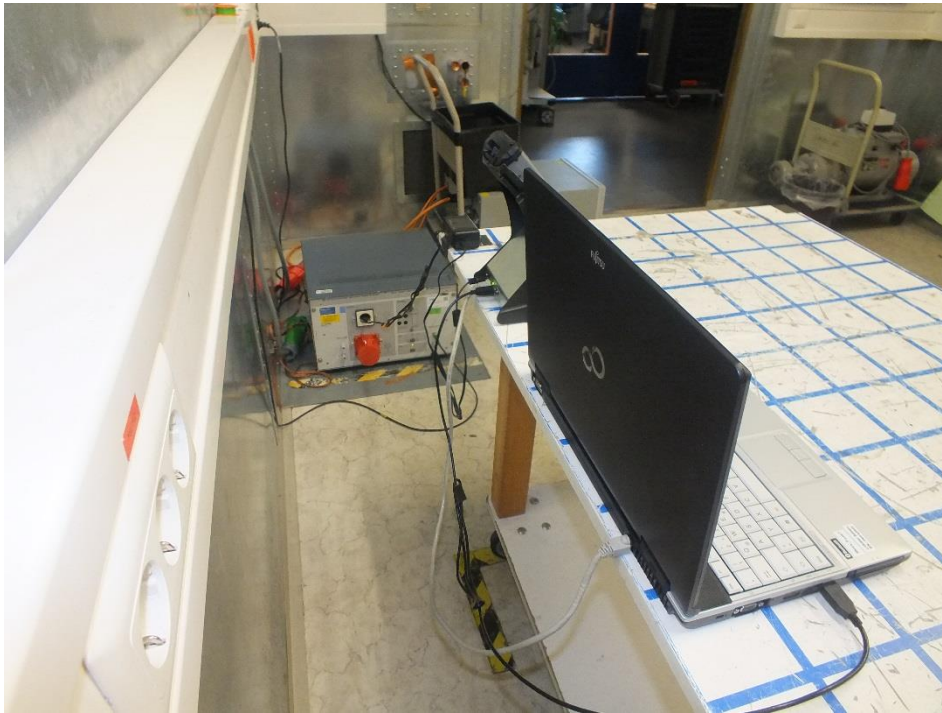
Test location: Shielded Room S2

5.1.2 Photo documentation of the test set-up

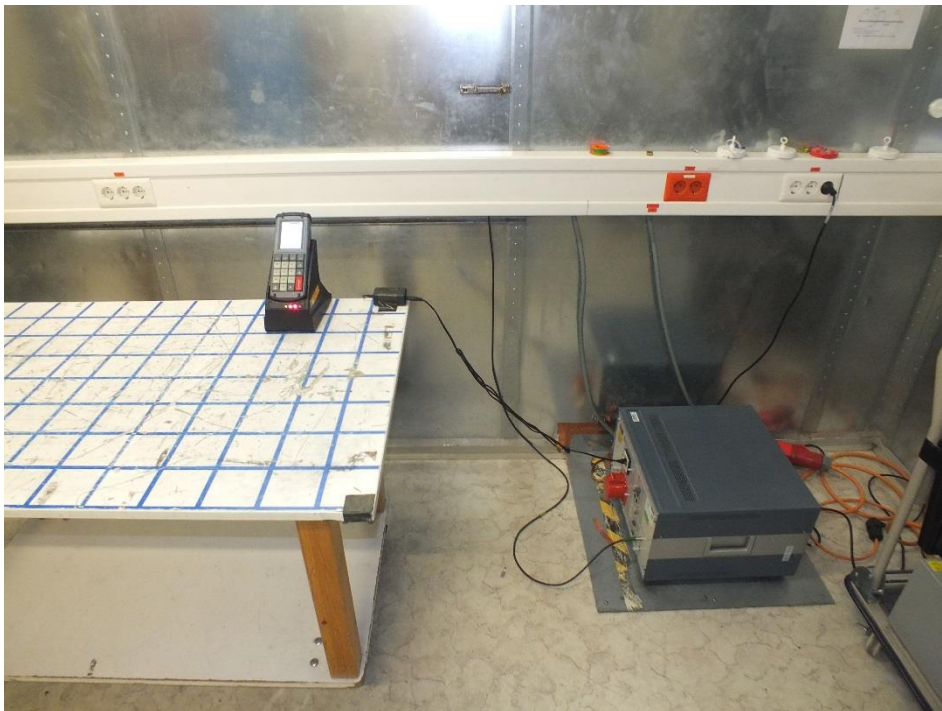
with notebook:



FCC ID: O2FM210SE



without notebook:



FCC ID: O2FM210SE

5.1.3 Applicable standard

According to FCC Part 15, Section 15.207(a):

Except for Class A devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the given limits.

5.1.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10 described under item 4.4.3. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emissions are remeasured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin 13.9 dB at 0.19 MHz

Limit according to FCC Part 15, Section 15.207(a):

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency

The requirements are **FULFILLED**.

Remarks: For detailed test result please refer to following test protocols

5.1.6 Test protocol

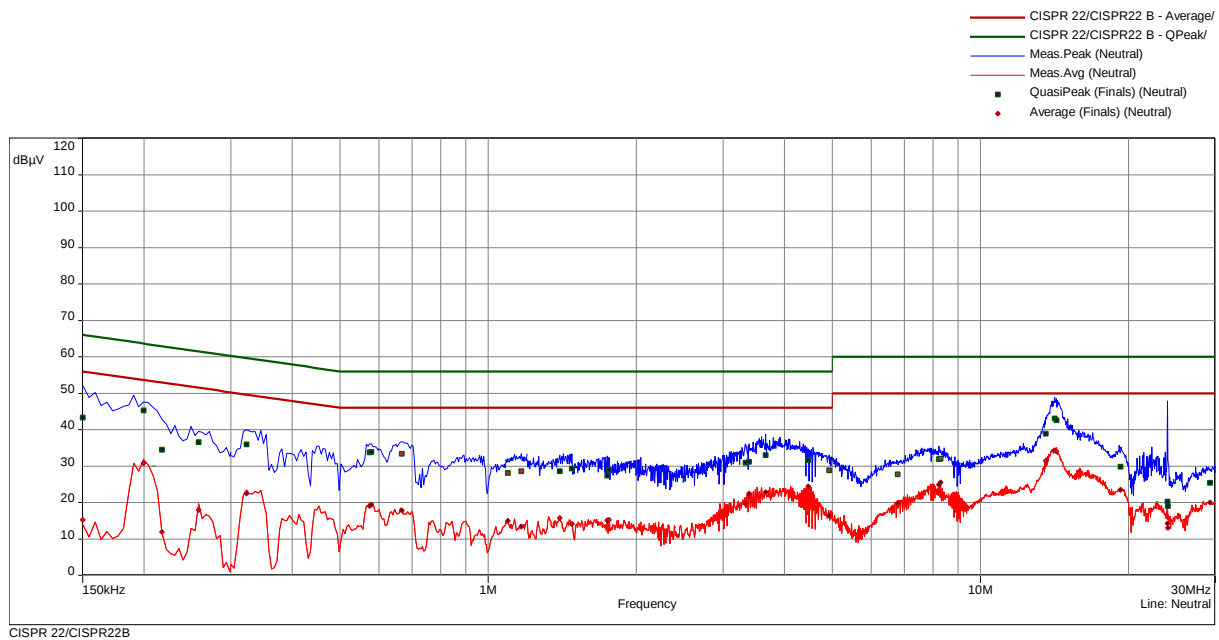
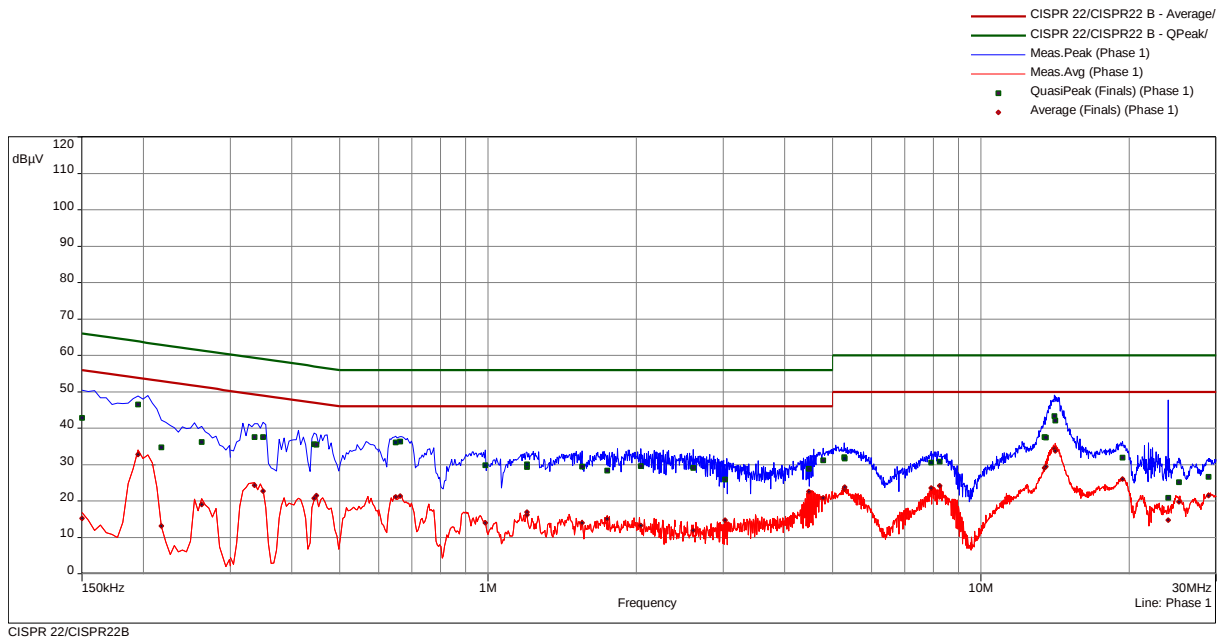
Operation mode: charging in the docking station DS210 and simultaneous transmission of all radio modules (WLAN on CH 6)

Remarks: test setup with notebook

Date: 18.07.2017

Tested by: Willibald Probst

Result: passed



FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.150	1	42.84	23.16	66.00	15.23	40.77	56.00	Phase 1	9.84
0.195	1	46.48	17.34	63.82	32.72	21.10	53.82	Phase 1	9.83
0.218	1	34.74	28.18	62.91	13.16	39.76	52.91	Phase 1	9.82
0.263	1	36.26	25.09	61.35	18.99	32.37	51.35	Phase 1	9.82
0.336	2	37.51	21.80	59.30	24.34	24.97	49.30	Phase 1	9.81
0.350	2	37.58	21.39	58.97	22.73	26.24	48.97	Phase 1	9.81
0.444	2	35.54	21.45	56.99	20.77	26.21	46.99	Phase 1	9.82
0.449	2	35.46	21.45	56.90	21.50	25.41	46.90	Phase 1	9.82
0.650	3	36.10	19.90	56.00	21.07	24.93	46.00	Phase 1	9.82
0.663	3	36.33	19.67	56.00	21.41	24.59	46.00	Phase 1	9.82
0.987	3	29.87	26.13	56.00	14.02	31.98	46.00	Phase 1	9.82
1.199	3	30.07	25.93	56.00	16.95	29.05	46.00	Phase 1	9.81
1.200	4	29.29	26.71	56.00	16.21	29.79	46.00	Phase 1	9.81
1.551	4	29.47	26.53	56.00	14.02	31.98	46.00	Phase 1	9.79
1.745	4	28.36	27.64	56.00	15.16	30.84	46.00	Phase 1	9.80
2.042	4	29.61	26.39	56.00	13.22	32.78	46.00	Phase 1	9.82
2.607	5	29.11	26.89	56.00	11.91	34.09	46.00	Phase 1	9.81
3.026	5	25.92	30.08	56.00	14.69	31.31	46.00	Phase 1	9.82
4.470	5	28.83	27.17	56.00	22.60	23.40	46.00	Phase 1	9.84
4.790	5	31.23	24.77	56.00	20.85	25.15	46.00	Phase 1	9.85
5.282	6	32.04	27.96	60.00	23.35	26.65	50.00	Phase 1	9.86
5.286	6	31.63	28.37	60.00	23.87	26.13	50.00	Phase 1	9.86
7.928	6	30.51	29.49	60.00	23.55	26.45	50.00	Phase 1	9.90
8.243	6	30.82	29.18	60.00	24.14	25.86	50.00	Phase 1	9.91
13.466	7	37.55	22.45	60.00	29.09	20.91	50.00	Phase 1	10.09
13.547	7	37.46	22.54	60.00	29.47	20.53	50.00	Phase 1	10.09
14.100	7	43.28	16.72	60.00	34.39	15.61	50.00	Phase 1	10.11
14.141	7	42.10	17.90	60.00	33.81	16.19	50.00	Phase 1	10.12
19.385	8	31.91	28.09	60.00	26.07	23.93	50.00	Phase 1	10.35
23.997	8	20.82	39.18	60.00	14.70	35.30	50.00	Phase 1	10.30
25.212	8	25.21	34.79	60.00	19.71	30.29	50.00	Phase 1	10.28
28.947	8	26.65	33.35	60.00	21.49	28.51	50.00	Phase 1	10.21

FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.150	9	43.30	22.70	66.00	15.19	40.81	56.00	Neutral	9.85
0.200	9	45.28	18.35	63.63	30.86	22.77	53.63	Neutral	9.84
0.218	9	34.54	28.37	62.91	11.92	41.00	52.91	Neutral	9.83
0.258	9	36.58	24.92	61.50	17.96	33.54	51.50	Neutral	9.83
0.323	10	36.00	23.64	59.64	22.51	27.14	49.64	Neutral	9.82
0.575	10	33.80	22.20	56.00	19.00	27.00	46.00	Neutral	9.82
0.579	10	33.84	22.16	56.00	19.41	26.59	46.00	Neutral	9.82
0.668	11	33.39	22.61	56.00	17.76	28.24	46.00	Neutral	9.82
1.095	11	28.14	27.86	56.00	15.02	30.98	46.00	Neutral	9.82
1.167	11	28.64	27.36	56.00	13.39	32.61	46.00	Neutral	9.81
1.398	12	28.57	27.43	56.00	15.72	30.28	46.00	Neutral	9.80
1.479	12	29.39	26.61	56.00	14.18	31.82	46.00	Neutral	9.80
1.745	12	27.41	28.59	56.00	15.11	30.89	46.00	Neutral	9.80
1.758	12	28.92	27.08	56.00	15.21	30.79	46.00	Neutral	9.80
3.332	13	30.90	25.10	56.00	19.66	26.34	46.00	Neutral	9.84
3.390	13	31.21	24.79	56.00	22.41	23.59	46.00	Neutral	9.85
3.660	13	33.02	22.98	56.00	22.80	23.20	46.00	Neutral	9.85
4.466	13	31.71	24.29	56.00	24.47	21.53	46.00	Neutral	9.86
4.926	14	28.87	27.13	56.00	16.42	29.58	46.00	Neutral	9.87
6.780	14	27.74	32.26	60.00	19.93	30.07	50.00	Neutral	9.92
8.234	14	31.92	28.08	60.00	24.89	25.11	50.00	Neutral	9.96
8.301	14	32.02	27.98	60.00	25.56	24.44	50.00	Neutral	9.96
13.578	15	38.86	21.14	60.00	31.39	18.61	50.00	Neutral	10.23
14.145	15	43.08	16.92	60.00	34.31	15.69	50.00	Neutral	10.26
14.276	15	42.59	17.41	60.00	34.02	15.98	50.00	Neutral	10.27
19.236	16	29.81	30.19	60.00	23.43	26.57	50.00	Neutral	10.57
23.997	16	20.29	39.71	60.00	14.26	35.74	50.00	Neutral	10.61
24.042	16	19.07	40.93	60.00	12.98	37.02	50.00	Neutral	10.61
29.258	16	25.45	34.55	60.00	20.00	30.00	50.00	Neutral	10.58

FCC ID: O2FM210SE

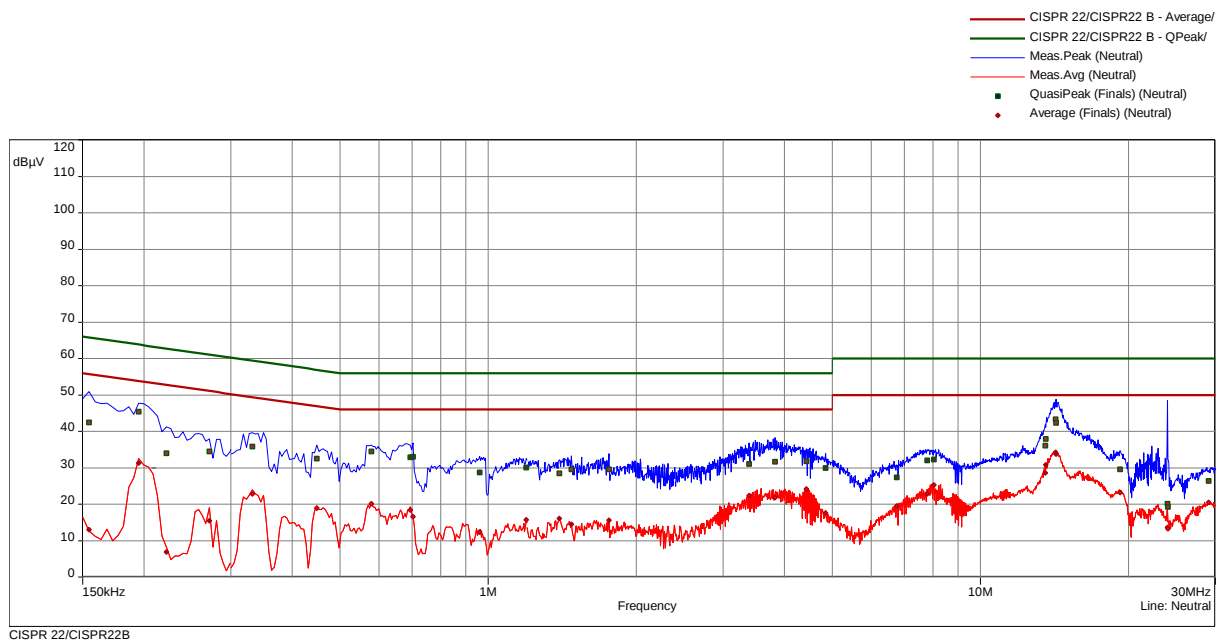
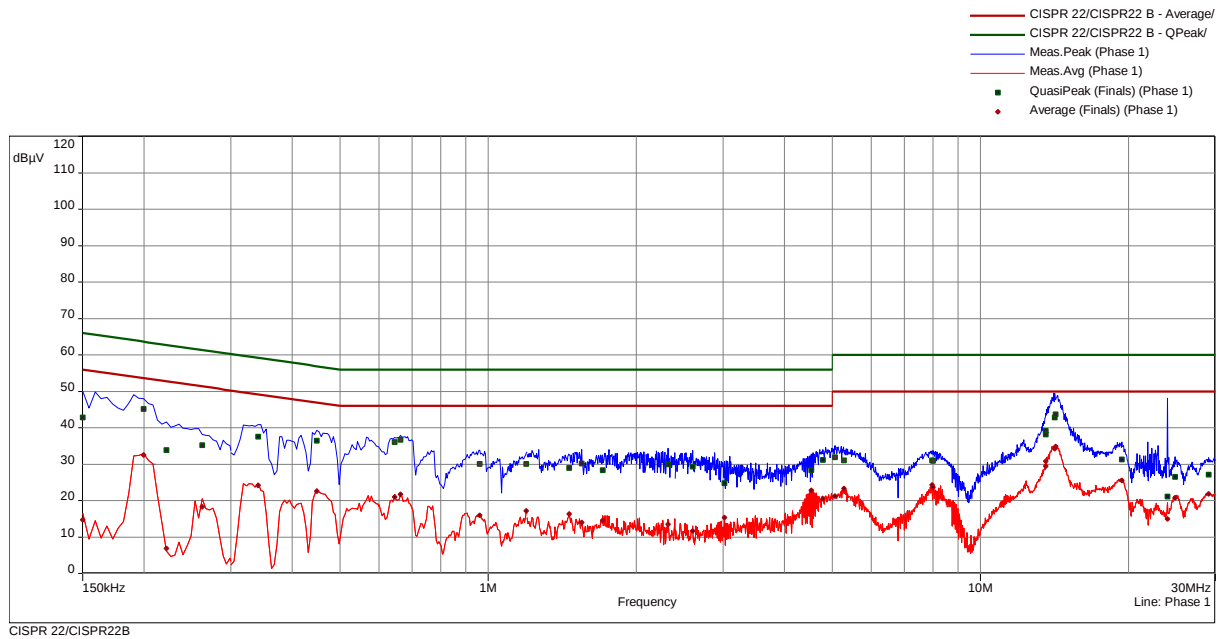
Operation mode: charging in the docking station DS210 and simultaneous transmission of all radio modules (WLAN on CH 60)

Result: passed

Remarks: test setup with notebook

Date: 18.07.2017

Tested by: Willibald Probst



FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.150	1	42.85	23.15	66.00	14.75	41.25	56.00	Phase 1	9.84
0.200	1	45.12	18.51	63.63	32.53	21.10	53.63	Phase 1	9.83
0.222	1	33.90	28.84	62.74	6.86	45.88	52.74	Phase 1	9.82
0.263	1	35.26	26.09	61.35	18.24	33.11	51.35	Phase 1	9.82
0.341	2	37.61	21.58	59.19	24.19	25.01	49.19	Phase 1	9.81
0.449	2	36.42	20.49	56.90	22.62	24.28	46.90	Phase 1	9.82
0.645	3	36.10	19.90	56.00	20.99	25.01	46.00	Phase 1	9.82
0.663	3	36.64	19.36	56.00	21.69	24.31	46.00	Phase 1	9.82
0.960	3	30.05	25.95	56.00	15.94	30.06	46.00	Phase 1	9.82
1.194	3	30.08	25.92	56.00	17.20	28.80	46.00	Phase 1	9.81
1.461	4	28.96	27.04	56.00	16.34	29.66	46.00	Phase 1	9.80
1.547	4	30.25	25.75	56.00	14.05	31.95	46.00	Phase 1	9.79
1.709	4	28.31	27.69	56.00	14.62	31.38	46.00	Phase 1	9.80
2.321	4	29.99	26.01	56.00	13.55	32.45	46.00	Phase 1	9.81
2.603	5	29.36	26.64	56.00	11.62	34.38	46.00	Phase 1	9.81
3.021	5	24.85	31.15	56.00	15.31	30.69	46.00	Phase 1	9.82
4.529	5	28.35	27.65	56.00	22.78	23.22	46.00	Phase 1	9.84
4.781	5	31.18	24.82	56.00	20.49	25.51	46.00	Phase 1	9.85
5.061	6	31.96	28.04	60.00	21.22	28.78	50.00	Phase 1	9.86
5.277	6	31.00	29.00	60.00	23.37	26.63	50.00	Phase 1	9.86
7.977	6	30.99	29.01	60.00	24.30	25.70	50.00	Phase 1	9.90
8.013	6	30.98	29.02	60.00	23.68	26.32	50.00	Phase 1	9.90
13.569	7	39.14	20.86	60.00	30.79	19.21	50.00	Phase 1	10.09
13.578	7	38.20	21.80	60.00	29.52	20.48	50.00	Phase 1	10.09
14.145	7	42.86	17.14	60.00	34.22	15.78	50.00	Phase 1	10.12
14.199	7	43.69	16.31	60.00	34.83	15.17	50.00	Phase 1	10.12
19.353	8	31.36	28.64	60.00	25.50	24.50	50.00	Phase 1	10.35
23.997	8	21.13	38.87	60.00	15.03	34.97	50.00	Phase 1	10.30
24.825	8	26.51	33.49	60.00	20.77	29.23	50.00	Phase 1	10.29
29.069	8	27.10	32.90	60.00	21.81	28.19	50.00	Phase 1	10.21

FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.155	9	42.42	23.34	65.75	12.99	42.76	55.75	Neutral	9.85
0.195	9	45.42	18.40	63.82	31.32	22.50	53.82	Neutral	9.84
0.222	9	34.05	28.70	62.74	6.84	45.90	52.74	Neutral	9.83
0.272	9	34.49	26.58	61.07	15.44	35.63	51.07	Neutral	9.83
0.332	10	35.80	23.61	59.41	22.86	26.55	49.41	Neutral	9.82
0.449	10	32.49	24.41	56.90	18.91	27.99	46.90	Neutral	9.82
0.579	10	34.49	21.51	56.00	20.08	25.92	46.00	Neutral	9.82
0.695	11	32.94	23.06	56.00	18.46	27.54	46.00	Neutral	9.82
0.704	11	33.01	22.99	56.00	16.63	29.37	46.00	Neutral	9.82
0.960	11	28.75	27.25	56.00	12.46	33.54	46.00	Neutral	9.82
1.194	11	30.12	25.88	56.00	15.72	30.28	46.00	Neutral	9.81
1.394	12	28.44	27.56	56.00	16.12	29.88	46.00	Neutral	9.80
1.475	12	29.62	26.38	56.00	14.47	31.53	46.00	Neutral	9.80
1.758	12	29.52	26.48	56.00	15.54	30.46	46.00	Neutral	9.80
3.386	13	31.05	24.95	56.00	22.32	23.68	46.00	Neutral	9.85
3.822	13	31.63	24.37	56.00	21.87	24.13	46.00	Neutral	9.85
4.430	13	31.73	24.27	56.00	24.17	21.83	46.00	Neutral	9.86
4.850	14	30.01	25.99	56.00	17.56	28.44	46.00	Neutral	9.87
6.762	14	27.41	32.59	60.00	19.57	30.43	50.00	Neutral	9.92
7.788	14	32.04	27.96	60.00	22.89	27.11	50.00	Neutral	9.95
8.040	14	32.32	27.68	60.00	25.32	24.68	50.00	Neutral	9.96
13.547	15	36.07	23.93	60.00	28.57	21.43	50.00	Neutral	10.23
13.565	15	37.93	22.07	60.00	30.84	19.16	50.00	Neutral	10.23
14.199	15	43.28	16.72	60.00	34.25	15.75	50.00	Neutral	10.27
14.231	15	42.33	17.67	60.00	33.74	16.26	50.00	Neutral	10.27
19.218	16	29.56	30.44	60.00	23.22	26.78	50.00	Neutral	10.57
23.997	16	20.15	39.85	60.00	13.61	36.39	50.00	Neutral	10.61
24.042	16	19.24	40.76	60.00	13.25	36.75	50.00	Neutral	10.61
29.069	16	26.43	33.57	60.00	20.51	29.49	50.00	Neutral	10.58

FCC ID: O2FM210SE

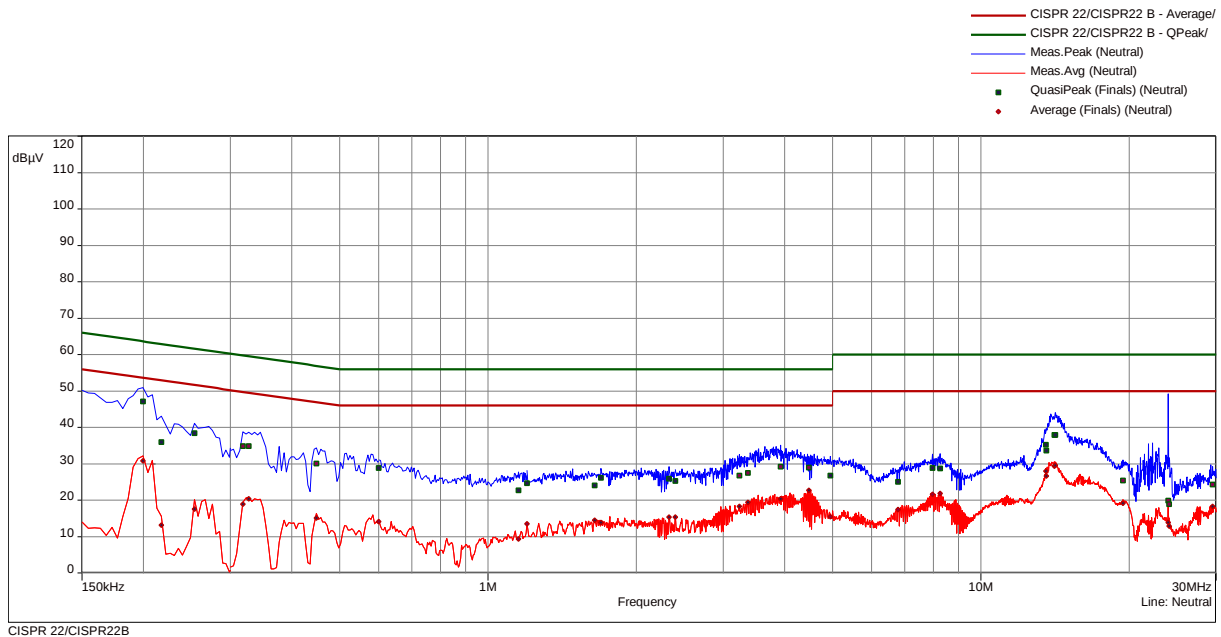
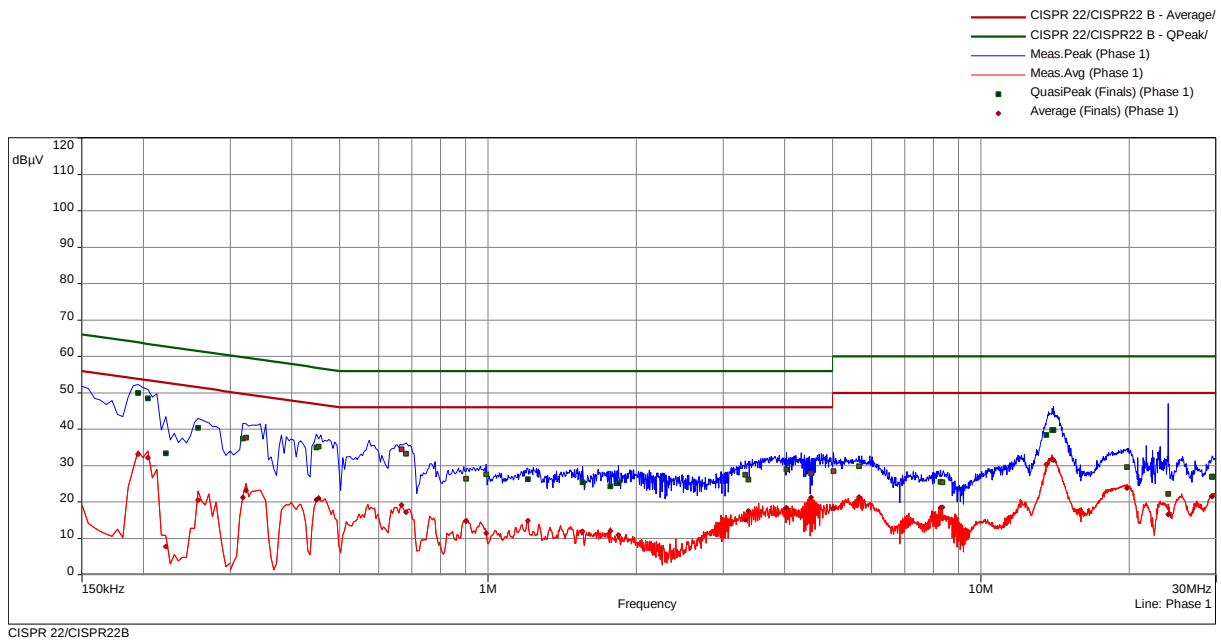
Operation mode: charging in the docking station DS210 and simultaneous transmission of all radio modules (WLAN on CH 6)

Result: passed

Remarks: test setup without notebook

Date: 18.07.2017

Tested by: Willibald Probst



FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBµV)	QP Margin	QP Limit	Average (dBµV)	AV Margin	AV Limit	Line	Correction (dB)
0.195	1	49.96	13.86	63.82	33.12	20.70	53.82	Phase 1	9.83
0.204	1	48.51	14.93	63.45	32.12	21.33	53.45	Phase 1	9.83
0.222	1	33.43	29.31	62.74	7.74	45.00	52.74	Phase 1	9.82
0.258	1	40.39	21.10	61.50	20.47	31.02	51.50	Phase 1	9.82
0.318	2	37.45	22.30	59.76	21.25	28.51	49.76	Phase 1	9.81
0.323	2	37.70	21.95	59.64	23.17	26.47	49.64	Phase 1	9.81
0.449	2	35.02	21.88	56.90	20.57	26.33	46.90	Phase 1	9.82
0.453	2	35.25	21.57	56.82	20.93	25.89	46.82	Phase 1	9.82
0.668	3	34.53	21.47	56.00	19.19	26.81	46.00	Phase 1	9.82
0.681	3	33.30	22.70	56.00	17.22	28.78	46.00	Phase 1	9.82
0.902	3	26.38	29.62	56.00	14.78	31.22	46.00	Phase 1	9.82
0.992	3	27.64	28.36	56.00	11.37	34.63	46.00	Phase 1	9.82
1.205	4	26.31	29.69	56.00	14.80	31.20	46.00	Phase 1	9.81
1.556	4	25.41	30.59	56.00	11.95	34.05	46.00	Phase 1	9.79
1.772	4	24.33	31.67	56.00	12.05	33.95	46.00	Phase 1	9.80
1.839	4	25.14	30.86	56.00	10.96	35.04	46.00	Phase 1	9.81
3.327	5	27.51	28.49	56.00	15.11	30.89	46.00	Phase 1	9.83
3.372	5	26.09	29.91	56.00	17.60	28.40	46.00	Phase 1	9.84
4.034	5	28.95	27.05	56.00	18.36	27.64	46.00	Phase 1	9.84
4.524	5	27.86	28.14	56.00	21.26	24.74	46.00	Phase 1	9.84
5.021	6	28.46	31.54	60.00	18.33	31.67	50.00	Phase 1	9.86
5.660	6	29.81	30.19	60.00	21.38	28.62	50.00	Phase 1	9.86
8.279	6	25.55	34.45	60.00	18.44	31.56	50.00	Phase 1	9.91
8.342	6	25.39	34.61	60.00	18.50	31.50	50.00	Phase 1	9.90
13.578	7	38.35	21.65	60.00	30.35	19.65	50.00	Phase 1	10.09
13.956	7	39.79	20.21	60.00	31.72	18.28	50.00	Phase 1	10.11
14.019	7	39.74	20.26	60.00	31.51	18.49	50.00	Phase 1	10.11
19.785	8	29.59	30.41	60.00	23.83	26.17	50.00	Phase 1	10.38
23.993	8	22.28	37.72	60.00	16.62	33.38	50.00	Phase 1	10.30
29.442	8	26.98	33.02	60.00	21.57	28.43	50.00	Phase 1	10.20
29.456	8	26.89	33.11	60.00	21.54	28.46	50.00	Phase 1	10.20

FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.200	9	47.17	16.46	63.63	30.85	22.78	53.63	Neutral	9.84
0.218	9	35.97	26.94	62.91	13.17	39.75	52.91	Neutral	9.83
0.254	9	38.46	23.18	61.64	17.57	34.07	51.64	Neutral	9.83
0.318	10	34.88	24.88	59.76	18.92	30.83	49.76	Neutral	9.82
0.327	10	34.86	24.67	59.53	20.36	29.17	49.53	Neutral	9.82
0.449	10	30.04	26.86	56.90	15.14	31.77	46.90	Neutral	9.82
0.600	11	28.79	27.21	56.00	14.16	31.84	46.00	Neutral	9.82
1.154	11	22.66	33.34	56.00	9.35	36.65	46.00	Neutral	9.81
1.200	11	24.72	31.28	56.00	13.47	32.53	46.00	Neutral	9.81
1.646	12	24.10	31.90	56.00	14.52	31.48	46.00	Neutral	9.80
1.695	12	26.12	29.88	56.00	13.90	32.10	46.00	Neutral	9.80
2.330	12	25.93	30.07	56.00	15.37	30.63	46.00	Neutral	9.81
2.400	12	25.33	30.67	56.00	15.36	30.64	46.00	Neutral	9.81
3.233	13	26.73	29.27	56.00	18.30	27.70	46.00	Neutral	9.83
3.368	13	27.52	28.48	56.00	19.42	26.58	46.00	Neutral	9.84
3.926	13	29.18	26.82	56.00	20.38	25.62	46.00	Neutral	9.85
4.479	13	28.97	27.03	56.00	22.74	23.26	46.00	Neutral	9.86
4.944	14	26.78	29.22	56.00	15.44	30.56	46.00	Neutral	9.87
6.789	14	25.03	34.97	60.00	17.39	32.61	50.00	Neutral	9.92
7.977	14	28.84	31.16	60.00	21.61	28.39	50.00	Neutral	9.96
8.261	14	28.75	31.25	60.00	21.90	28.10	50.00	Neutral	9.96
13.551	15	35.21	24.79	60.00	28.02	21.98	50.00	Neutral	10.23
13.565	15	33.63	26.37	60.00	26.66	23.34	50.00	Neutral	10.23
14.105	15	37.98	22.02	60.00	29.38	20.62	50.00	Neutral	10.26
14.145	15	37.96	22.04	60.00	29.56	20.44	50.00	Neutral	10.26
19.416	16	25.35	34.65	60.00	19.19	30.81	50.00	Neutral	10.58
23.997	16	19.92	40.08	60.00	13.83	36.17	50.00	Neutral	10.61
24.065	16	18.89	41.11	60.00	12.89	37.11	50.00	Neutral	10.61
29.492	16	24.29	35.71	60.00	18.30	31.70	50.00	Neutral	10.58

FCC ID: O2FM210SE

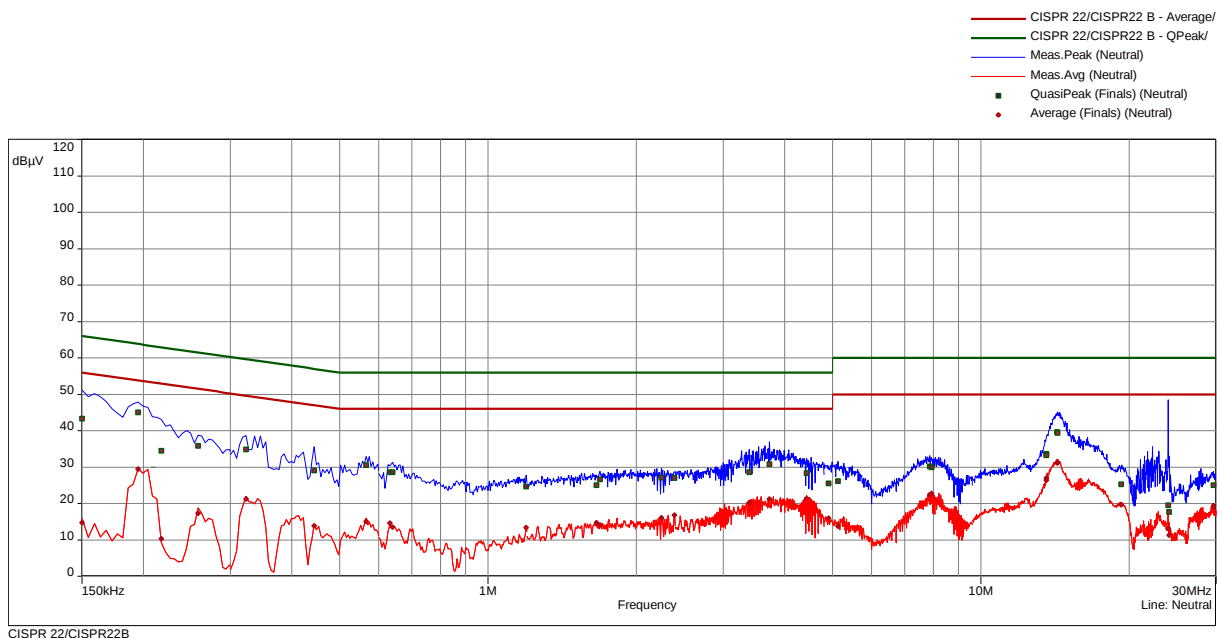
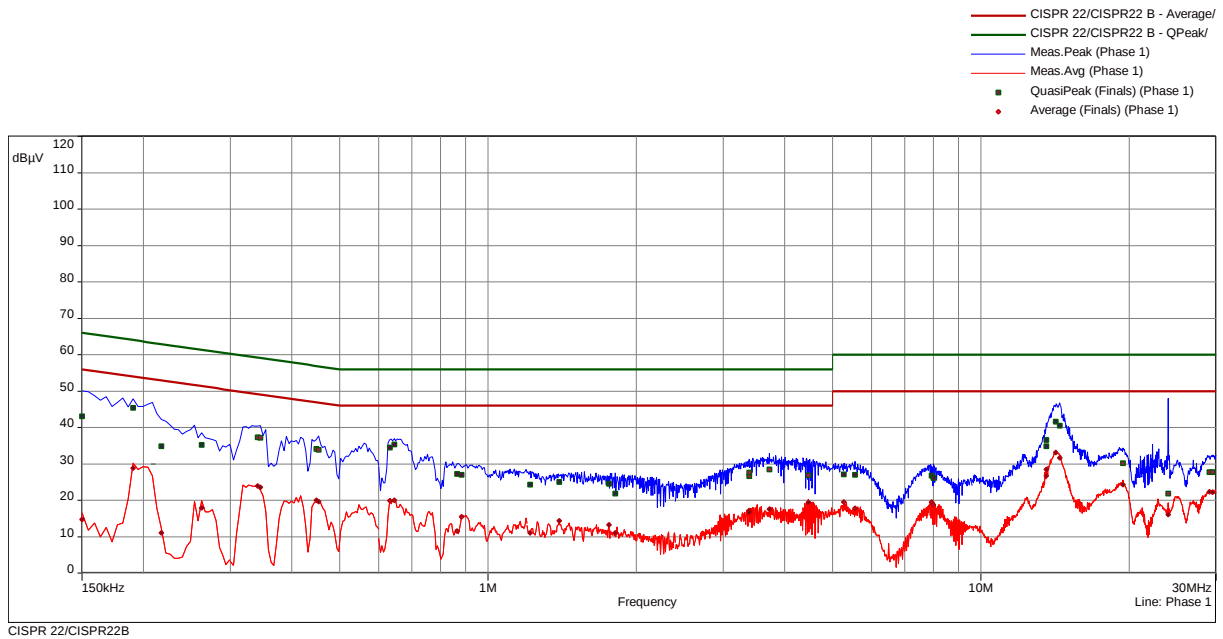
Operation mode: charging in the docking station DS210 and
simultaneous transmission of all radio modules (WLAN
on CH 60)

Result: passed

Remarks: test setup without notebook

Date: 18.07.2017

Tested by: Willibald Probst



FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.150	1	43.10	22.90	66.00	14.69	41.31	56.00	Phase 1	9.84
0.191	1	45.36	18.65	64.01	28.84	25.18	54.01	Phase 1	9.83
0.218	1	34.85	28.06	62.91	11.05	41.86	52.91	Phase 1	9.82
0.263	1	35.16	26.19	61.35	17.89	33.46	51.35	Phase 1	9.82
0.341	2	37.32	21.87	59.19	23.92	25.27	49.19	Phase 1	9.81
0.345	2	37.24	21.84	59.08	23.56	25.53	49.08	Phase 1	9.81
0.449	2	34.11	22.79	56.90	20.01	26.89	46.90	Phase 1	9.82
0.453	2	33.94	22.88	56.82	19.59	27.23	46.82	Phase 1	9.82
0.632	3	34.48	21.52	56.00	19.83	26.17	46.00	Phase 1	9.82
0.645	3	35.37	20.63	56.00	20.01	25.99	46.00	Phase 1	9.82
0.866	3	27.25	28.75	56.00	11.60	34.40	46.00	Phase 1	9.82
0.884	3	27.04	28.96	56.00	15.43	30.57	46.00	Phase 1	9.82
1.218	4	24.32	31.68	56.00	11.04	34.96	46.00	Phase 1	9.81
1.394	4	25.09	30.91	56.00	14.31	31.69	46.00	Phase 1	9.80
1.758	4	24.52	31.48	56.00	13.27	32.73	46.00	Phase 1	9.80
1.812	4	21.83	34.17	56.00	11.04	34.96	46.00	Phase 1	9.81
3.386	5	26.58	29.42	56.00	17.18	28.82	46.00	Phase 1	9.84
3.390	5	27.67	28.33	56.00	16.67	29.33	46.00	Phase 1	9.84
3.723	5	28.47	27.53	56.00	17.53	28.47	46.00	Phase 1	9.84
4.461	5	26.83	29.17	56.00	19.42	26.58	46.00	Phase 1	9.84
5.273	6	27.12	32.88	60.00	19.54	30.46	50.00	Phase 1	9.86
5.552	6	27.02	32.98	60.00	17.84	32.16	50.00	Phase 1	9.86
7.941	6	26.81	33.19	60.00	19.55	30.45	50.00	Phase 1	9.90
8.013	6	26.12	33.88	60.00	18.77	31.23	50.00	Phase 1	9.90
13.565	7	36.57	23.43	60.00	28.49	21.51	50.00	Phase 1	10.09
13.569	7	34.85	25.15	60.00	26.70	23.30	50.00	Phase 1	10.09
14.190	7	41.56	18.44	60.00	33.09	16.91	50.00	Phase 1	10.12
14.442	7	40.44	19.56	60.00	31.63	18.37	50.00	Phase 1	10.14
19.403	8	30.21	29.79	60.00	24.34	25.66	50.00	Phase 1	10.36
23.997	8	21.80	38.20	60.00	16.05	33.95	50.00	Phase 1	10.30
29.073	8	27.73	32.27	60.00	22.29	27.71	50.00	Phase 1	10.21
29.528	8	27.73	32.27	60.00	22.25	27.75	50.00	Phase 1	10.20

FCC ID: O2FM210SE

Frequency (MHz)	SR	QuasiPeak (dBμV)	QP Margin	QP Limit	Average (dBμV)	AV Margin	AV Limit	Line	Correction (dB)
0.150	9	43.30	22.70	66.00	14.78	41.22	56.00	Neutral	9.85
0.195	9	45.00	18.82	63.82	29.42	24.40	53.82	Neutral	9.84
0.218	9	34.54	28.37	62.91	10.26	42.65	52.91	Neutral	9.83
0.258	9	35.78	25.71	61.50	17.34	34.16	51.50	Neutral	9.83
0.323	10	34.85	24.79	59.64	21.25	28.40	49.64	Neutral	9.82
0.444	10	29.05	27.94	56.99	13.84	33.15	46.99	Neutral	9.82
0.566	10	30.54	25.46	56.00	15.05	30.95	46.00	Neutral	9.82
0.632	11	28.63	27.37	56.00	14.60	31.40	46.00	Neutral	9.82
0.641	11	28.59	27.41	56.00	13.47	32.53	46.00	Neutral	9.82
1.194	11	24.72	31.28	56.00	13.41	32.59	46.00	Neutral	9.81
1.659	12	25.08	30.92	56.00	14.76	31.24	46.00	Neutral	9.80
1.686	12	26.61	29.39	56.00	14.13	31.87	46.00	Neutral	9.80
2.249	12	27.06	28.94	56.00	16.12	29.88	46.00	Neutral	9.81
2.388	12	27.06	28.94	56.00	16.80	29.20	46.00	Neutral	9.81
3.386	13	28.56	27.44	56.00	20.27	25.73	46.00	Neutral	9.85
3.723	13	30.82	25.18	56.00	21.18	24.82	46.00	Neutral	9.85
4.430	13	28.35	27.65	56.00	21.35	24.65	46.00	Neutral	9.86
4.908	14	25.58	30.42	56.00	15.92	30.08	46.00	Neutral	9.87
5.129	14	26.17	33.83	60.00	13.73	36.27	50.00	Neutral	9.88
7.869	14	30.24	29.76	60.00	22.43	27.57	50.00	Neutral	9.95
7.941	14	29.92	30.08	60.00	22.70	27.30	50.00	Neutral	9.95
13.556	15	33.69	26.31	60.00	26.99	23.01	50.00	Neutral	10.23
13.565	15	33.26	26.74	60.00	26.42	23.58	50.00	Neutral	10.23
14.258	15	39.66	20.34	60.00	31.22	18.78	50.00	Neutral	10.27
14.294	15	39.39	20.61	60.00	31.23	18.77	50.00	Neutral	10.28
19.268	16	25.26	34.74	60.00	19.65	30.35	50.00	Neutral	10.57
23.997	16	19.47	40.53	60.00	13.20	36.80	50.00	Neutral	10.61
24.074	16	17.63	42.37	60.00	11.25	38.75	50.00	Neutral	10.61
29.640	16	25.05	34.95	60.00	19.36	30.64	50.00	Neutral	10.57

5.2 Spurious emissions

For test instruments and accessories used see section 6 Part **SER 2**, **SER 3**.

5.2.1 Description of the test locations

Test location: OATS1
Test distance: 3 metres

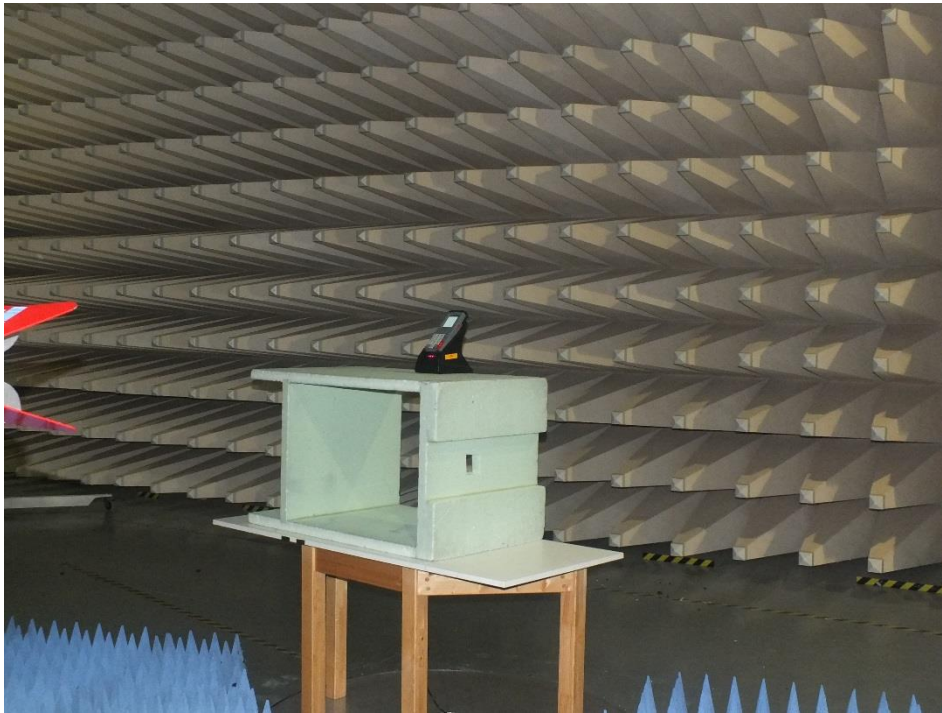
Test location: Anechoic chamber 1
Test distance: 3 metres

Test location: Anechoic chamber 1
Test distance: 1 metre

5.2.2 Photo documentation of the test set-up

30 MHz < f < 1 GHz:



FCC ID: O2FM210SE $1\text{ GHz} < f < 18\text{ GHz}$  $18\text{ GHz} < f < 40\text{ GHz}$ **5.2.3 Applicable standard**

FCC Part 15, Section 15.209

Instrument settings:

30 MHz – 1000 MHz:	RBW:	120 kHz
1 GHz – 40 GHz	RBW:	1 MHz

FCC ID: O2FM210SE

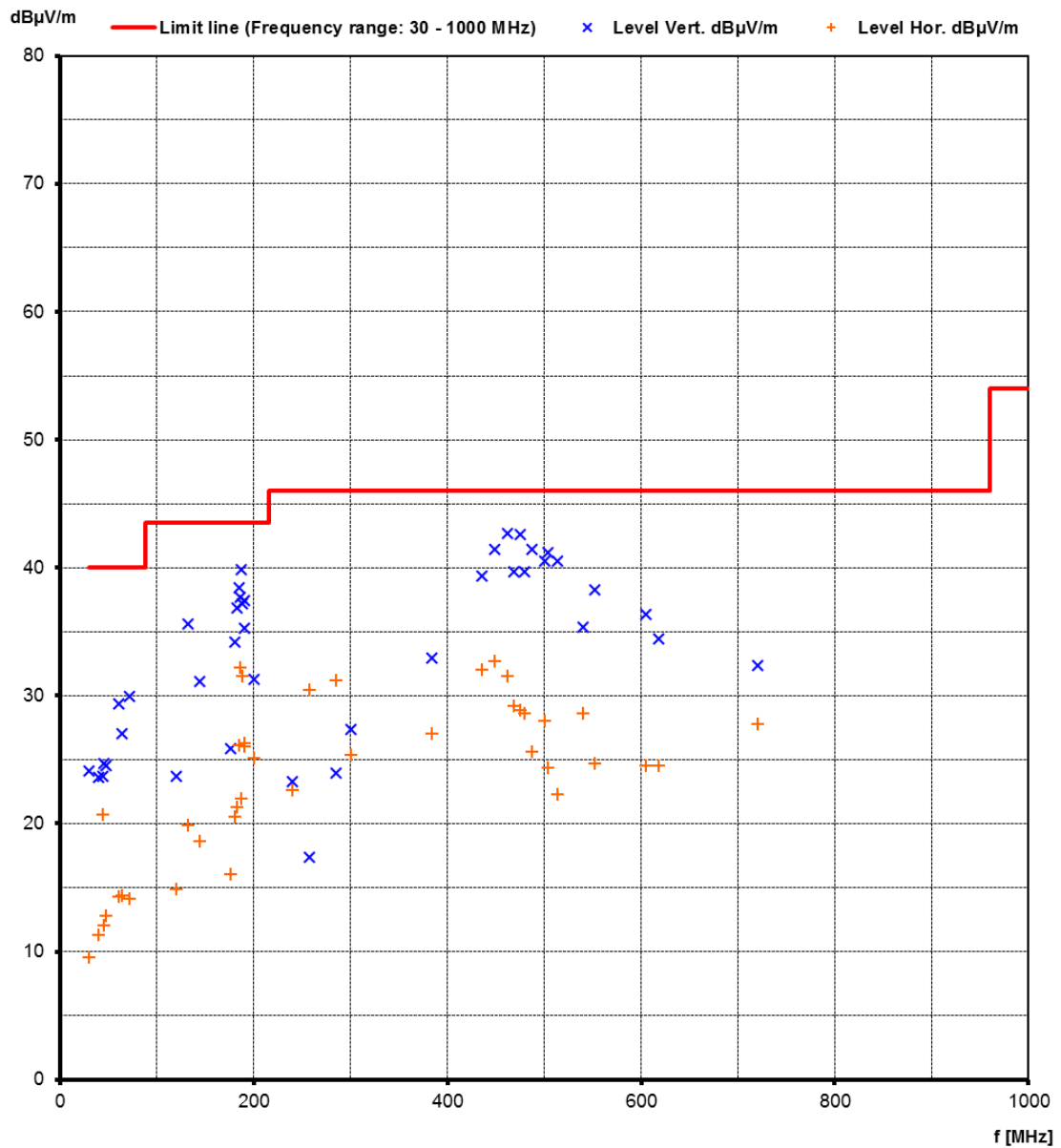
5.2.4 Test result

30 MHz < f < 1 GHz:

simultaneous transmission WLAN CH6 and RFID

Frequency (MHz)	Reading Vert. (dBμV)	Reading Hor. (dBμV)	Correct. Vert. (dB)	Correct. Hor. (dB)	Level Vert. (dBμV/m)	Level Hor. (dBμV/m)	Limit (dBμV/m)	Dlimit (dB)
30.00	10.0	-3.0	14.1	12.5	24.1	9.5	40.0	-15.9
39.30	9.1	-2.0	14.6	13.3	23.7	11.3	40.0	-16.3
44.60	8.5	6.7	15.2	14.0	23.7	20.7	40.0	-16.3
45.30	9.5	-2.0	15.2	14.0	24.7	12.0	40.0	-15.3
47.40	9.3	-1.3	15.2	14.1	24.5	12.8	40.0	-15.5
60.00	14.6	0.5	14.8	13.8	29.4	14.3	40.0	-10.6
63.40	12.5	0.7	14.5	13.7	27.0	14.4	40.0	-13.0
72.00	16.5	1.3	13.4	12.8	29.9	14.1	40.0	-10.1
120.00	11.3	2.0	12.4	12.9	23.7	14.9	43.5	-19.8
132.00	22.6	6.2	13.0	13.7	35.6	19.9	43.5	-7.9
144.00	17.5	4.2	13.6	14.4	31.1	18.6	43.5	-12.4
176.24	12.3	1.7	13.6	14.3	25.9	16.0	43.5	-17.6
180.60	20.9	6.5	13.3	14.0	34.2	20.5	43.5	-9.3
182.80	23.8	7.5	13.0	13.8	36.8	21.3	43.5	-6.7
184.98	25.6	12.6	12.8	13.5	38.4	26.1	43.5	-5.1
185.86	25.0	18.7	12.7	13.5	37.7	32.2	43.5	-5.8
187.20	27.3	8.6	12.6	13.3	39.9	21.9	43.5	-3.6
188.00	24.7	18.3	12.5	13.2	37.2	31.5	43.5	-6.3
190.00	23.0	13.3	12.3	13.0	35.3	26.3	43.5	-8.2
190.50	25.2	13.1	12.2	13.0	37.4	26.1	43.5	-6.1
200.00	20.0	13.2	11.3	12.0	31.3	25.2	43.5	-12.2
240.00	10.0	9.0	13.3	13.6	23.3	22.6	46.0	-22.7
257.66	3.1	16.1	14.3	14.4	17.4	30.5	46.0	-15.5
284.80	8.0	15.5	16.0	15.7	24.0	31.2	46.0	-14.8
300.00	10.5	8.9	16.9	16.5	27.4	25.4	46.0	-18.6
383.56	13.6	8.0	19.4	19.0	33.0	27.0	46.0	-13.0
435.57	18.6	11.5	20.8	20.5	39.4	32.0	46.0	-6.6
448.57	20.3	11.8	21.1	20.9	41.4	32.7	46.0	-4.6
461.57	21.2	10.3	21.5	21.2	42.7	31.5	46.0	-3.3
468.00	18.0	7.8	21.6	21.4	39.6	29.2	46.0	-6.4
474.57	20.8	7.3	21.8	21.6	42.6	28.9	46.0	-3.4
480.00	17.7	6.9	22.0	21.7	39.7	28.6	46.0	-6.3
487.57	19.3	3.7	22.2	21.9	41.5	25.6	46.0	-4.5
500.58	18.0	5.8	22.5	22.3	40.5	28.1	46.0	-5.5
504.08	18.6	2.0	22.6	22.4	41.2	24.4	46.0	-4.8
513.58	17.6	-0.4	22.9	22.7	40.5	22.3	46.0	-5.5
539.58	11.7	5.2	23.7	23.5	35.4	28.7	46.0	-10.6
552.00	14.2	0.9	24.0	23.8	38.2	24.7	46.0	-7.8
604.59	10.8	-0.8	25.5	25.3	36.3	24.5	46.0	-9.7
617.59	8.7	-1.0	25.7	25.5	34.4	24.5	46.0	-11.6
720.02	4.9	0.8	27.5	27.0	32.4	27.8	46.0	-13.6

FCC ID: O2FM210SE

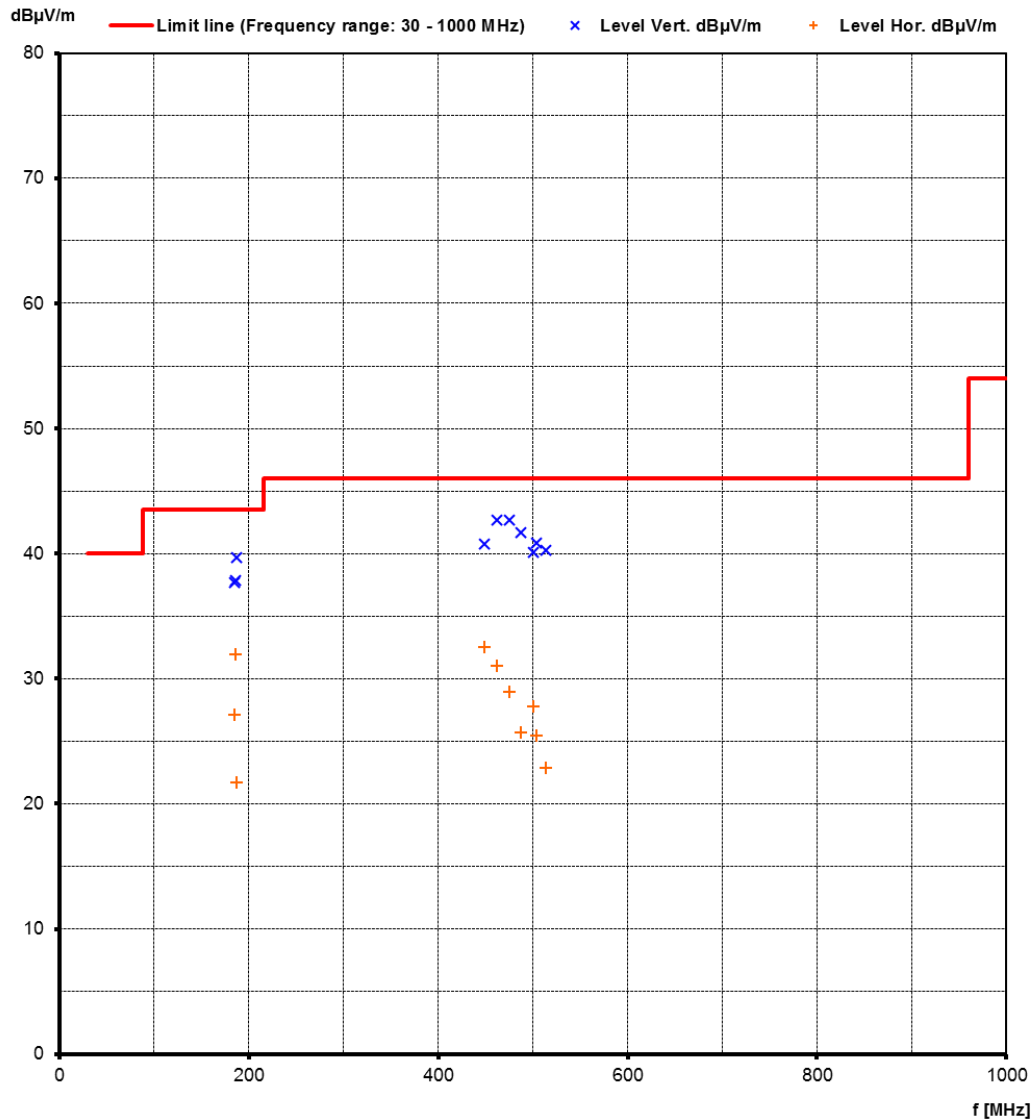


FCC ID: O2FM210SE

simultaneous transmission WLAN CH60 and RFID

(only the 10 highest emissions from simultaneous transmission of WLAN CH6 and RFID are re-measured)

Frequency (MHz)	Reading Vert. (dBμV)	Reading Hor. (dBμV)	Correct. Vert. (dB)	Correct. Hor. (dB)	Level Vert. (dBμV/m)	Level Hor. (dBμV/m)	Limit (dBμV/m)	Dlimit (dB)
184.98	24.9	13.6	12.8	13.5	37.7	27.1	43.5	-5.8
185.86	25.1	18.5	12.7	13.5	37.8	32.0	43.5	-5.7
187.20	27.1	8.4	12.6	13.3	39.7	21.7	43.5	-3.8
448.57	19.6	11.7	21.1	20.9	40.7	32.6	46.0	-5.3
461.57	21.2	9.8	21.5	21.2	42.7	31.0	46.0	-3.3
474.57	20.9	7.4	21.8	21.6	42.7	29.0	46.0	-3.3
487.57	19.5	3.8	22.2	21.9	41.7	25.7	46.0	-4.3
500.58	17.6	5.5	22.5	22.3	40.1	27.8	46.0	-5.9
504.08	18.2	3.1	22.6	22.4	40.8	25.5	46.0	-5.2
513.58	17.4	0.2	22.9	22.7	40.3	22.9	46.0	-5.7

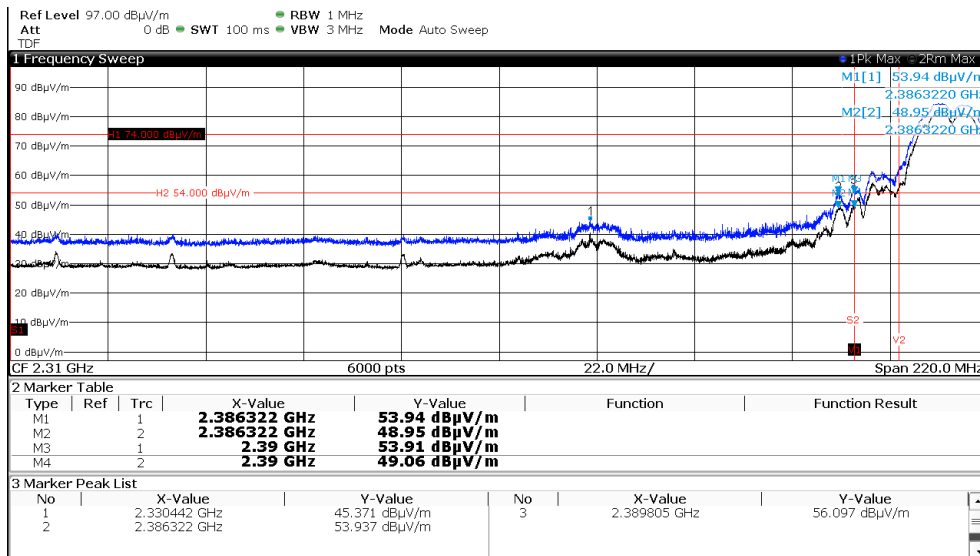
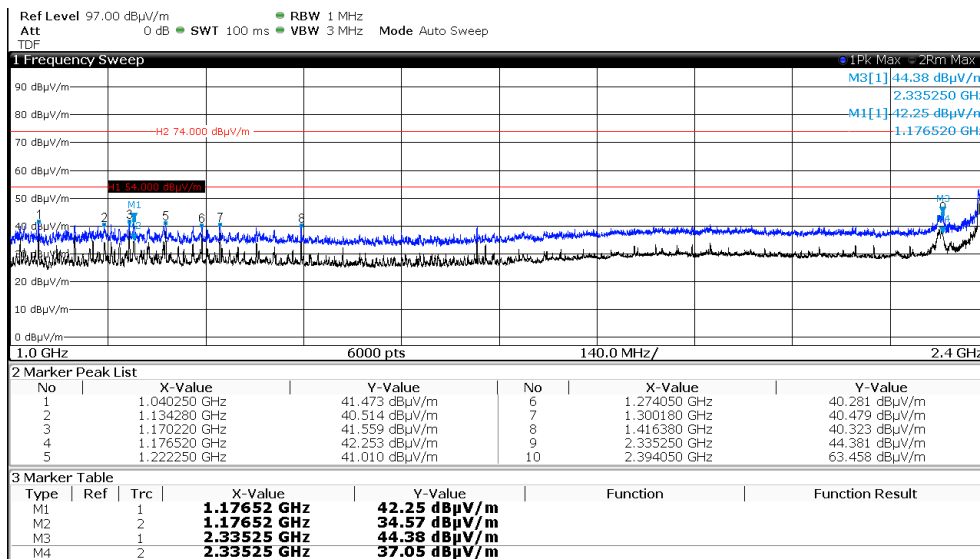


FCC ID: O2FM210SE

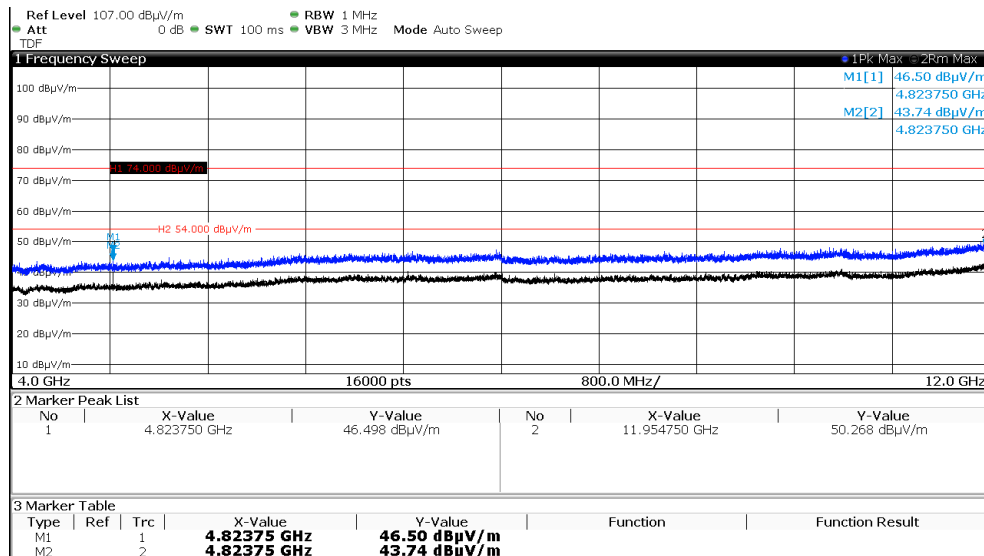
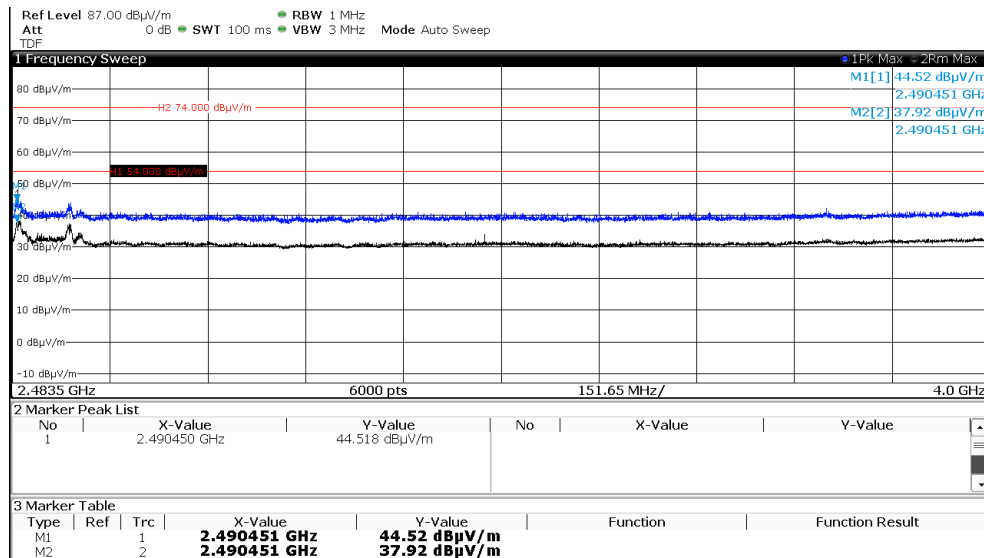
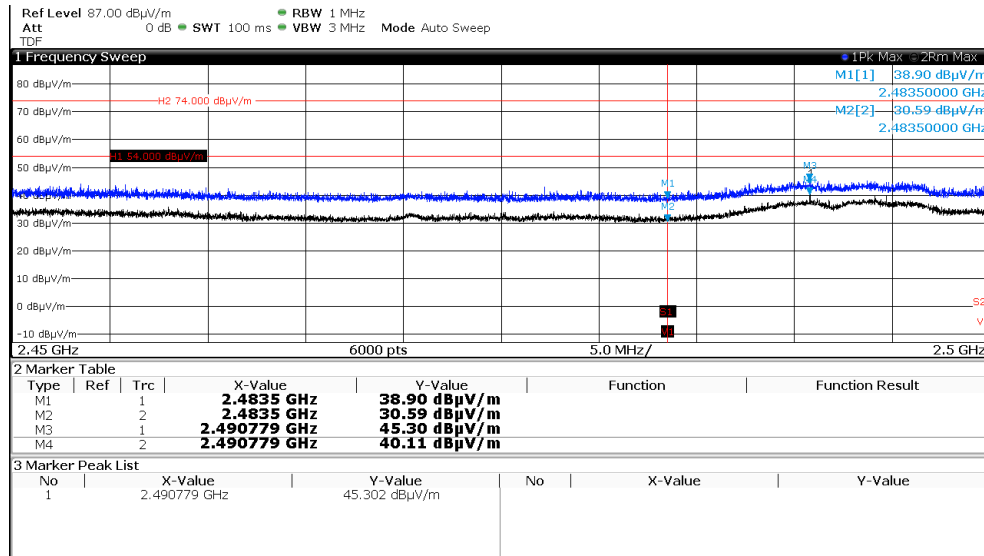
1 GHz < f < 40 GHz:

simultaneous transmission WLAN CH1 and RFID

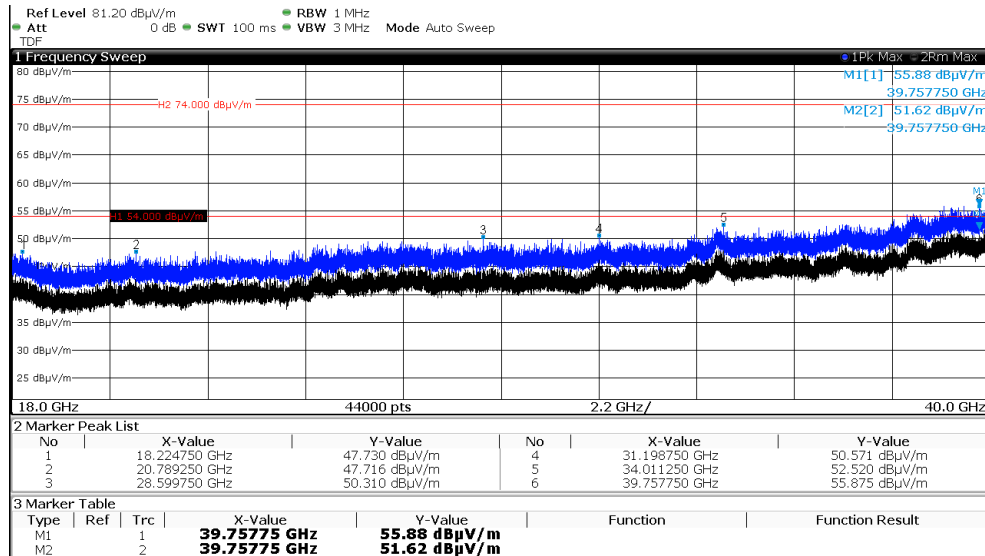
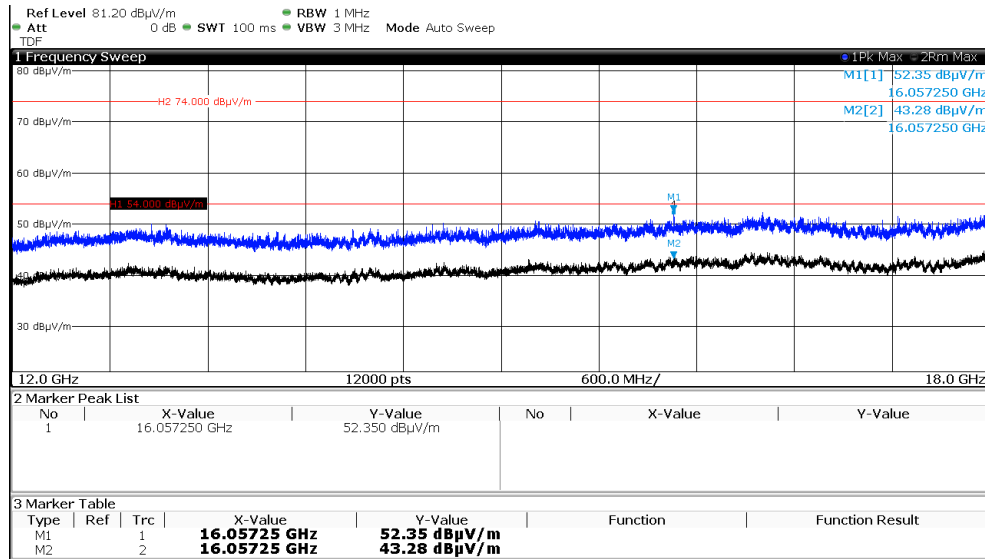
Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1177	42.3	34.6	74.0	-31.7	54.0	-19.4
2335	44.4	37.1	74.0	-29.6	54.0	-16.9
2386	53.9	49.0	74.0	-20.0	54.0	-5.0
2390	53.9	49.1	74.0	-20.1	54.0	-4.9
2490	44.5	37.9	74.0	-29.5	54.0	-16.1
2491	45.3	40.1	74.0	-28.7	54.0	-13.9
4824	46.5	43.7	74.0	-27.5	54.0	-10.2
16057	52.4	43.3	74.0	-21.6	54.0	-10.7
39758	55.9	51.6	74.0	-18.1	54.0	-2.4



FCC ID: O2FM210SE



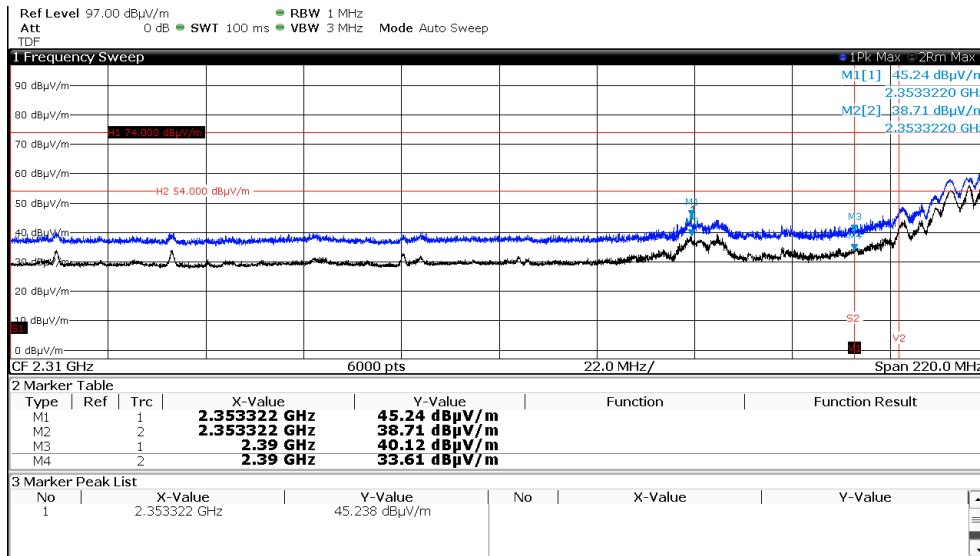
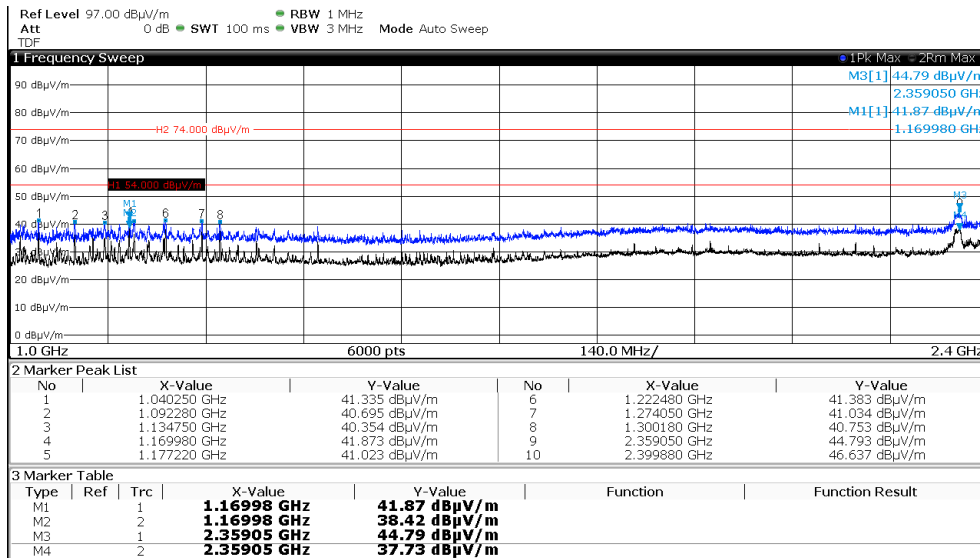
FCC ID: O2FM210SE



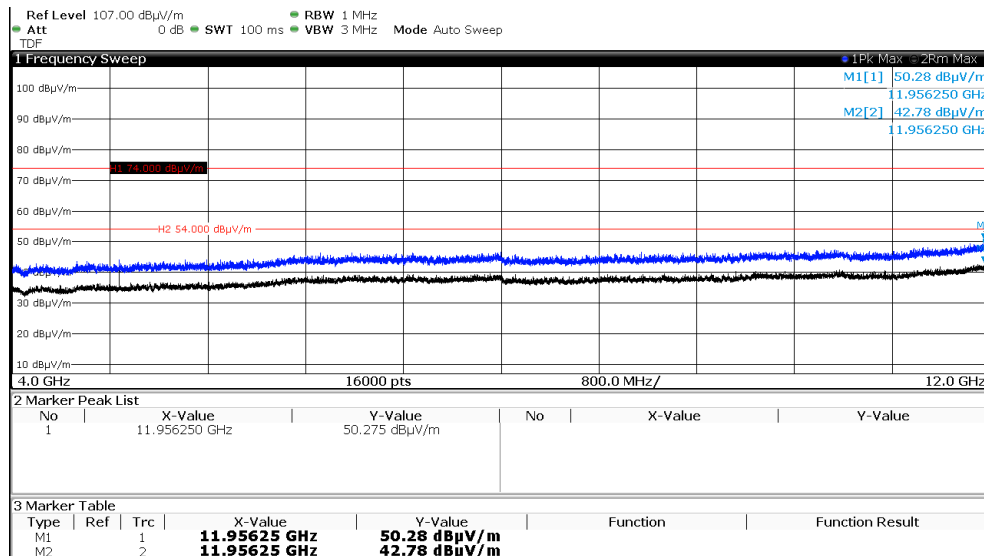
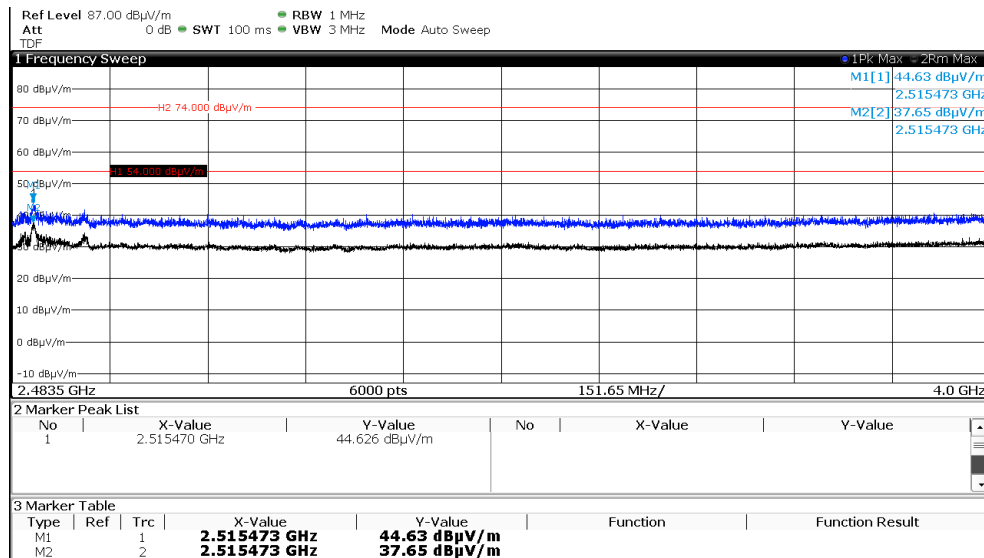
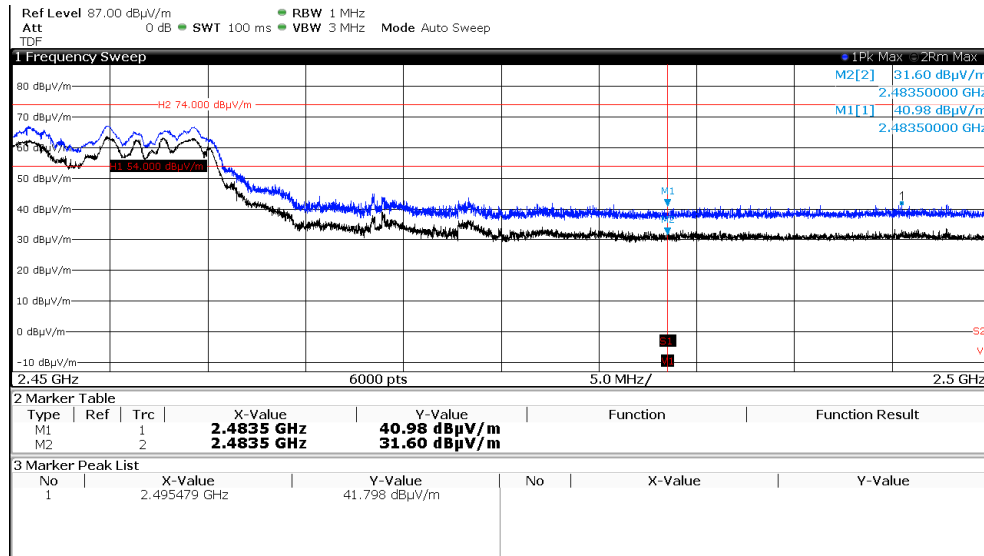
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simultaneous transmission WLAN CH6 and RFID

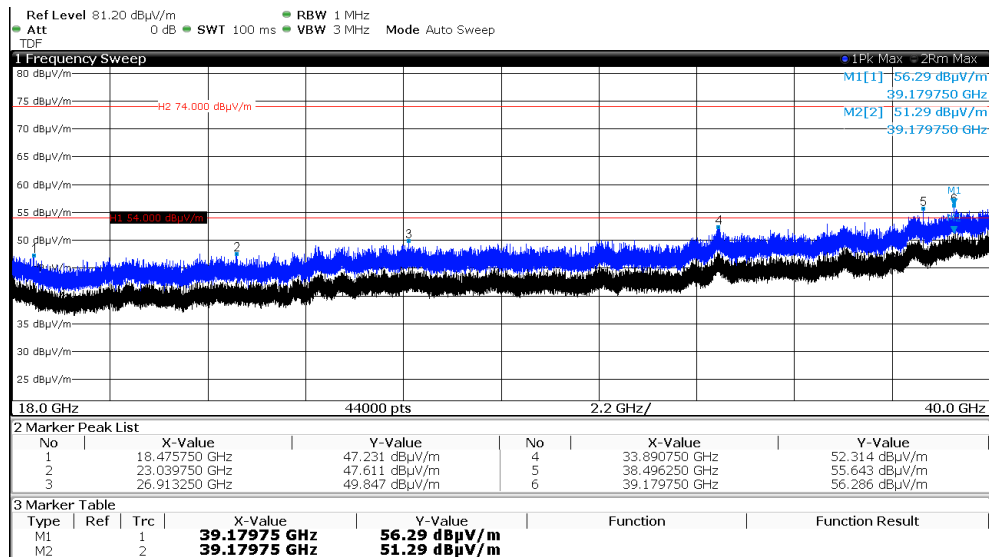
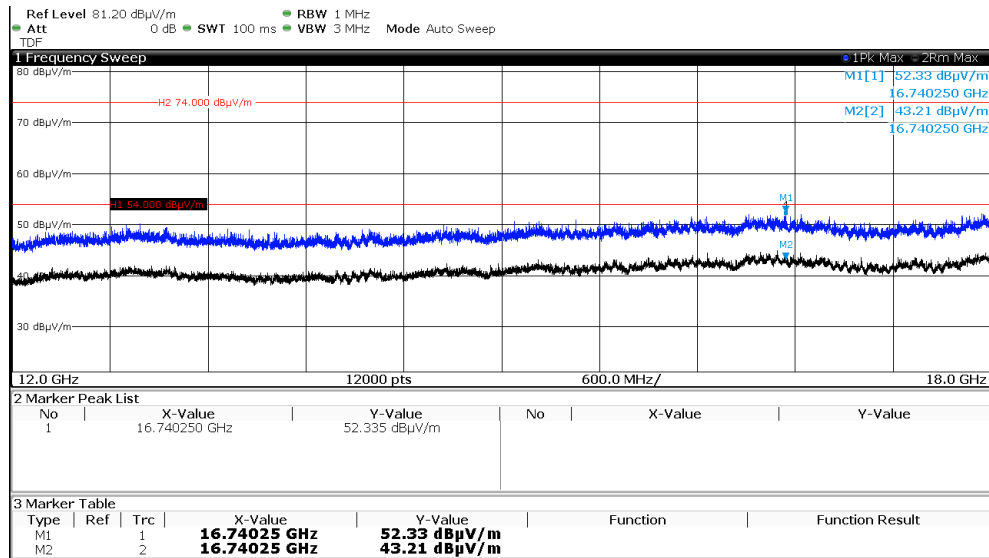
Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1170	41.9	38.4	74.0	-32.1	54.0	-15.6
2353	45.2	38.7	74.0	-28.7	54.0	-15.3
2359	44.8	37.7	74.0	-29.2	54.0	-16.2
2483.5	41.0	31.6	74.0	-33.0	54.0	-22.4
2515	44.6	37.7	74.0	-29.3	54.0	-16.3
11956	50.3	42.8	74.0	-23.7	54.0	-11.2
16740	52.3	43.2	74.0	-21.6	54.0	-10.8
39180	56.3	51.3	74.0	-17.7	54.0	-2.7



FCC ID: O2FM210SE



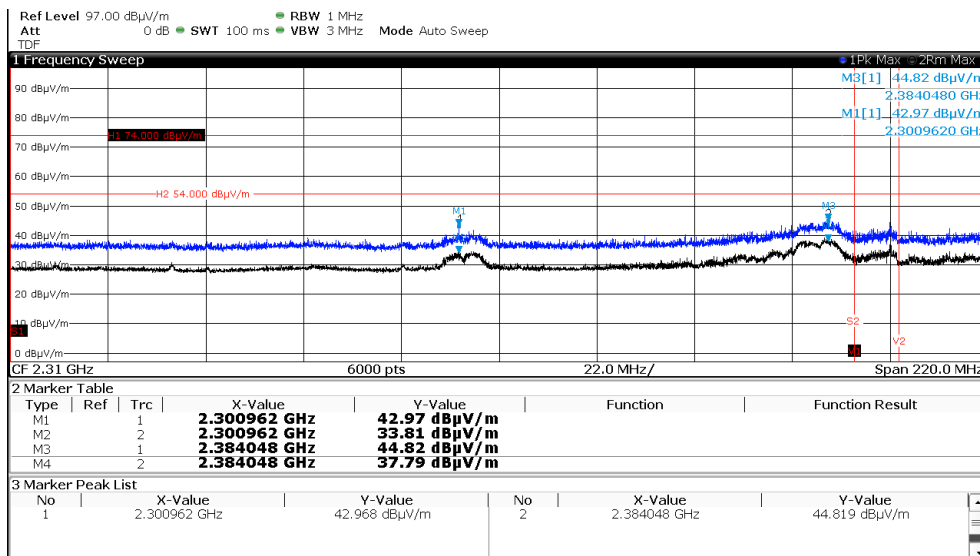
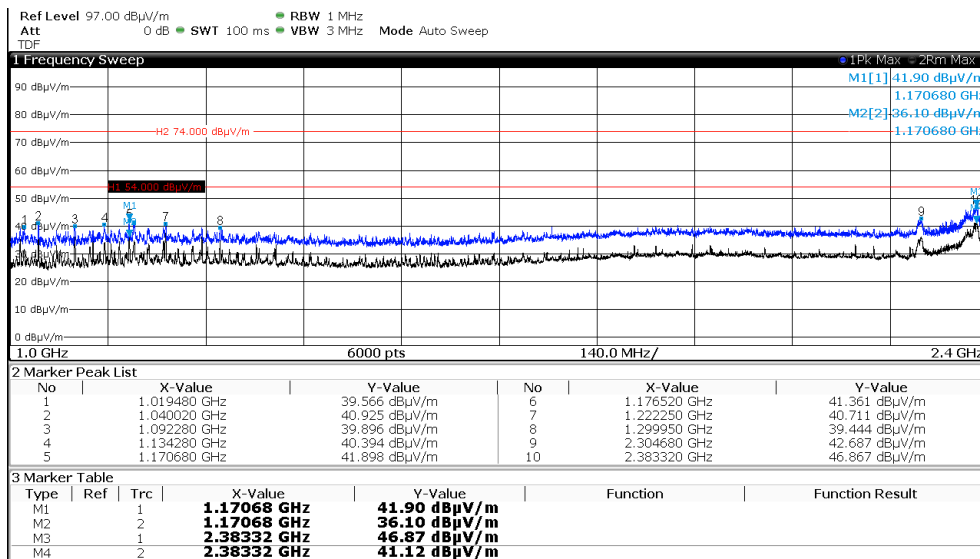
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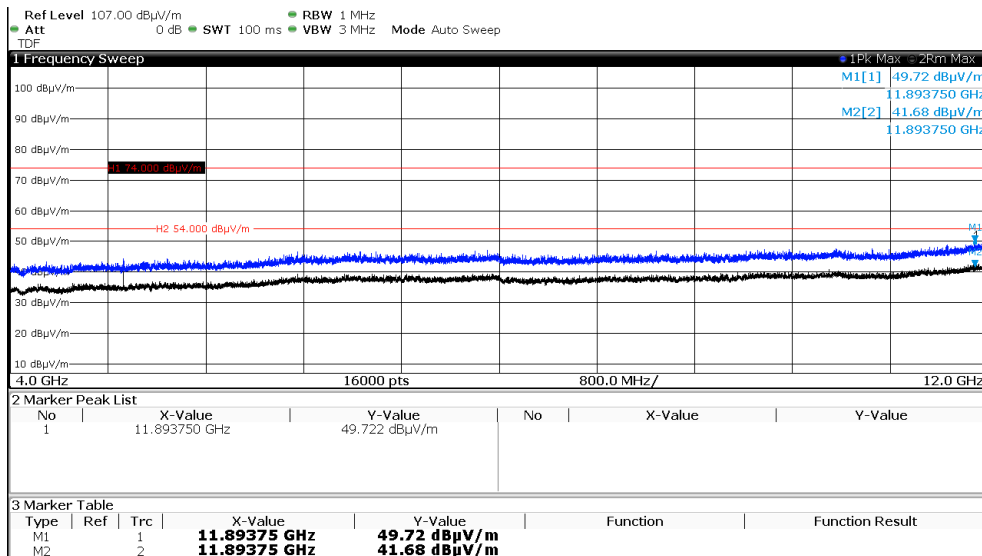
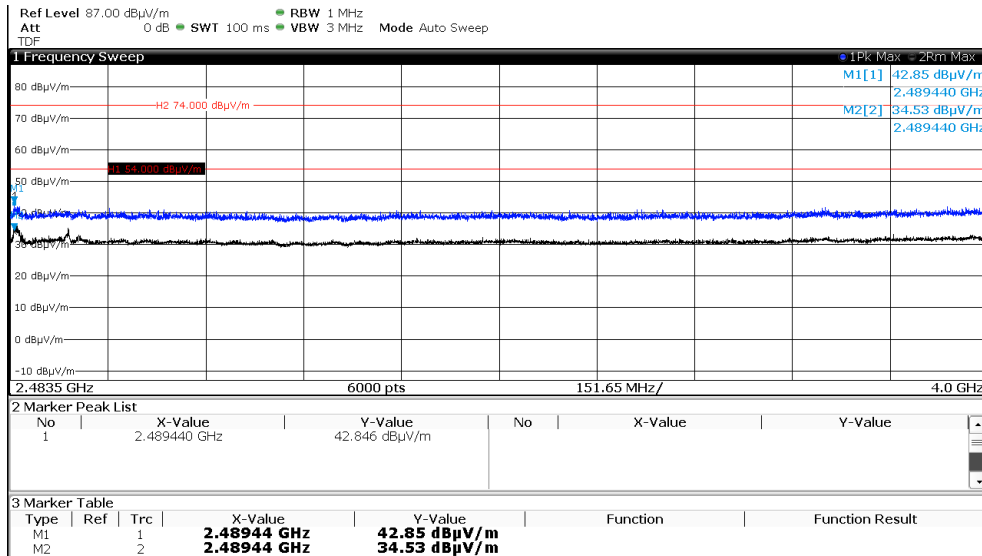
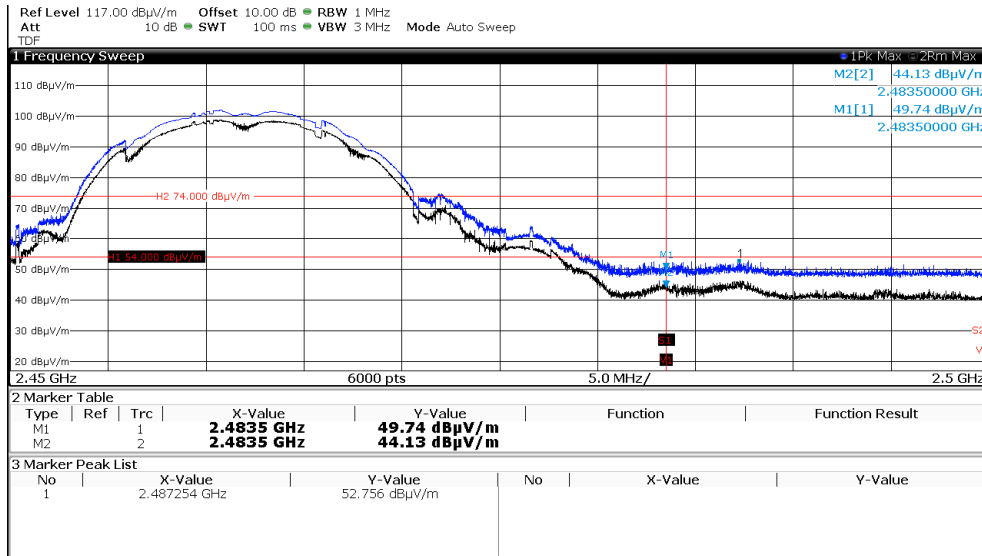
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simultaneous transmission WLAN CH11 and RFID

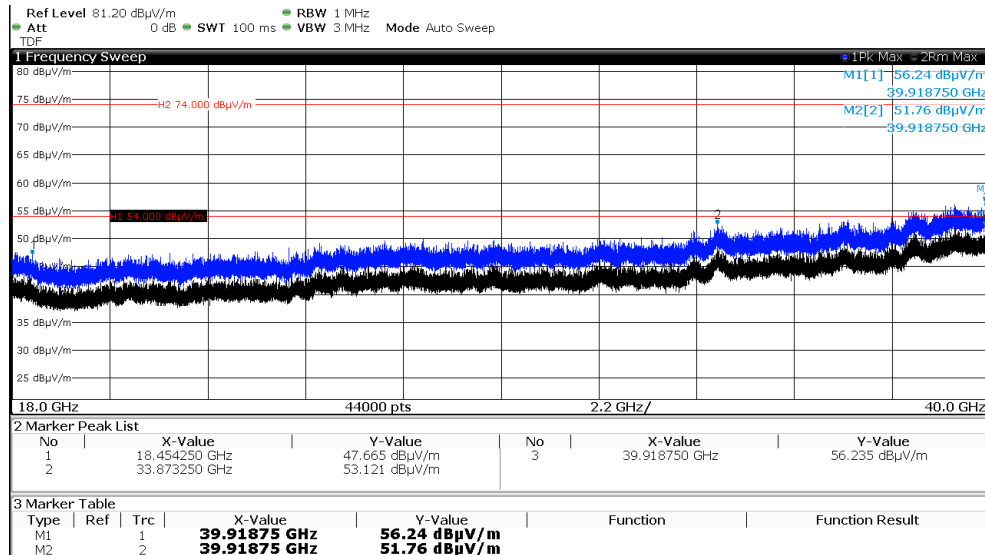
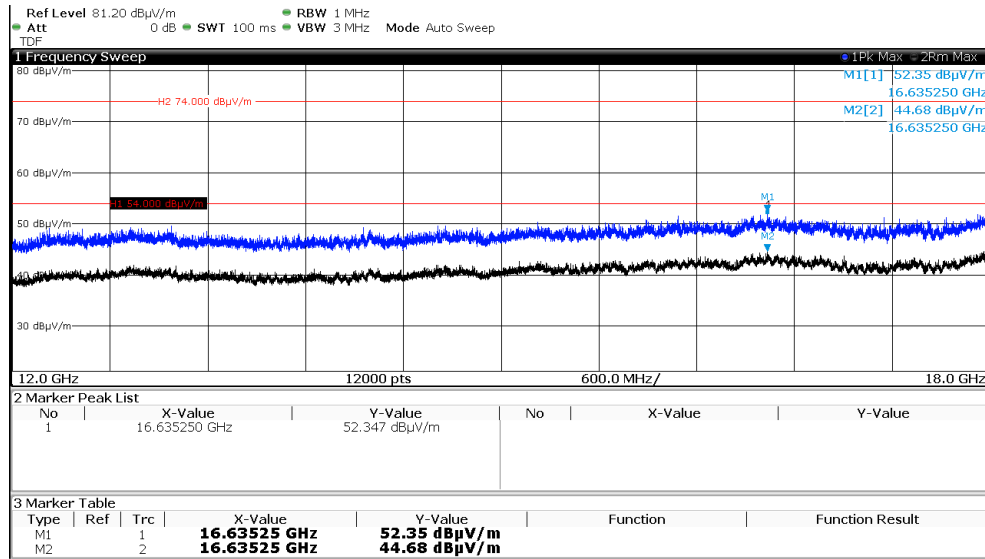
Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1171	41.9	36.1	74.0	-32.1	54.0	-17.9
2301	43.0	33.8	74.0	-31.0	54.0	-20.2
2383	46.9	41.1	74.0	-27.1	54.0	-12.9
2384	44.8	37.8	74.0	-29.2	54.0	-16.2
2483.5	49.7	44.1	74.0	-24.2	54.0	-9.8
2487	52.8	-	74.0	-21.2	54.0	-
2489	42.9	34.5	74.0	-31.1	54.0	-19.4
11894	49.7	41.7	74.0	-24.3	54.0	-12.3
16635	52.4	44.7	74.0	-21.6	54.0	-9.3
39919	56.2	51.8	74.0	-17.7	54.0	-2.2



FCC ID: O2FM210SE



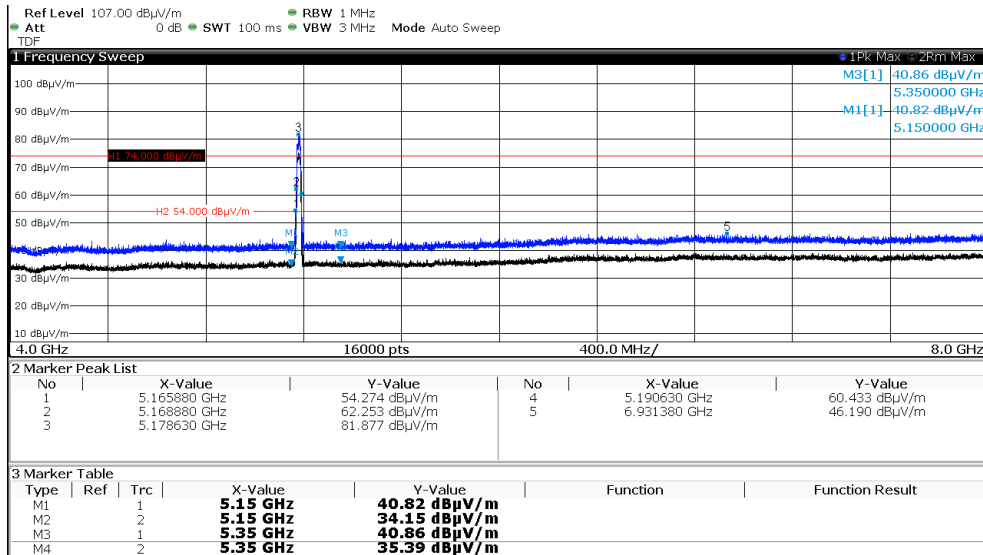
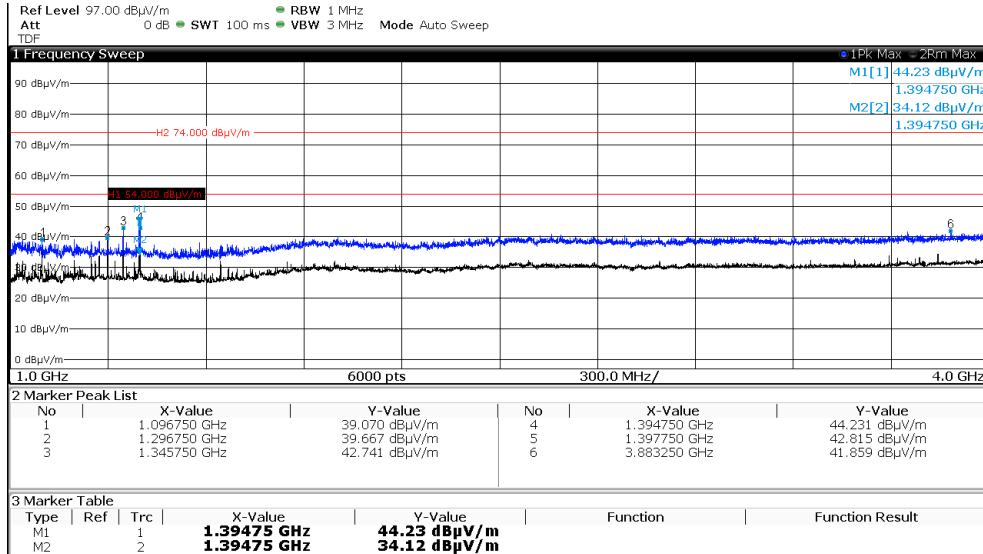
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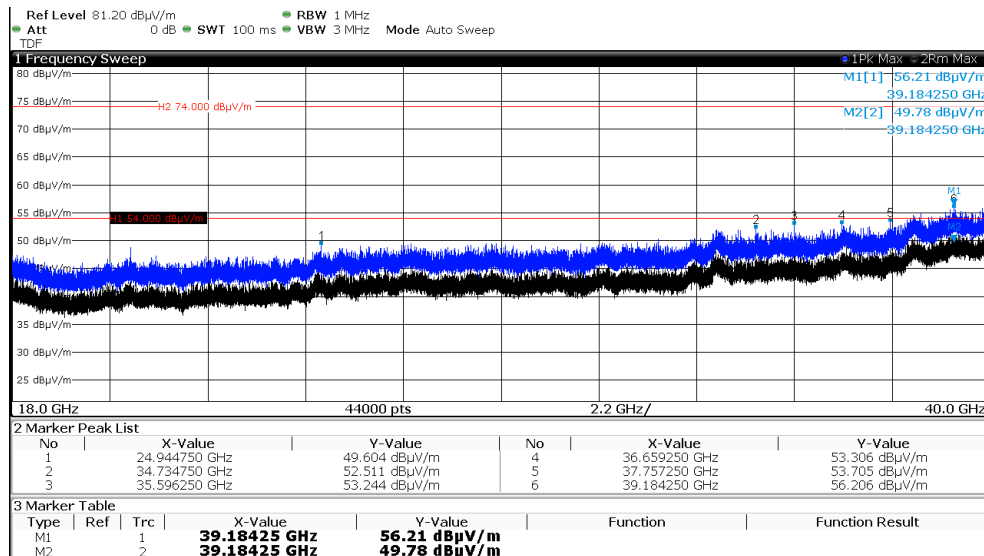
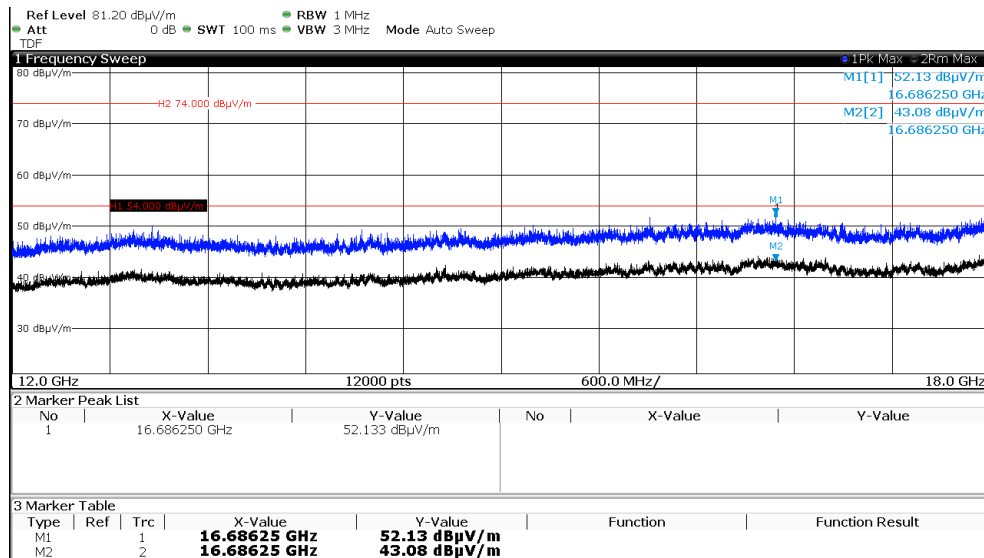
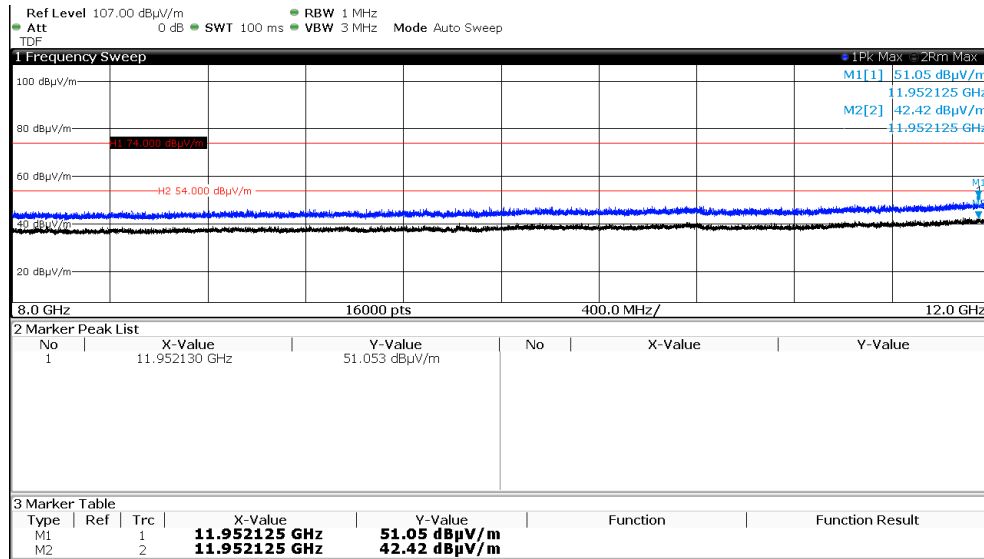
FCC ID: O2FM210SE

simultaneous transmission WLAN CH36 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1395	44.2	34.1	74.0	-29.7	54.0	-19.9
6931	46.2	-	74.0	-27.8	54.0	-
11952	51.1	42.4	74.0	-22.9	54.0	-11.6
16686	52.1	43.1	74.0	-21.8	54.0	-10.9
39184	56.2	49.8	74.0	-17.8	54.0	-4.2



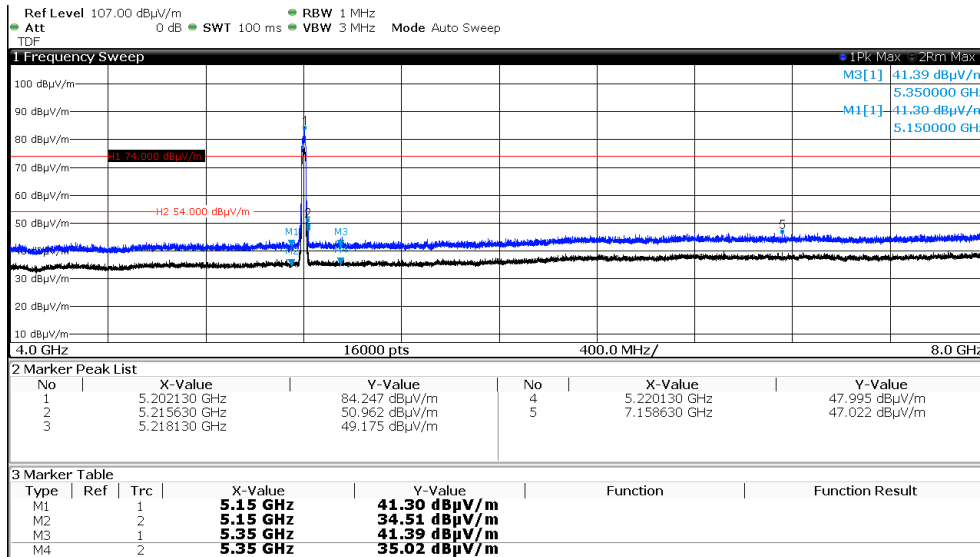
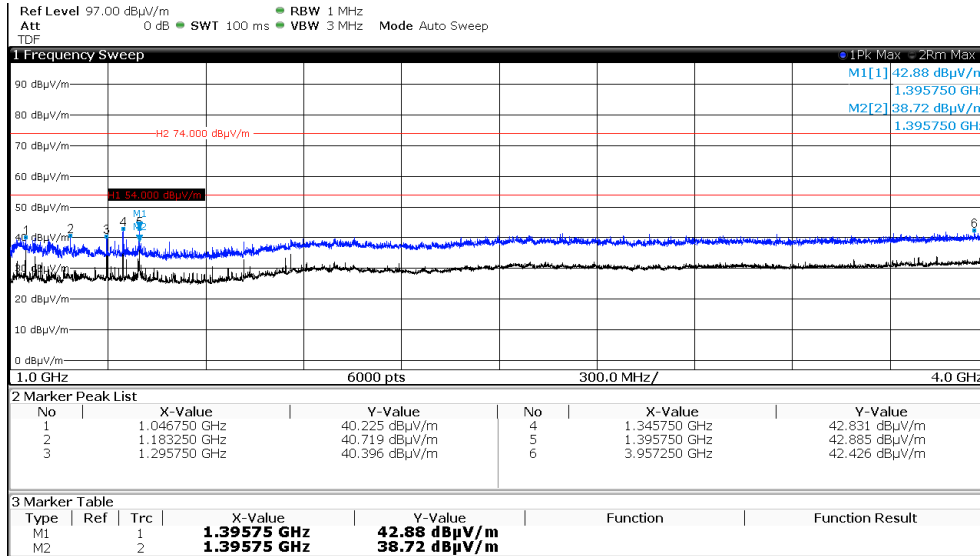
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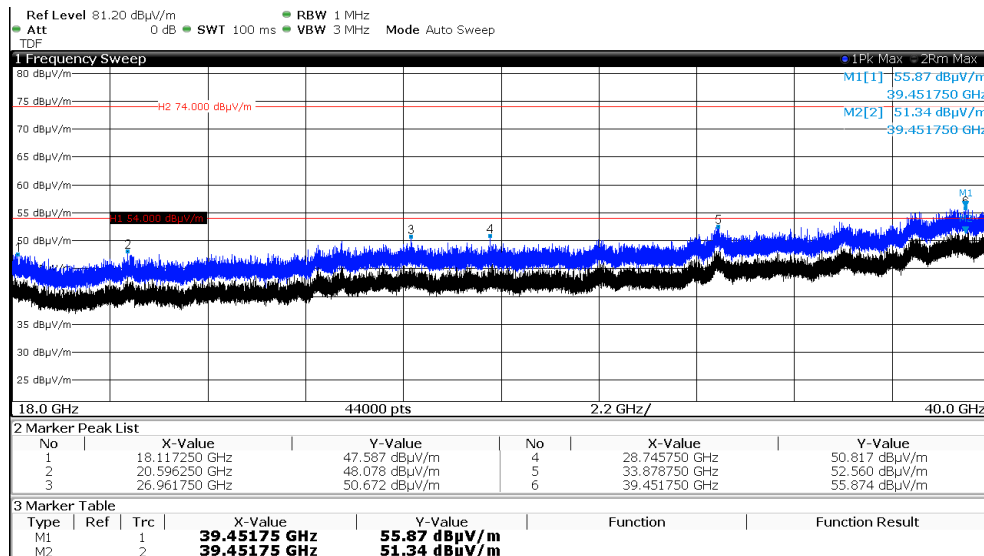
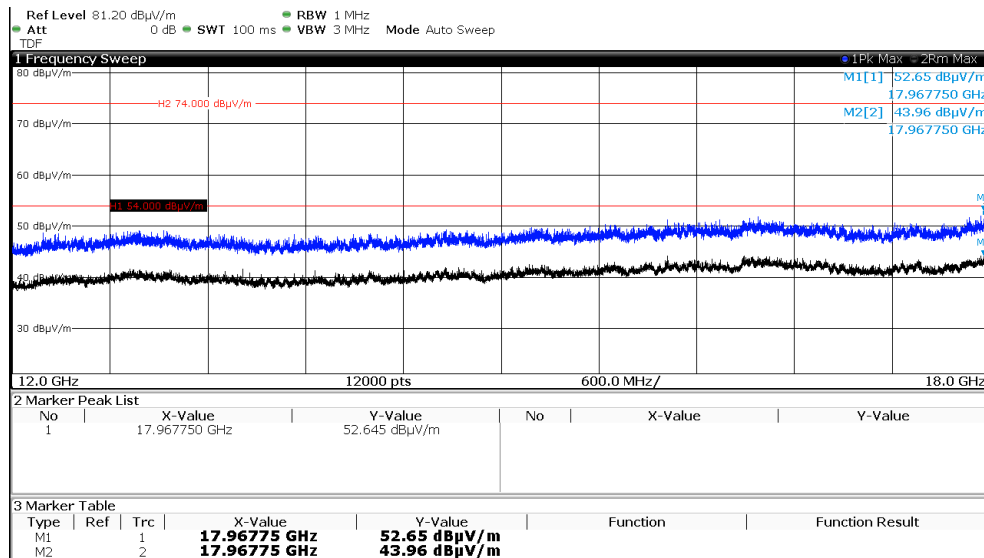
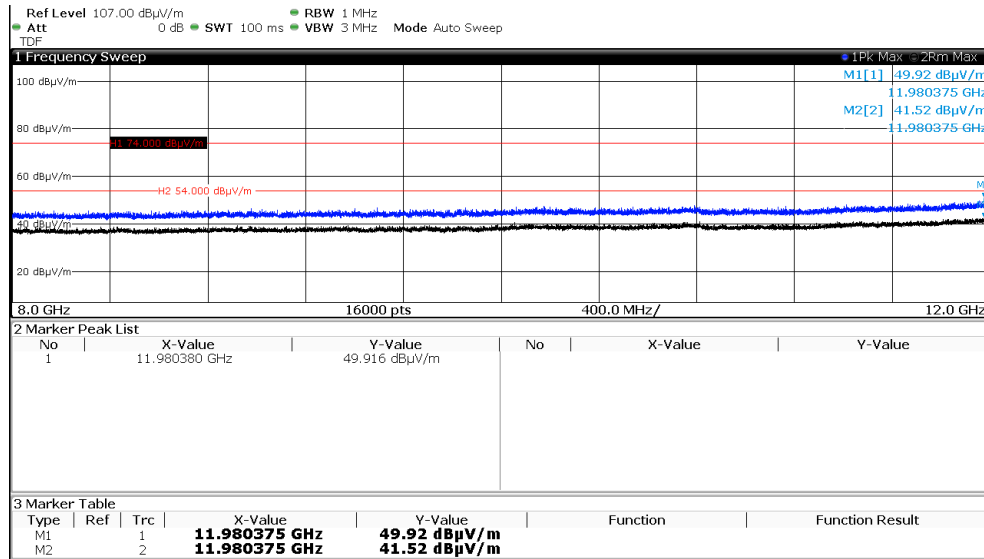
FCC ID: O2FM210SE

simultaneous transmission WLAN CH40 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1396	42.9	38.7	74.0	-31.1	54.0	-15.3
7159	47.0	-	74.0	-27.0	54.0	-
11980	49.9	41.5	74.0	-24.1	54.0	-12.5
17968	52.7	44.0	74.0	-21.3	54.0	-10.0
39452	55.9	51.3	74.0	-18.1	54.0	-2.6



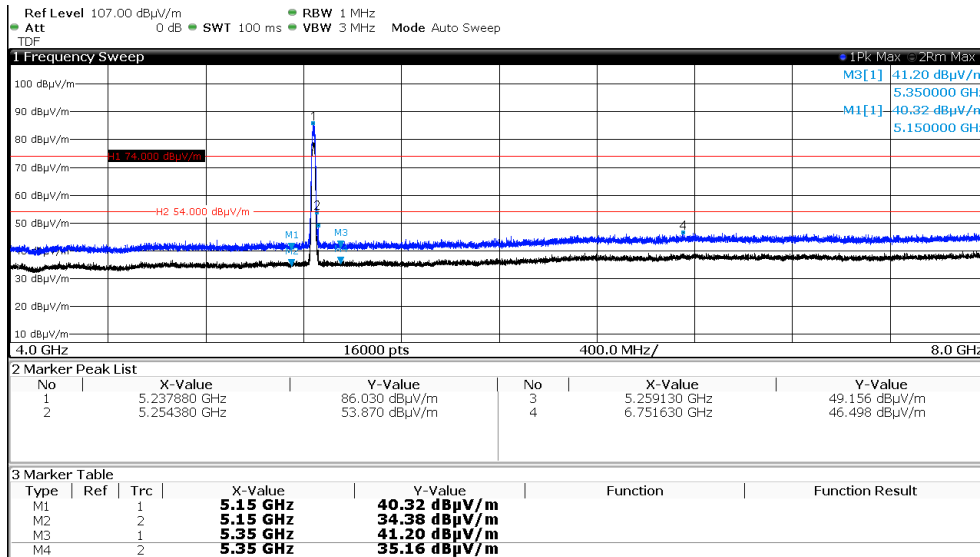
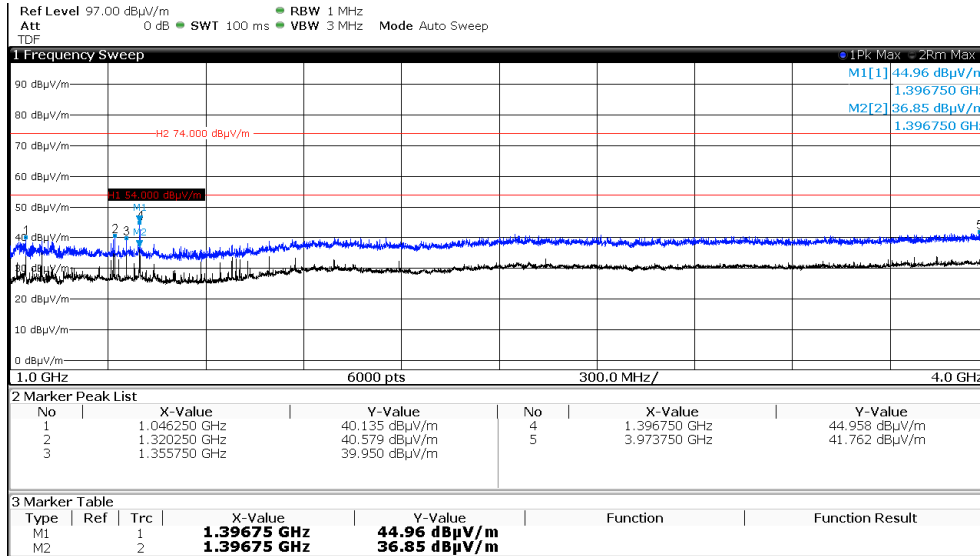
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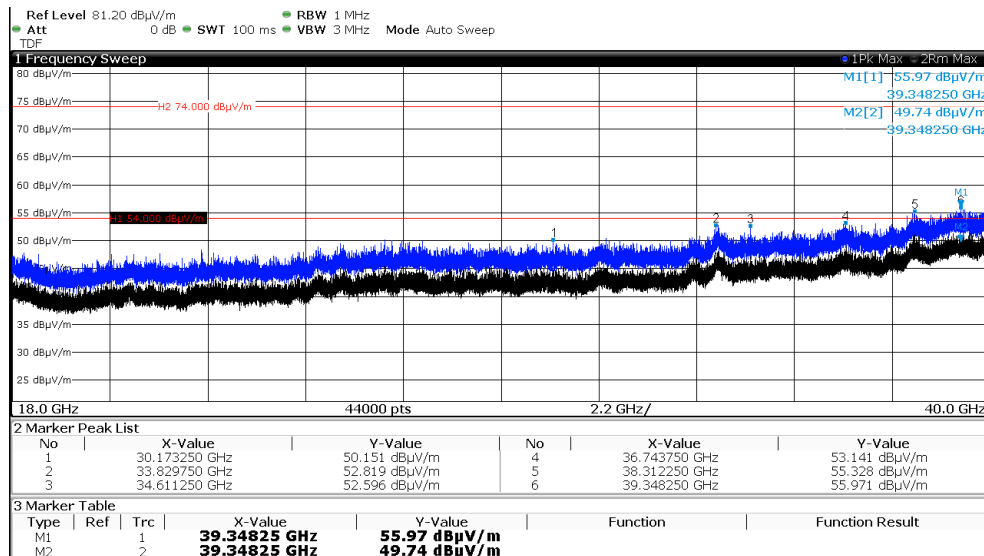
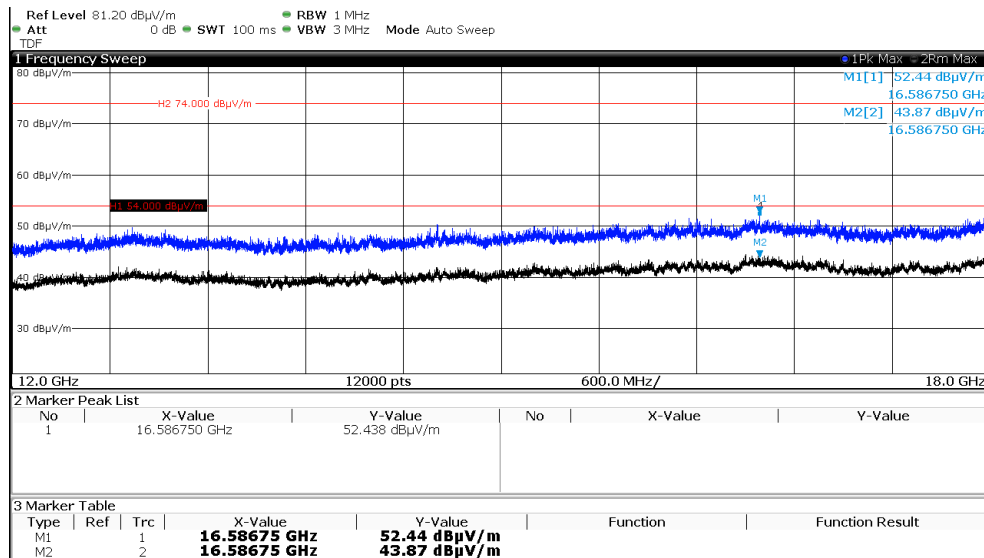
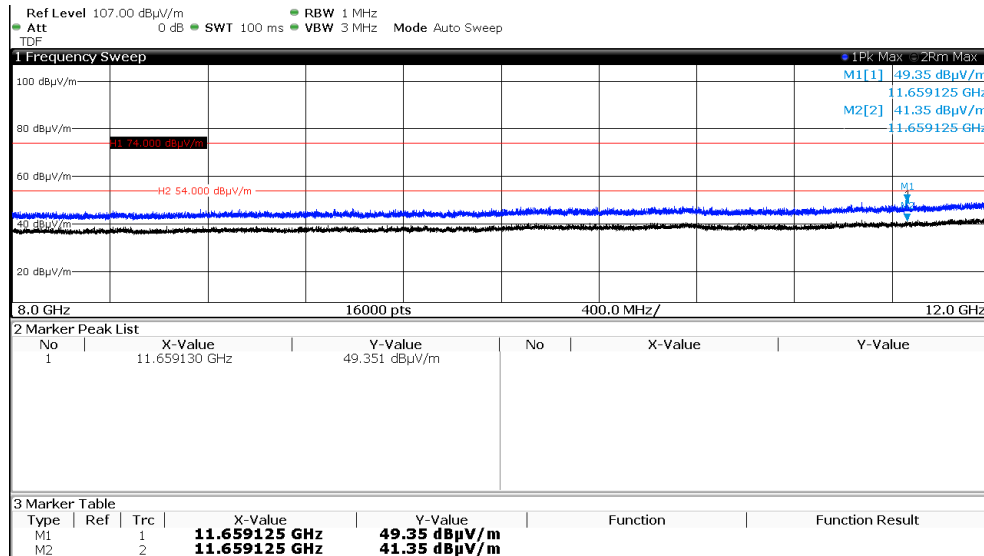
FCC ID: O2FM210SE

simultaneous transmission WLAN CH48 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1397	45.0	36.9	74.0	-29.0	54.0	-17.1
6752	49.5	-	74.0	-24.5	54.0	-
11659	49.4	41.4	74.0	-24.6	54.0	-12.6
16587	52.4	43.9	74.0	-21.5	54.0	-10.1
39348	56.0	49.7	74.0	-18.0	54.0	-4.2



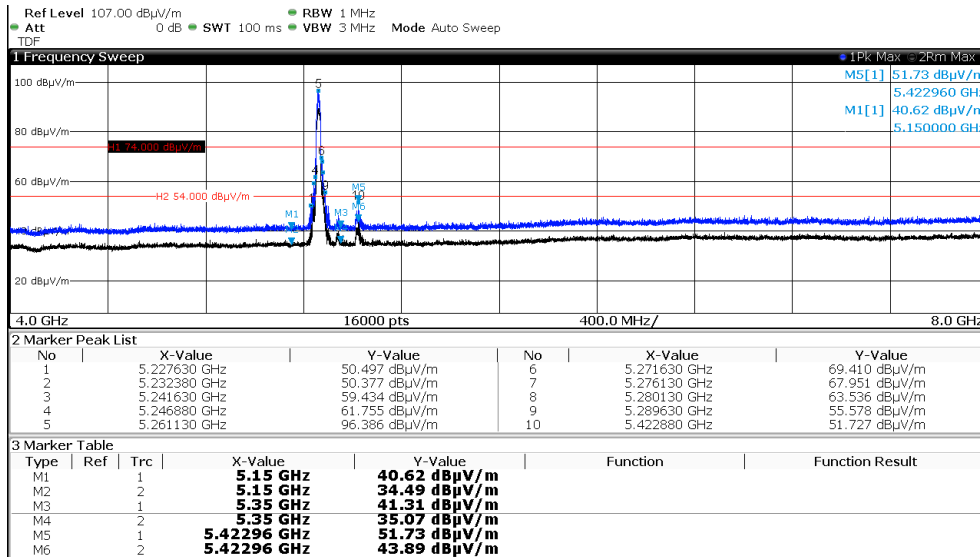
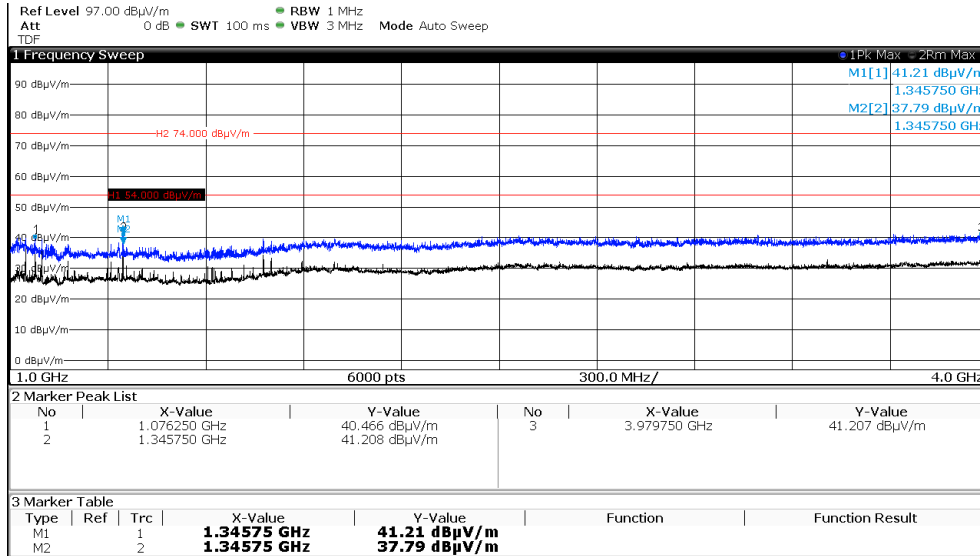
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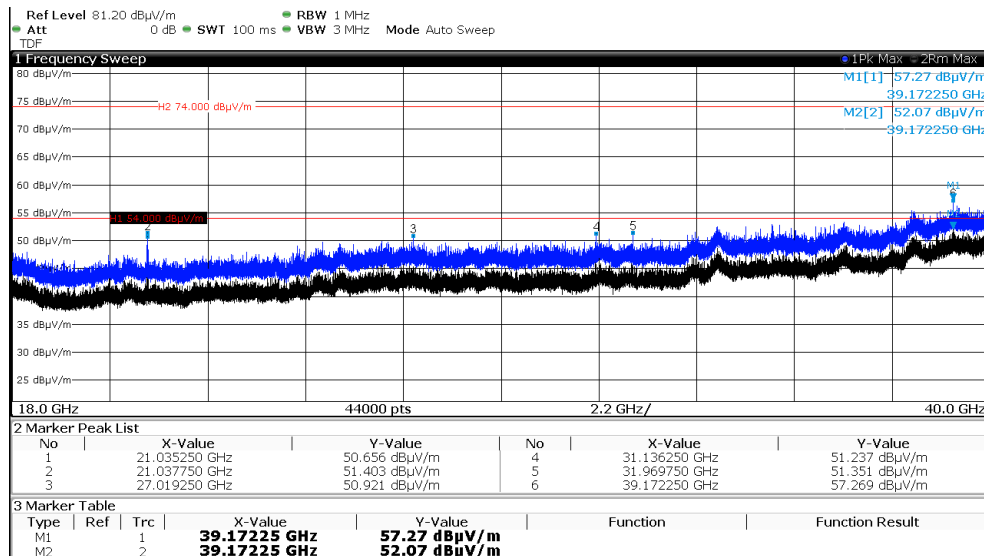
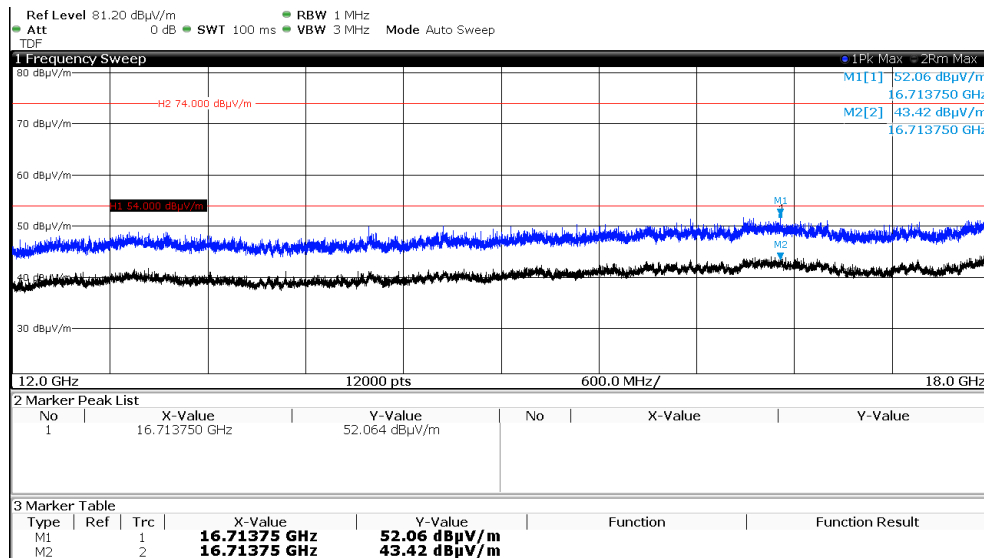
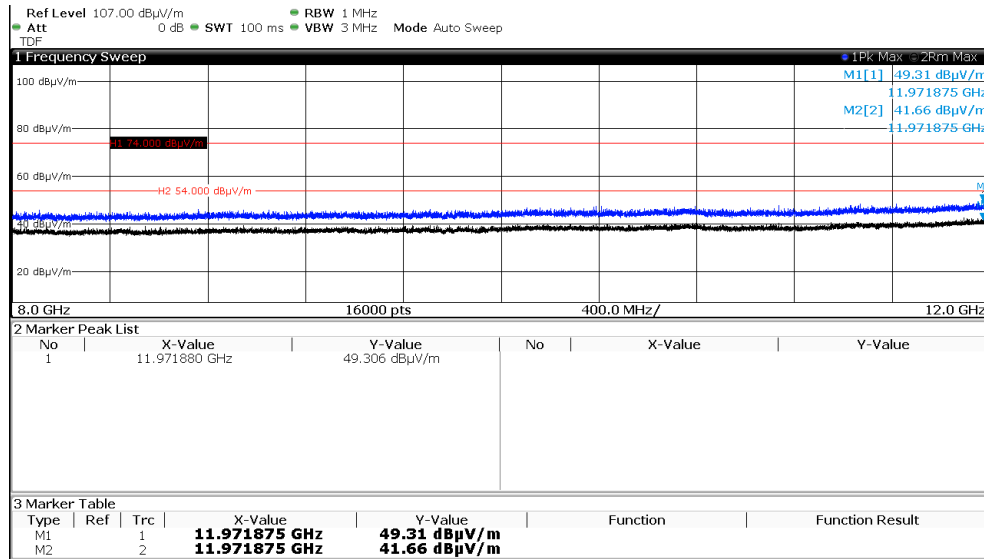
FCC ID: O2FM210SE

simultaneous transmission WLAN CH52 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1346	41.2	37.8	74.0	-32.8	54.0	-16.2
5423	51.7	43.9	74.0	-22.2	54.0	-10.1
11972	49.3	41.7	74.0	-24.7	54.0	-12.3
16714	52.1	43.4	74.0	-21.9	54.0	-10.6
39172	57.3	52.1	74.0	-16.7	54.0	-1.9



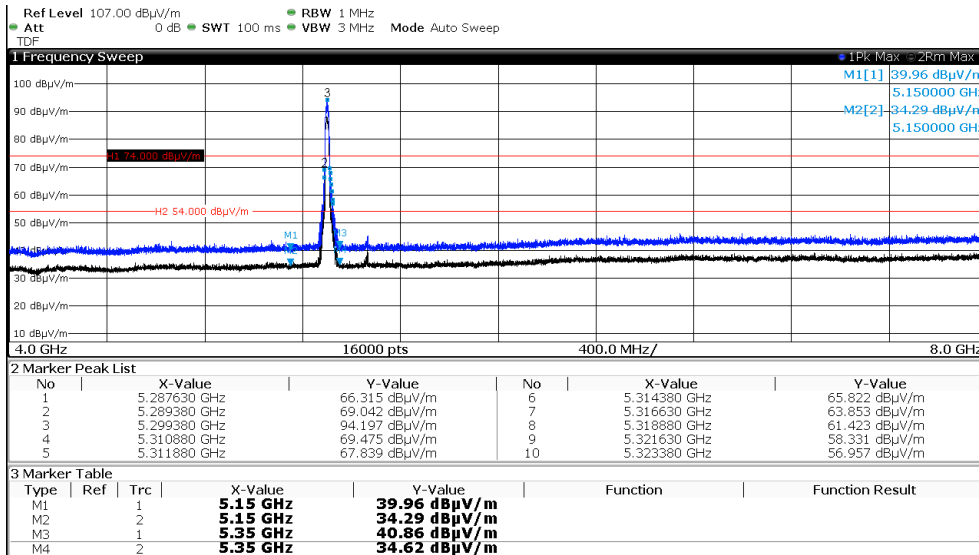
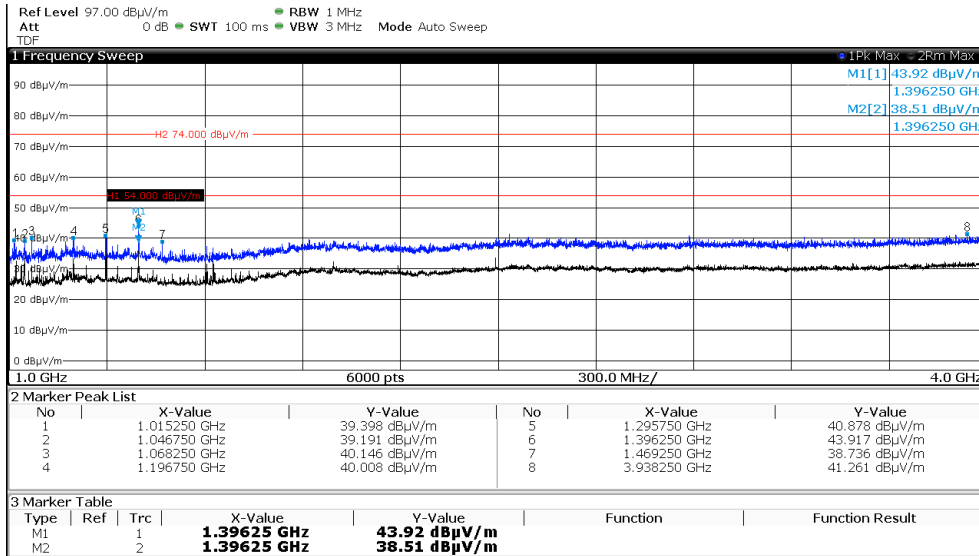
FCC ID: O2FM210SE



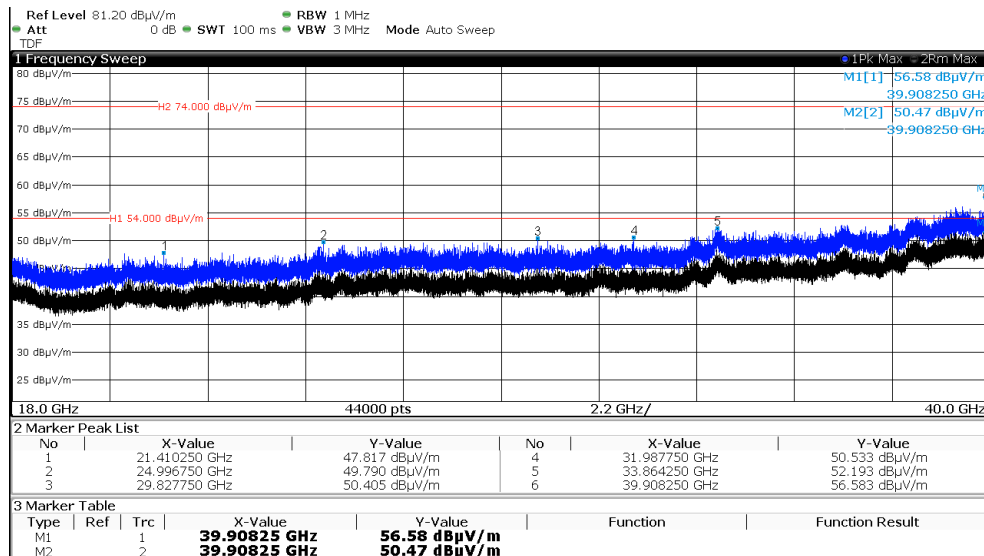
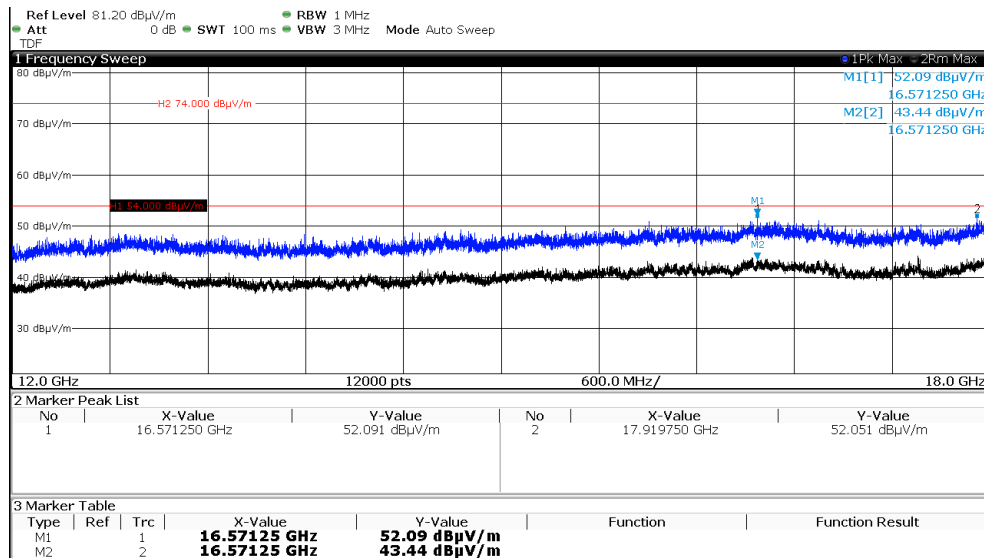
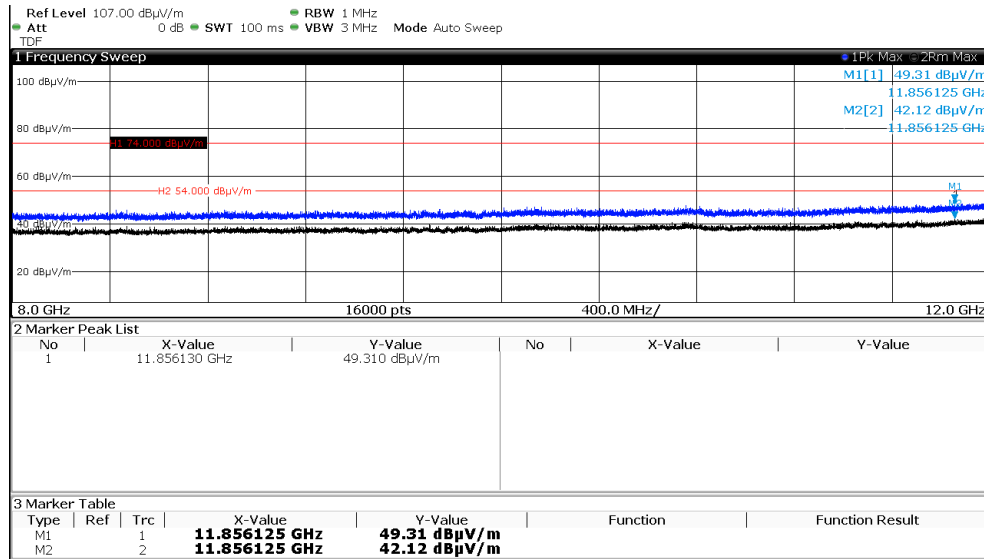
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simultaneous transmission WLAN CH60 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1396	43.9	38.5	74.0	-30.1	54.0	-15.5
11856	49.3	42.1	74.0	-24.7	54.0	-11.9
16571	52.1	43.4	74.0	-21.9	54.0	-10.5
39908	56.6	50.5	74.0	-17.4	54.0	-3.5



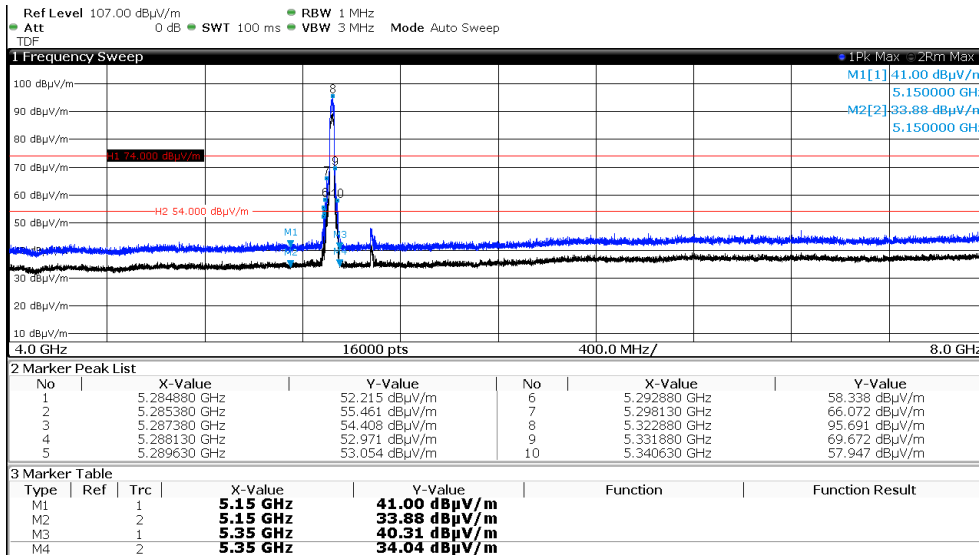
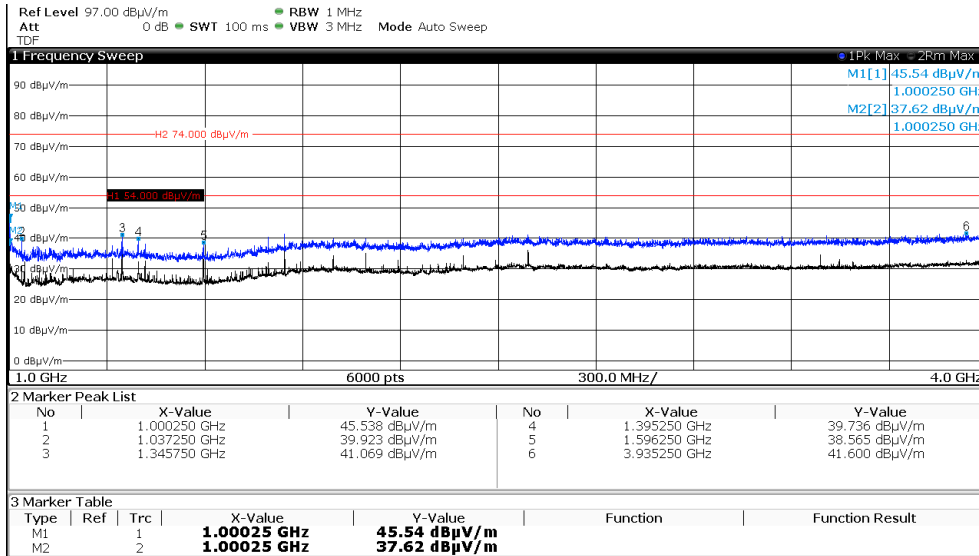
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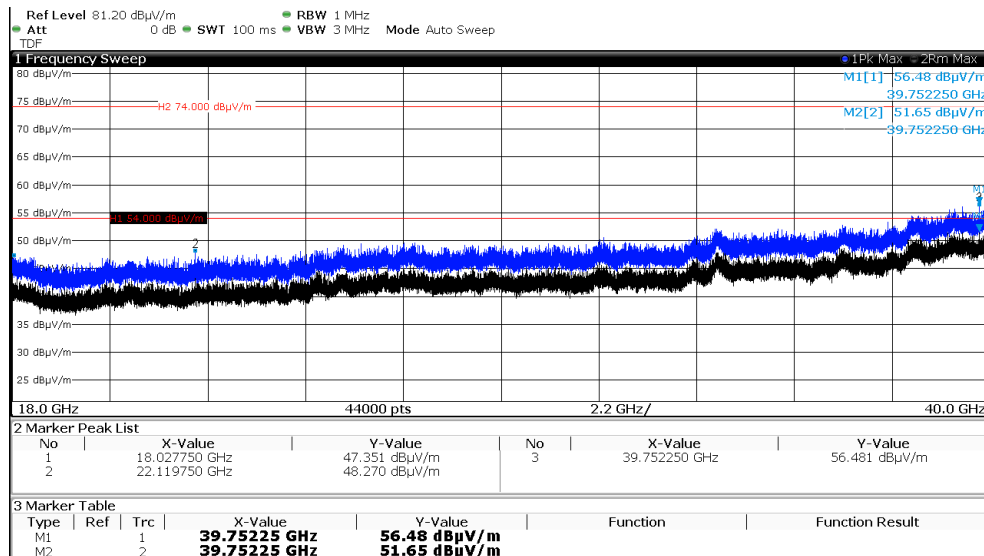
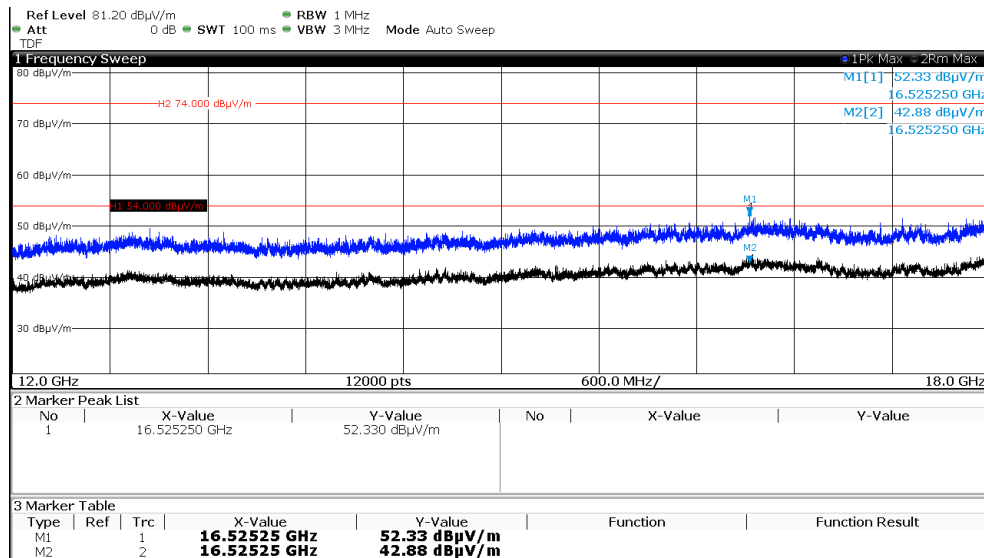
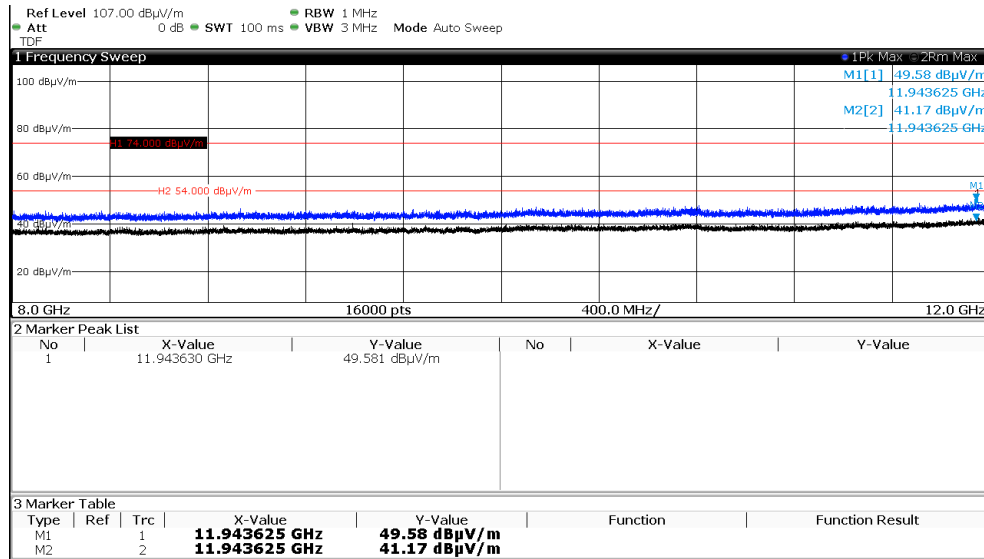
FCC ID: O2FM210SE

simultaneous transmission WLAN CH64 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1000	45.5	37.6	74.0	-28.4	54.0	-16.4
11944	49.6	41.2	74.0	-24.4	54.0	-12.8
16525	52.3	42.9	74.0	-21.6	54.0	-11.1
39752	56.5	51.7	74.0	-17.5	54.0	-2.3



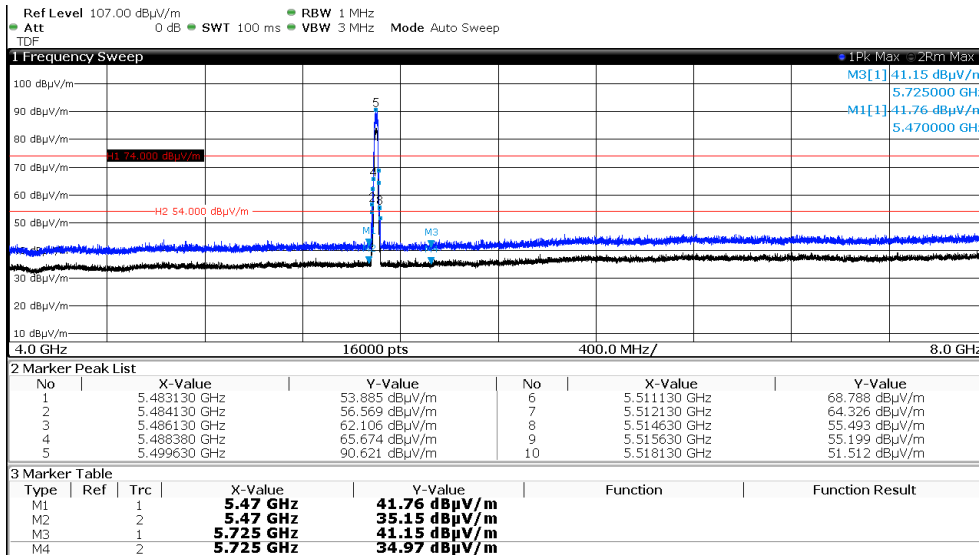
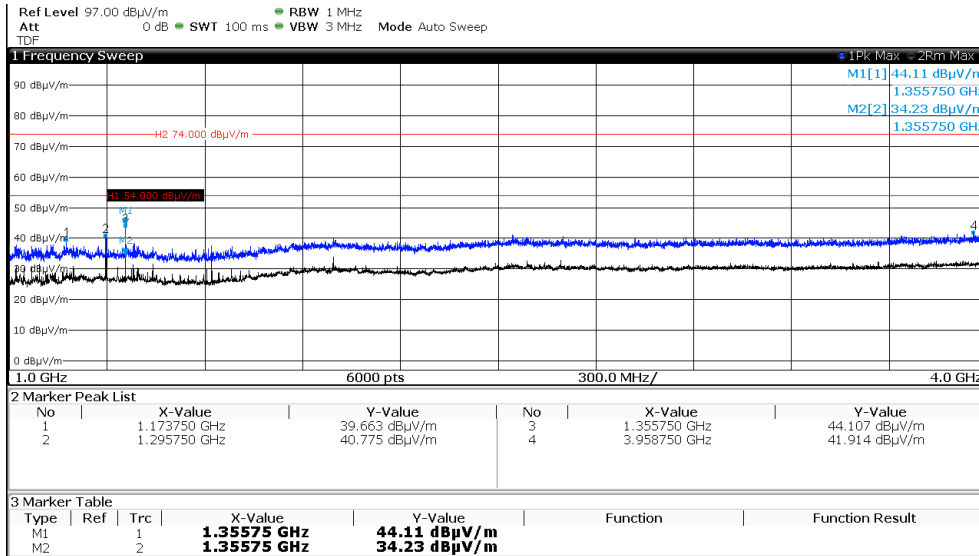
FCC ID: O2FM210SE



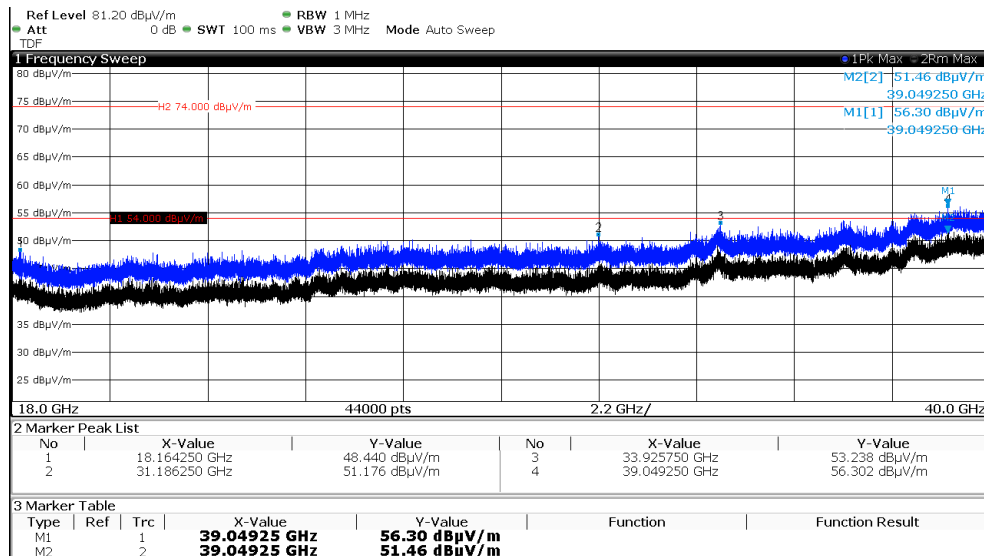
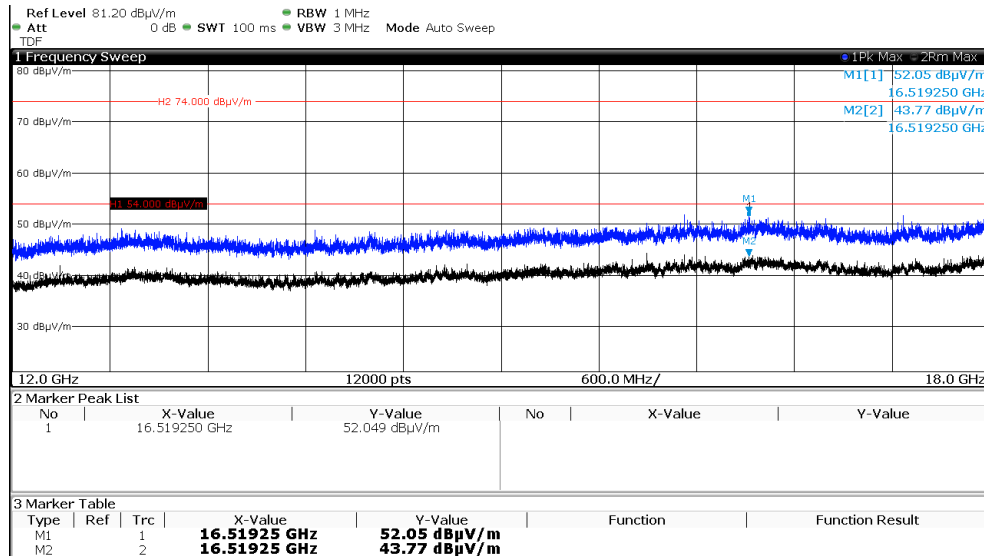
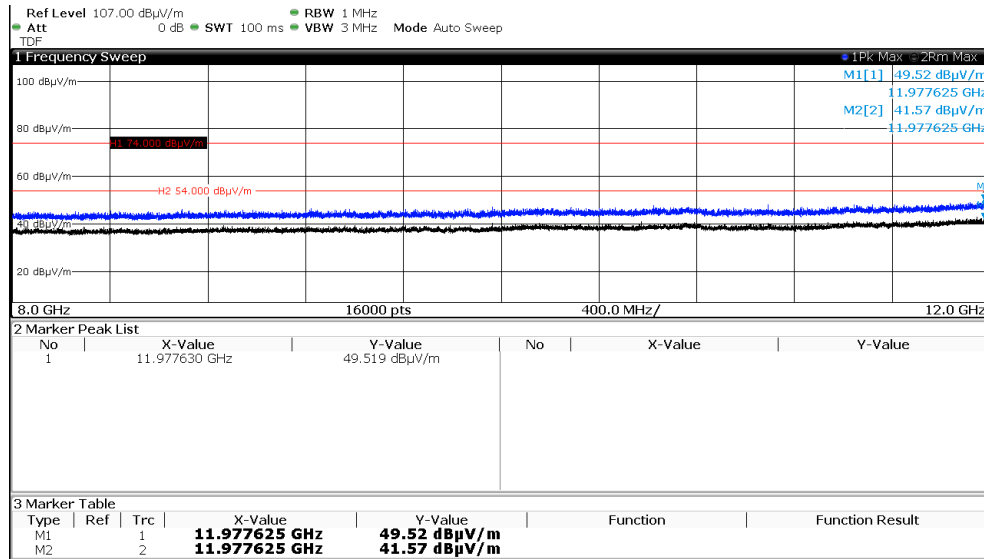
FCC ID: O2FM210SE

simultaneous transmission WLAN CH100 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1356	44.1	34.2	74.0	-29.9	54.0	-19.7
11978	49.5	41.6	74.0	-24.5	54.0	-12.4
16519	52.1	43.8	74.0	-21.9	54.0	-10.2
39049	56.3	51.5	74.0	-17.7	54.0	-2.5



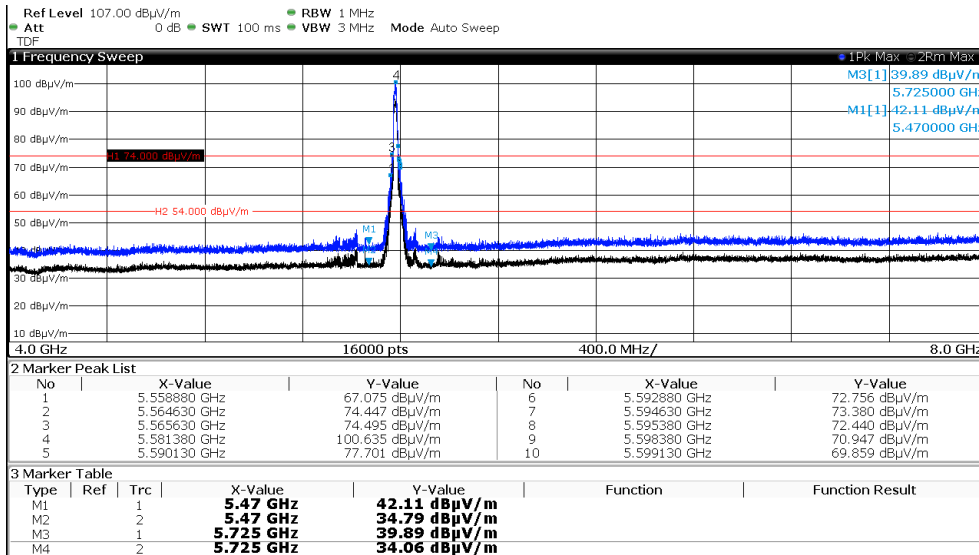
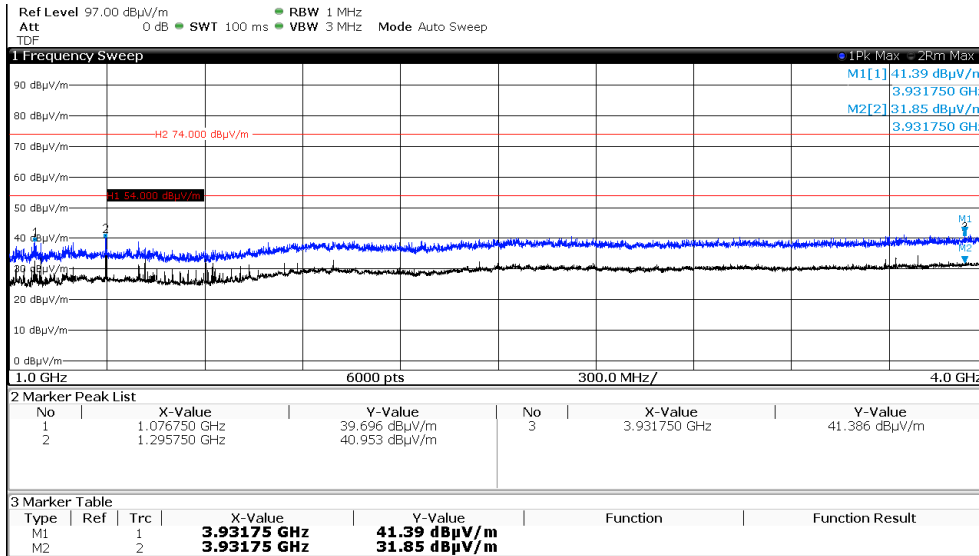
FCC ID: O2FM210SE



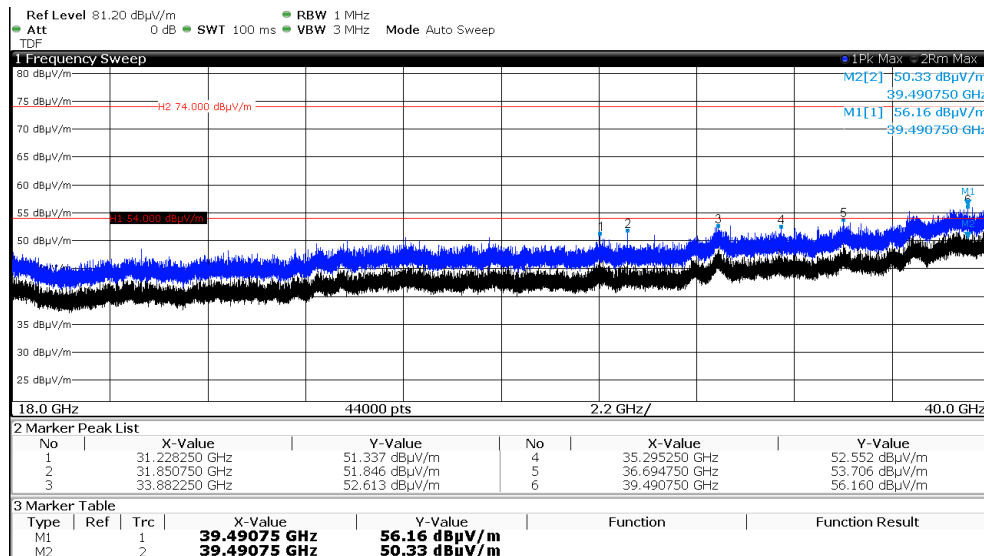
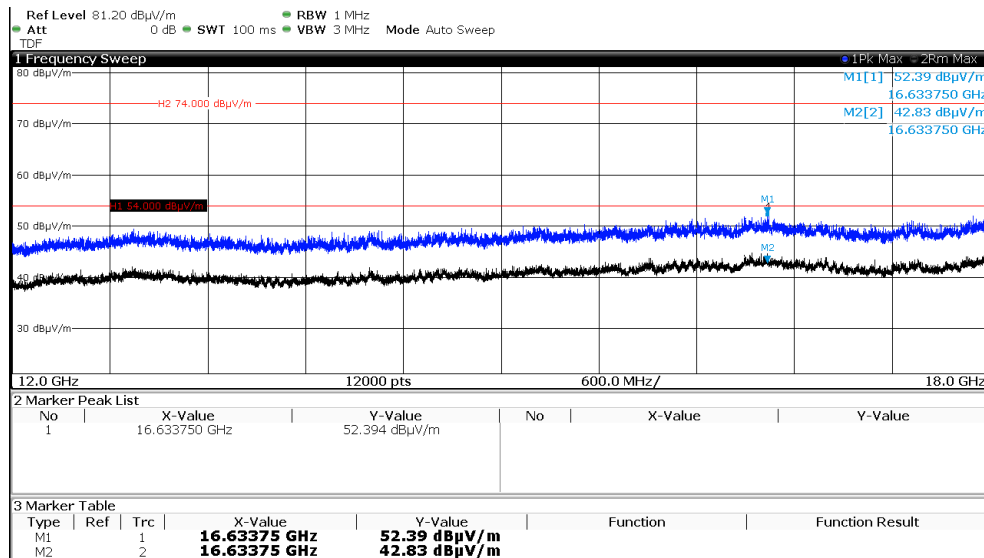
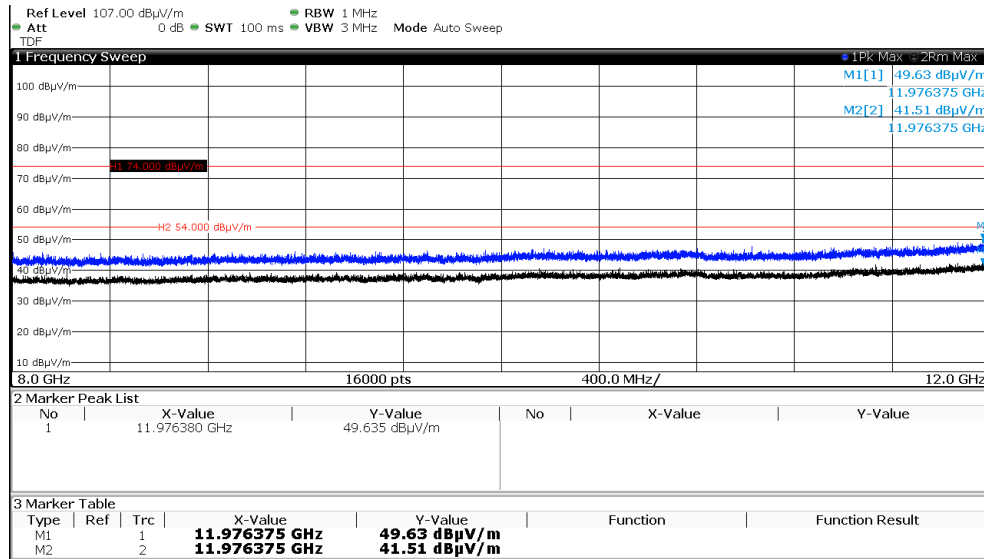
FCC ID: O2FM210SE

simultaneous transmission WLAN CH116 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
3932	41.4	31.9	74.0	-32.6	54.0	-22.1
11976	49.6	41.5	74.0	-24.3	54.0	-12.5
16634	52.4	42.8	74.0	-21.6	54.0	-11.1
39491	56.2	50.3	74.0	-17.8	54.0	-3.6



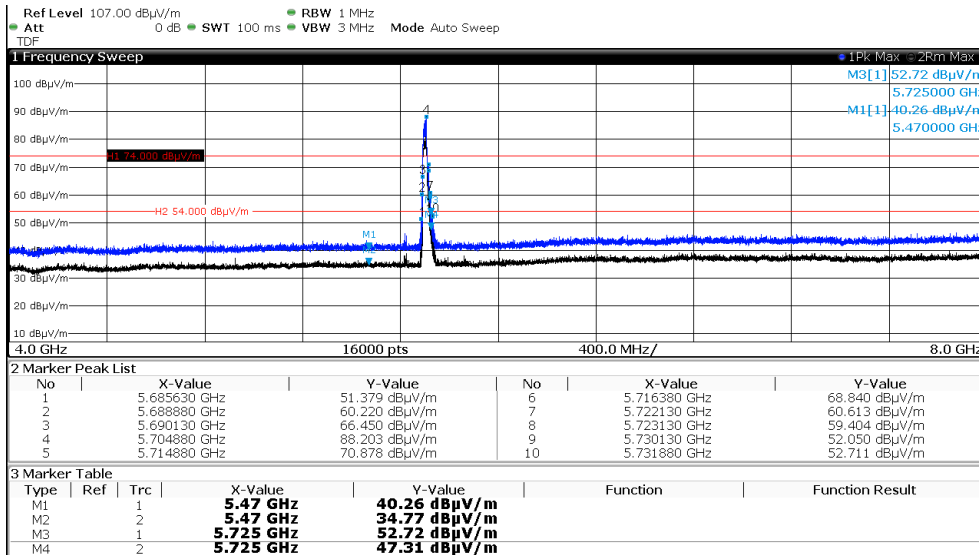
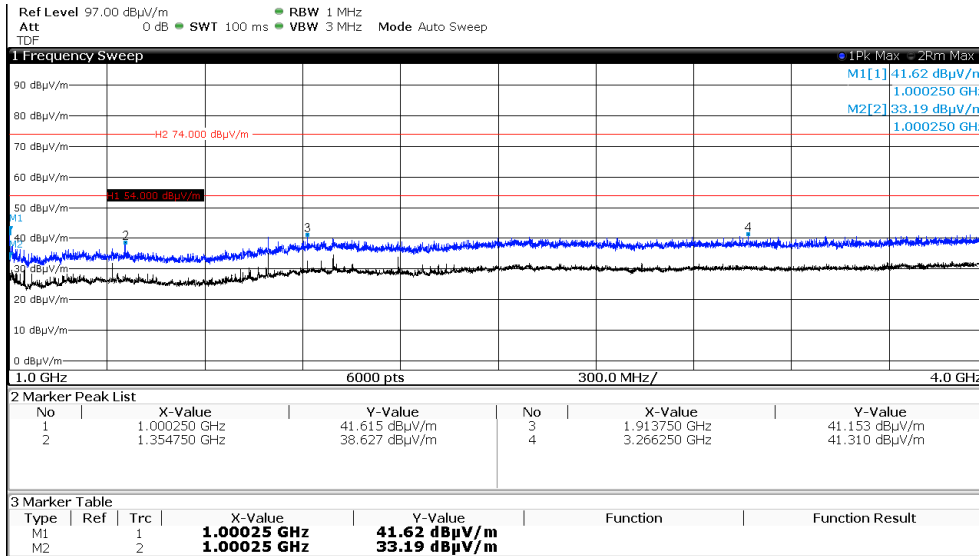
FCC ID: O2FM210SE



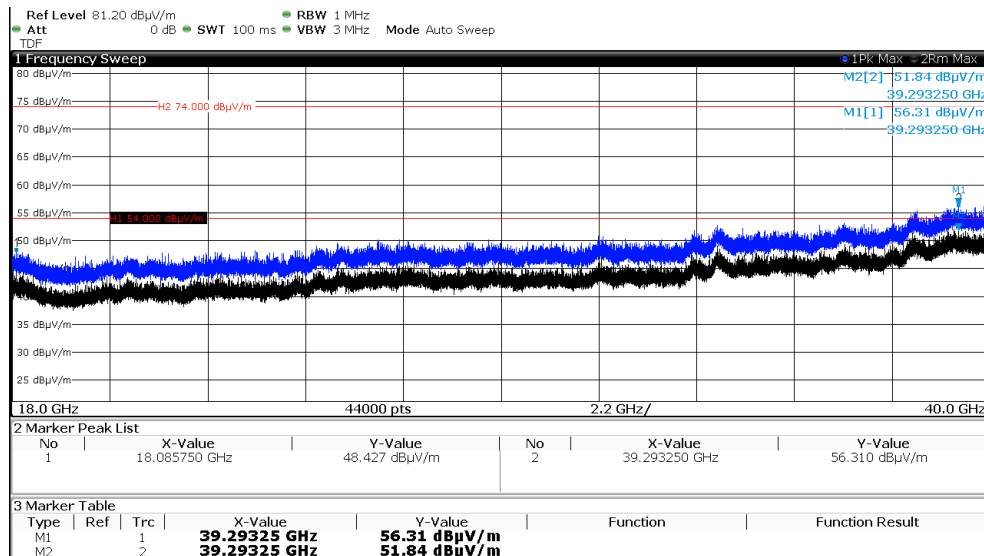
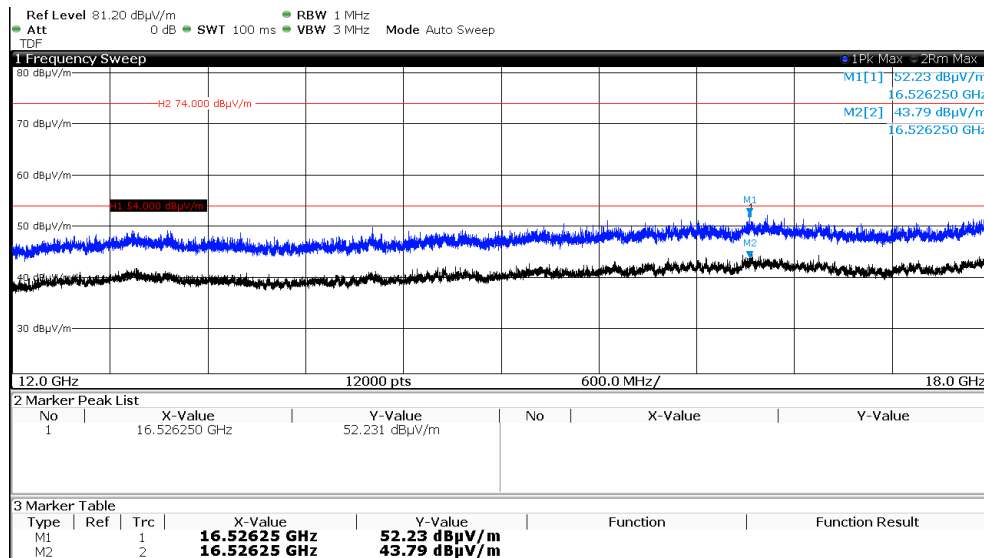
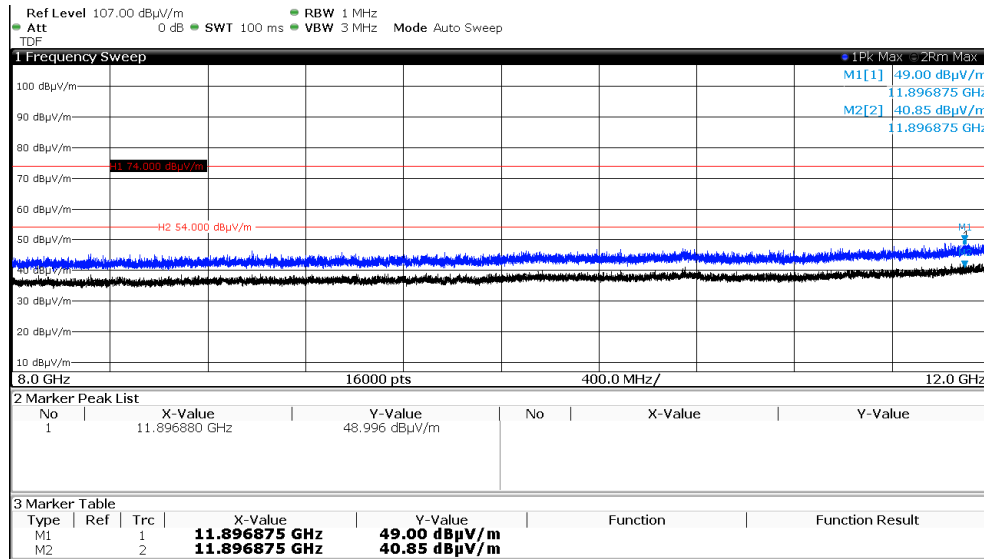
FCC ID: O2FM210SE

simultaneous transmission WLAN CH140 and RFID

Frequency (MHz)	Level PK dB(μV/m)	Level AV dB(μV/m)	Limit PK dB(μV/m)	Margin PK (dB)	Limit AV dB(μV/m)	Margin AV (dB)
1000	41.6	33.2	74.0	-32.4	54.0	-20.8
11897	49.0	40.9	74.0	-25.0	54.0	-13.1
16526	52.2	43.8	74.0	-21.7	54.0	-10.2
39293	56.3	51.8	74.0	-17.7	54.0	-2.1



FCC ID: O2FM210SE



FCC ID: O2FM210SE

Limit according to FCC Part 15, Section 15.209 and RSS-Gen, Section 8.9:

Frequency (MHz)	Field strength of spurious emissions		Measurement distance (metres)
	($\mu\text{V/m}$)	dB($\mu\text{V/m}$)	
0.009 - 0.490	2400/F(kHz)	--	300
0.490 - 1.705	24000/F (kHz)	--	30
1.705 - 30.0	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

The requirements are **FULFILLED**.

Remarks:

FCC ID: O2FM210SE

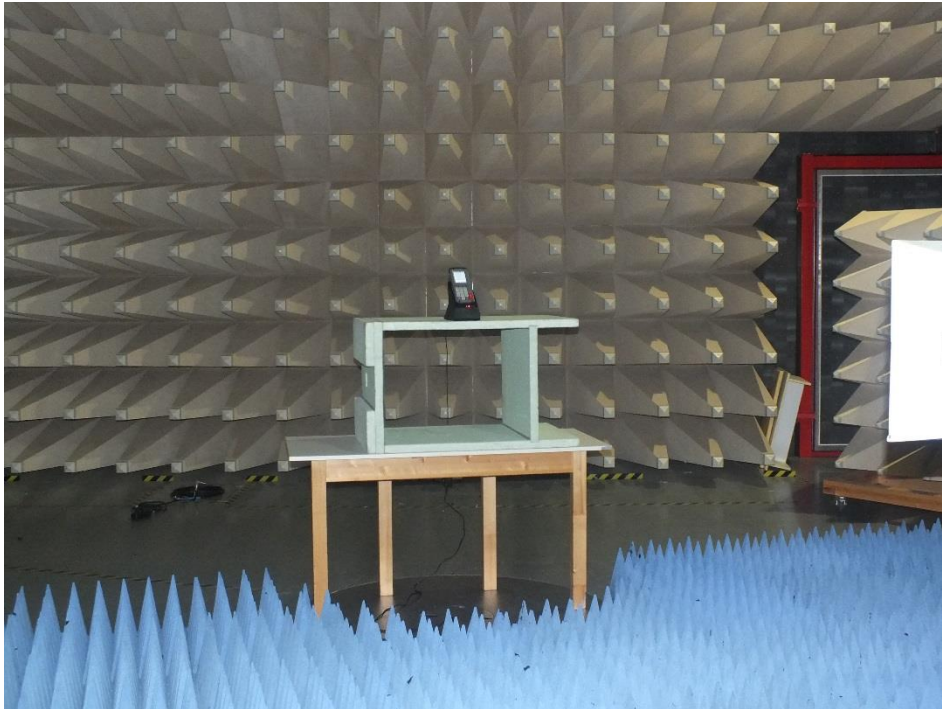
5.3 Average radiated output power (WLAN 2.4 GHz Band)

For test instruments and accessories used see section 6 Part **CPR 3**.

5.3.1 Description of the test location

Test location: Anechoic chamber 1
Test distance: 3 metres

5.3.2 Photo documentation of the test set-up



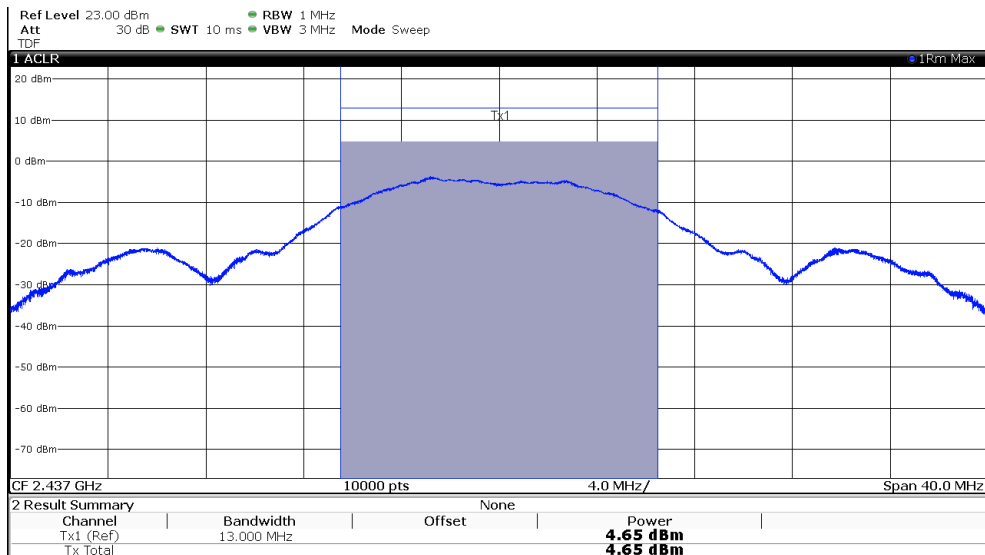
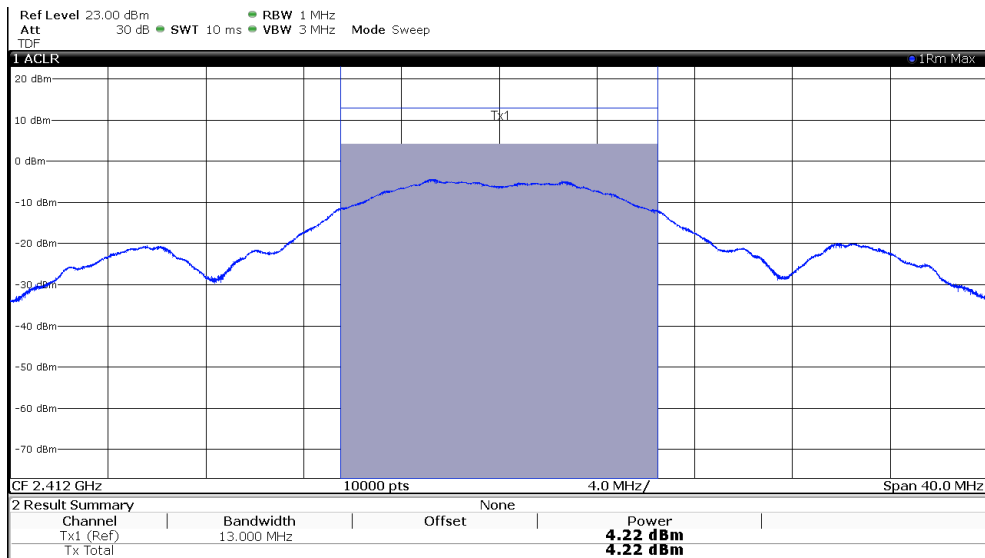
5.3.3 Description of Measurement

The maximum peak radiated output power is measured using a spectrum analyzer following the procedure set out in KDB 558074, item 9.2.2.6. The EUT is set in normal operating mode.

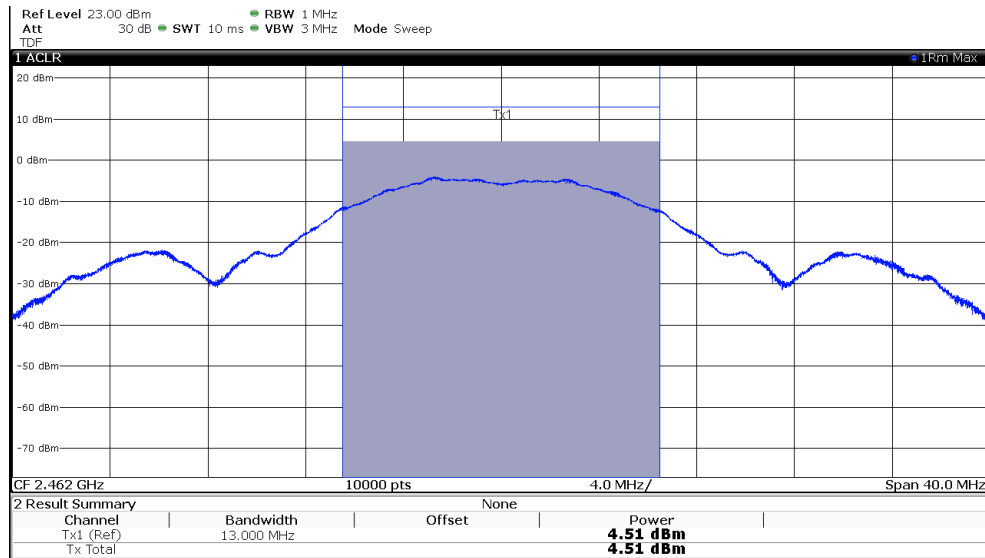
FCC ID: O2FM210SE

5.3.4 Test result

802.11, TX		Test results radiated		
continuous ping				
2400 MHz - 2483.5 MHz		Pavg (EIRP) (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH1				
T_{nom}	V_{nom}	4.2	30.0	-25.8
Middle frequency: CH6				
T_{nom}	V_{nom}	4.7	30.0	-25.4
Highest frequency: CH11				
T_{nom}	V_{nom}	4.6	30.0	-25.4



FCC ID: O2FM210SE



The requirements are **FULFILLED**.

Remarks:

FCC ID: O2FM210SE

5.4 Average radiated output power (WLAN 5 GHz Band)

For test instruments and accessories used see section 6 Part CPR 3.

5.4.1 Description of the test location

Test location: Anechoic chamber 1
Test distance: 3 metres

5.4.2 Photo documentation of the test set-up



5.4.3 Description of Measurement

The maximum peak radiated output power is measured using a spectrum analyzer following the procedure set out in KDB 789033, Method SA-3. The EUT is set in normal operating mode.

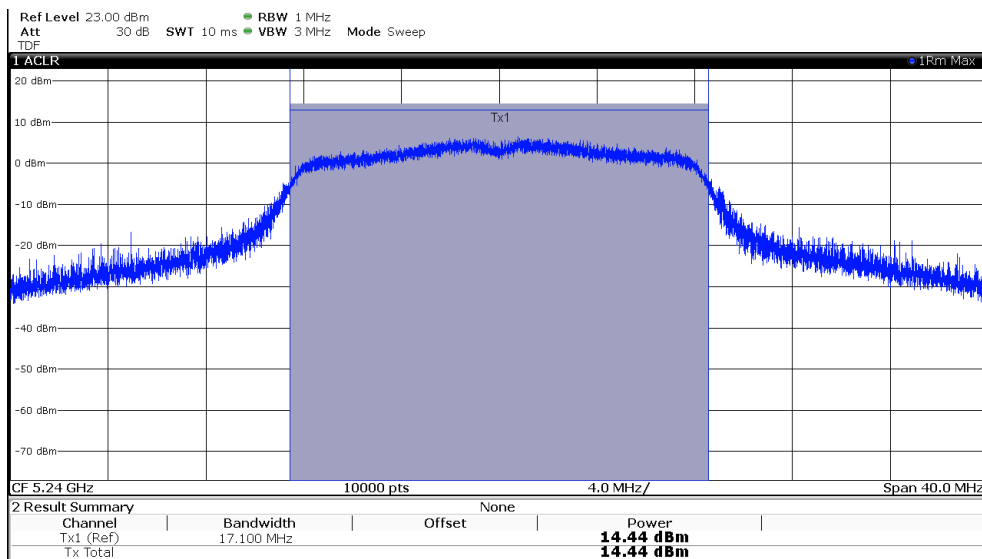
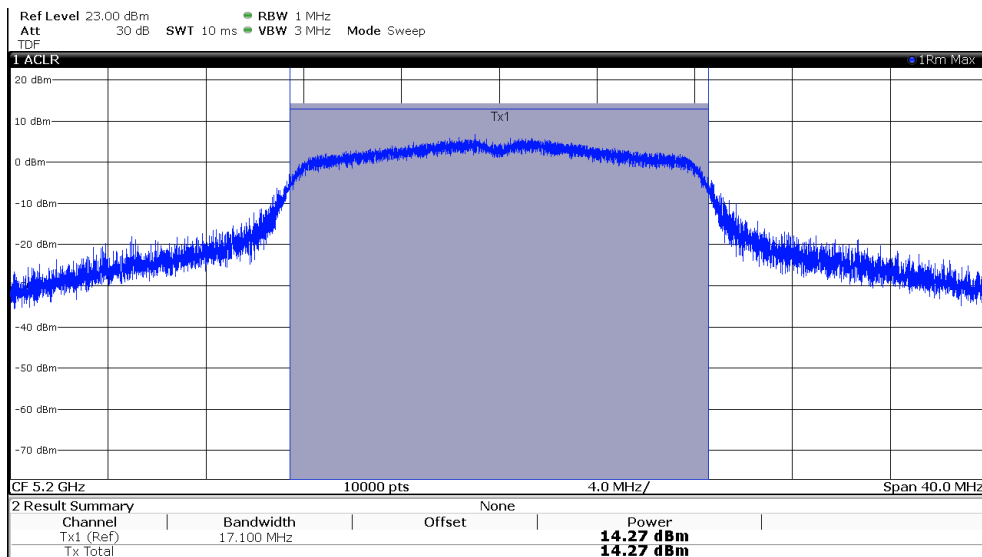
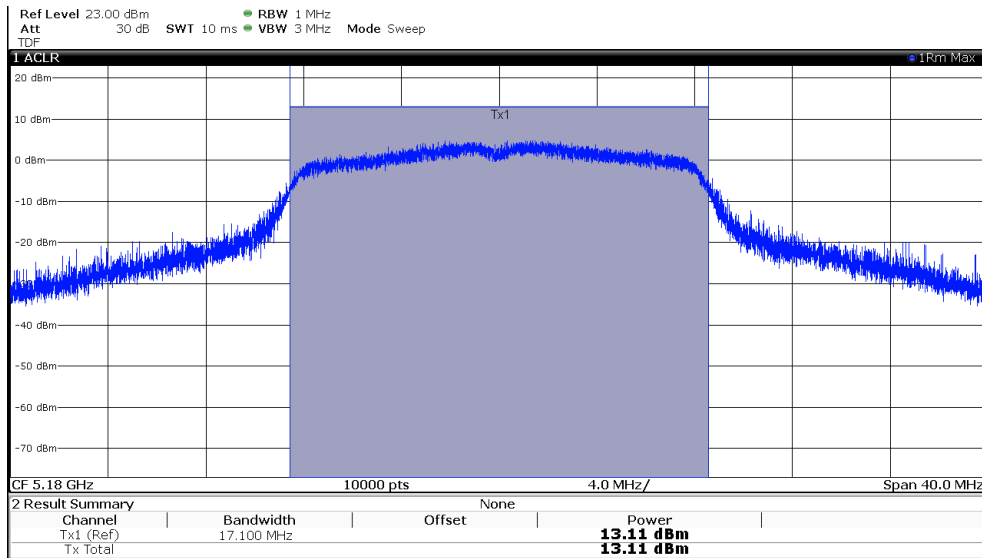
FCC ID: O2FM210SE
5.4.4 Test result

802.11, TX		Test results radiated		
continuous ping				
5150 MHz - 5250 MHz		Pavg (EIRP) (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH36				
T_{nom}	V_{nom}	13.1	21.0	-7.9
Middle frequency: CH40				
T_{nom}	V_{nom}	14.3	21.0	-6.7
Highest frequency: CH48				
T_{nom}	V_{nom}	14.4	21.0	-6.6

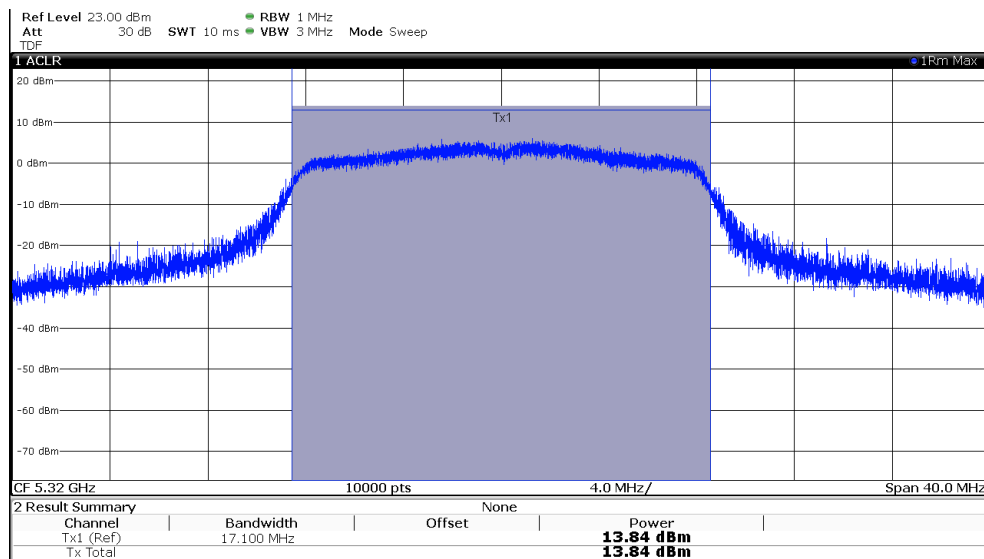
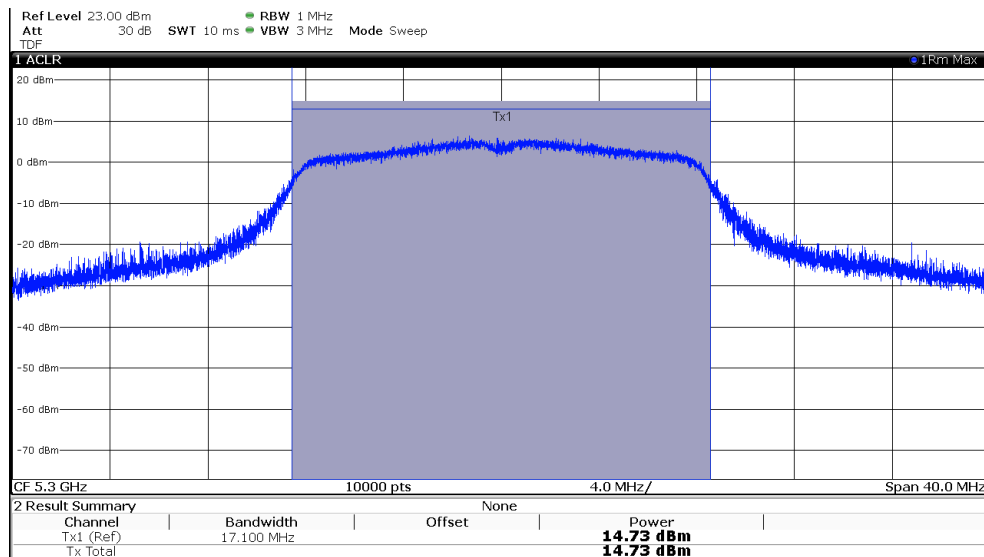
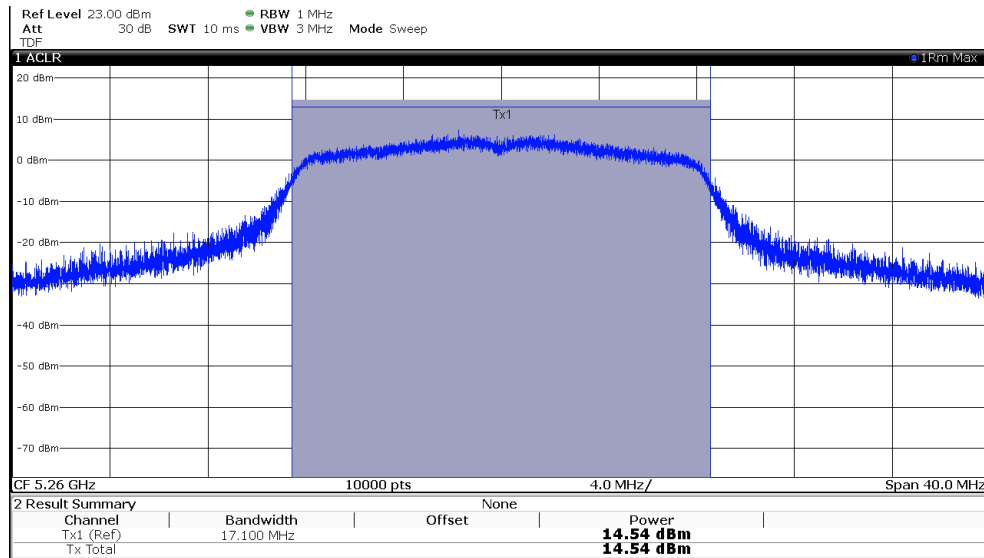
802.11, TX		Test results radiated		
continuous ping				
5250 MHz - 5350 MHz		Pavg (EIRP) (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH52				
T_{nom}	V_{nom}	14.5	24.0	-9.5
Middle frequency: CH60				
T_{nom}	V_{nom}	14.7	24.0	-9.3
Highest frequency: CH64				
T_{nom}	V_{nom}	13.8	24.0	-10.2

802.11, TX		Test results radiated		
continuous ping				
5470 MHz - 5725 MHz		Pavg (EIRP) (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH100				
T_{nom}	V_{nom}	12.6	24.0	-11.4
Middle frequency: CH116				
T_{nom}	V_{nom}	12.0	24.0	-12.0
Highest frequency: CH140				
T_{nom}	V_{nom}	10.5	24.0	-13.5

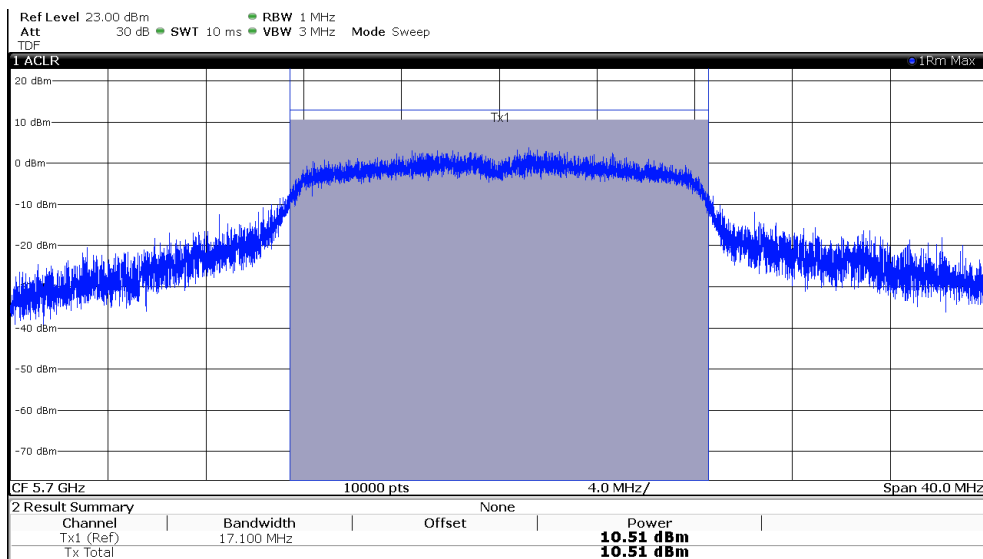
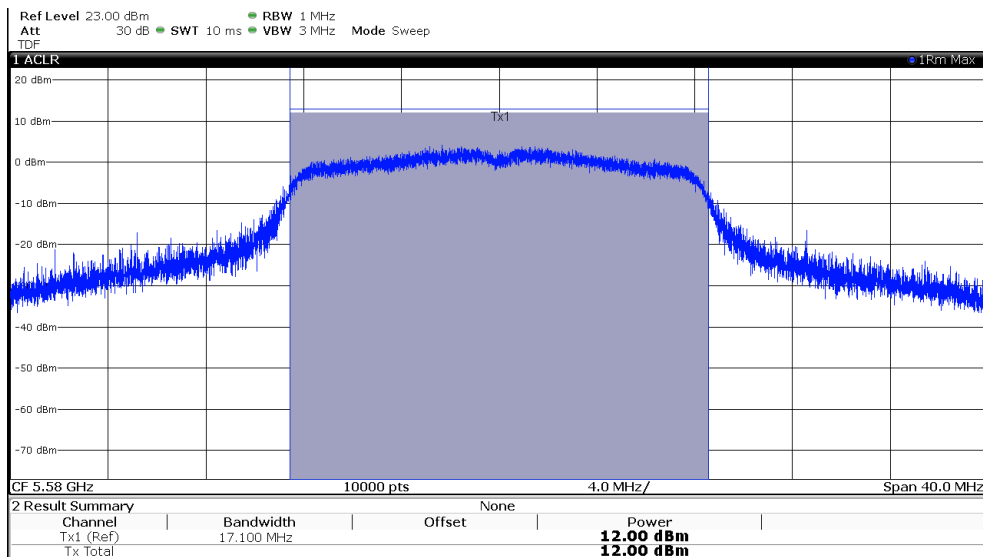
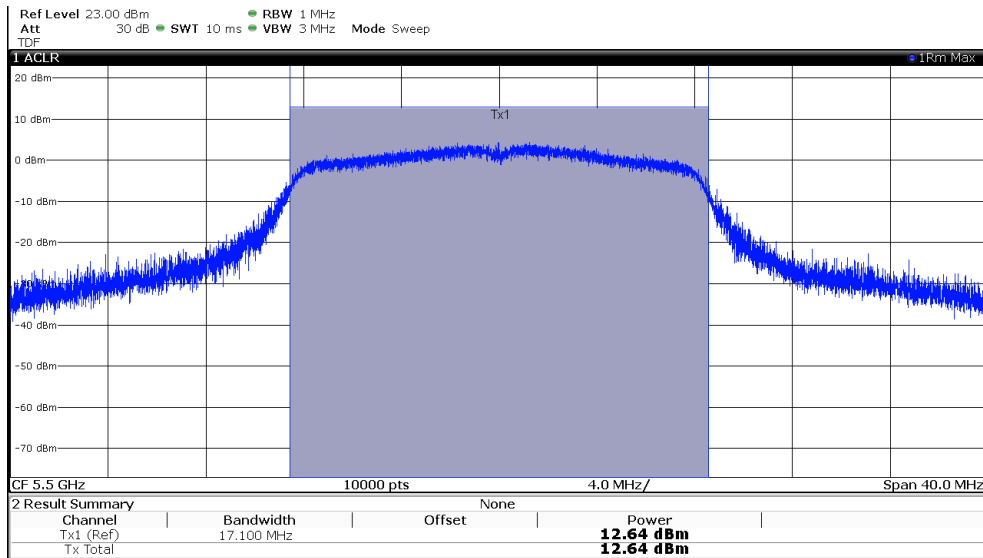
FCC ID: O2FM210SE



FCC ID: O2FM210SE



FCC ID: O2FM210SE



FCC ID: O2FM210SE

The requirements are **FULFILLED**.

Remarks:

FCC ID: O2FM210SE

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
A 4	ESCI	02-02/03-15-001	31/05/2018	31/05/2017		
	ESH 2 - Z 5	02-02/20-05-003	16/05/2020	16/05/2017	16/11/2017	16/05/2017
	N-4000-BNC	02-02/50-05-138				
	N-1500-N	02-02/50-05-140				
	ESH 3 - Z 2	02-02/50-05-155	18/11/2019	18/11/2016	21/10/2017	21/04/2017
	6430	02-02/50-13-014				
CPR 3	FSW43	02-02/11-15-001	07/04/2018	07/04/2017		
	AFS5-12001800-18-10P-6	02-02/17-06-002				
	AFS4-01000400-10-10P-4	02-02/17-13-002				
	AMF-4F-04001200-15-10P	02-02/17-13-003				
	BBHA 9120 E 251	02-02/24-05-006	27/04/2018	27/04/2017	27/10/2017	27/04/2017
	WBH2-18NHG	02-02/24-08-002	27/04/2018	27/04/2017	27/10/2017	27/04/2017
	WHJS 1000-10EE	02-02/50-05-070				
	Sucoflex N-2000-SMA	02-02/50-05-075				
	WHK 3.0/18G-10EF	02-02/50-05-180				
	6430	02-02/50-13-014				
	SF104/11N/11N/1500MM	02-02/50-13-015				
	SF104/11SMA/11N/1500MM	02-02/50-13-016				
	SF104/11SMA/11N/1500MM	02-02/50-13-017				
SER 2	ESVS 30	02-02/03-05-006	03/07/2018	03/07/2017		
	VULB 9168	02-02/24-05-005	12/04/2018	12/04/2017	12/10/2017	12/04/2017
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	6430	02-02/50-13-014				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
SER 3	FSW43	02-02/11-15-001	07/04/2018	07/04/2017		
	JS4-18004000-30-5A	02-02/17-05-017				
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	3117	02-02/24-05-009	10/05/2018	10/05/2017		
	BBHA 9170	02-02/24-05-014	02/06/2018	02/06/2015	09/12/2017	09/12/2016
	WHJS 1000-10EE	02-02/50-05-070				
	WHK 3.0/18G-10EF	02-02/50-05-180				
	WHKX 7.5/18G-8SS	02-02/50-07-010				
	KMS102-0.2 m	02-02/50-11-020				
	SF104/11N/11N/300MM	02-02/50-13-008				
	6430	02-02/50-13-014				
	Ultimate 1000W	02-02/50-16-004				
	18N-20	02-02/50-17-003				
	NMS111-GL200SC01-NMS11	02-02/50-17-012				
	Bandpass Filter	02-02/50-17-019				