EMI – TEST REPORT

- FCC Part 15.247, RSS-247 -

Type / Model Name	:	SPB209A
Product Description	:	WLAN module
Applicant	:	MSC Technologies GmbH
Address	:	Ludwig-Erhard-Str. 10c
		85375 NEUFAHRN, GERMANY
Manufacturer	:	H&D Wireless AB
Address	:	Färögatan 33
		164 51 KISTA, SWEDEN

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

Test Report No. : T46090-02-00FX	17. June 2020 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.

FCC ID: XO2SPB209A

Contents

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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 2019)

Part 15, Subpart A, Section 15.31	Measurement standards
Part 15, Subpart A, Section 15.33	Frequency range of radiated measurements
Part 15, Subpart A, Section 15.35	Measurement detector functions and bandwidths

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September 2019)

Part 15, Subpart C, Section 15.203	Antenna requirement
Part 15, Subpart C, Section 15.204	External radio frequency power amplifiers and antenna modifications
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 15.247	Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

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 v05	Guidance for compliance measurements on DTS; FHSS and hybrid system devices operating under Section 15.247 of the FCC rules, April 2, 2019.

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2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

2.3 Photo documentation of the EUT – Detailed photos see ATTACHMENT A

2.4 General remarks

The EUT is a communication module consist of a fully tested and approved WLAN-Module according to FCC 15247 with a manufacturer designed host and PCB antennas. This test report shows the further compliance to the FCC 15247 with a new antenna (C2PC) after integration. Therefore, the re-test is partly done to the following requirements, only.

- Transmitter unwanted emissions, radiated

2.5 Equipment type

WLAN - Client, mobile device

2.6 Short description of the equipment under test (EUT)

The EUT is a part 15C certificated WLAN module with a chip antenna.

Number of tested samples: 1
Serial number: 1005413903
Firmware version WLAN: 15.2.7.69

EUT configuration:
(The CDF filled by the applicant can be viewed at the test laboratory.)

2.7 Variants of the EUT

There are no variants.

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2.8 Operation frequency and channel plan

The operating frequency is 2400 MHz to 2483.5 MHz.

Channel plan WLAN Standard 802.11b, g, n HT 20:

Channel	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462
12	2467
13	2472

Note: the marked frequencies are determined for final testing.
Channel plan WLAN Standard 802.11n HT 40:

Channel	Frequency (MHz)
1 up	2422
2 up	2427
3 up	2432
4 up	2437
5 up	2442
6 up	2447
7 up	2452
8 up	2457
9 up	2462

Note: The marked frequencies are determined for final testing.

2.9 Transmit operating modes

The EUT uses DSSS or OFDM modulation and may operate under operating mode 2 and provide following data rates with auto-fall-back:

- 802.11b mode 11, 5.5, 2, 1 Mbps (Mbps = *megabits per second)*
- 802.11g mode 54, 48, 36, 24, 18, 12, 9, 6 Mbps (Mbps = *megabits per second)*
- 802.11n HT20, MCS 0 - 15
- 802.11n HT40, MCS 0 - 15

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2.10 Antenna

The following antennas shall be used with the EUT:

Number	Characteristic	Model number	Plug	Frequency range (GHz)	Gain (dBi)	Cable loss (dB)	Effective gain (dBi)
1	SMD	WE-MCA (7488910245)	PCB-Soldered	2.4 – 2.5	3.0	No cable	3.0

The EUT is equipped with 1 internal WLAN antenna for SISO.

2.11 Power supply system utilised

Power supply voltage, V_{nom} (module) : 3 V – 3.6 V
Power supply voltage, V_{nom} 12 VDC

2.12 Peripheral devices and interface cables

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

- monitor Model : Fendt NG DM (Display) 102725
- keyboard Model : USB Keyboard Logitech Deluxe 250
- USB hub Model : Fendt NG USB Hub 61410

2.13 Determination of worst case conditions for final measurement

Measurements are made in all three orthogonal axes and the settings of the EUT are changed to locate at which position and at what setting of the EUT produce the maximum of the emissions. For the further measurement the EUT is set in X position.

The tests are carried out in the following frequency band:

2400 MHz – 2483.5 MHz

Preliminary tests are performed to find the worst case mode from all possible combinations between available modulations and data rates. The maximum output power depends on used data rate.

For the final test the following channels and test modes are selected:

WLAN	Available channel	Tested channels	Power setting	Modulation	Modulation type	Data rate
802.11b	1 to 13	1, 6, 11, 13	see table	DSSS	DBPSK	1 Mbps
802.11n HT20	1 to 13	1, 6, 11, 13	see table	OFDM	BPSK	MCS0
802.11n HT40	1up to 9up	1up, 4up, 7 up, 9 up	see table	OFDM	BPSK	MCS0

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Power table:

Power setting	CH 1	CH 6	CH 11	CH 13
802.11b	16	16	16	13
802.11n HT20	14	14	14	9
802.11n HT40	14	14	14	9

2.13.1 Test jig

No test jig was used.

2.13.2 Test software

The test software for the EUT provides free power setting, the special test mode TX continuous mode, modulated. The EUT was set with test modulation to transmit data during the tests with a maximum duty cycle (x) from an internal packet generator.

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3 TEST RESULT SUMMARY

WLAN device using digital modulation:

Operating in the 2400 MHz – 2483.5 MHz:

FCC Rule Part	Description	Result
15.207(a)	AC power line conducted emissions	Not tested
15.247(a)(2)	-6 dB EBW	Not tested
15.247(b)(3)	Maximum peak conducted output power	Not tested
15.247(b)(4)	Defacto limit	Not tested
15.247(d)	Unwanted emission, radiated	passed
15.247(d)	Emissions in restricted bands	passed
15.247(e)	PSD	Not tested
15.35(c)	Pulsed operation	Not tested
15.203	Antenna requirement	Not tested

3.1 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 : 28 May 2020

Testing concluded on : 05 June 2020

Checked by:

Klaus Gegenfurtner
2020.06.17 13:44:52
+02'00'

Klaus Gegenfurtner
Teamleader Radio

Tested by:

Lukas Scheuermann
2020.06.17 13:20:51
+02'00'

i.A. Lukas Scheuermann
Radio Team

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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 / 2011 + A1 / 2014 „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 power line conducted emissions	0.15 MHz to 30 MHz	95%	± 3.29 dB
EBW and OBW	2400 MHz to 30000 MHz	95%	± 2.5 x 10^{-7}
Output power ERP, radiated	1000 MHz to 7000 MHz	95%	± 2.71 dB
Field strength of the fundamental	1000 MHz to 7000 MHz	95%	± 2.71 dB
Power spectral density	2400 MHz to 3000 MHz	95%	± 0.62 dB
Spurious Emissions, conducted	9 kHz to 10000 MHz	95%	± 2.15 dB
Spurious Emissions, conducted	10000 MHz to 40000 MHz	95%	± 3.47 dB
Spurious Emissions, radiated	9 kHz to 30 MHz	95%	± 3.53 dB
Spurious Emissions, radiated	30 MHz to 1000 MHz	95%	± 4.44 dB
Spurious Emissions, radiated	1000 MHz to 30000 MHz	95%	± 2.34 dB
Spurious Emissions, radiated	30000 MHz to 40000 MHz	95%	± 5.13 dB

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4.4 Conformity Decision Rule

The conformity decision rule is based on the ILAC G8 published at the time of reporting.

4.5 Measurement protocol for FCC and ISED

4.5.1 General information

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

FCC: DE 0011
ISED: DE0009

4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

4.5.2.1 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.

4.5.2.2 Radiated emission (electrical field 30 MHz - 1 GHz)

Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. The setup of the equipment under test is established in accordance with ANSI C63.10.The interface cables that are closer than 40 centimetres to the ground plane are bundled in the centre in a serpentine fashion so that they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees.
The final level in dBµV/m is calculated by taking the reading from the EMI receiver (Level dBµV) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:
30 MHz – 1000 MHz: RBW: 120 kHz

Example:

Frequency	Level	+	Factor	=	Level	-	Limit	=	Delta
(MHz)	(dBµV)		(dB)		(dBµV/m)		(dBµV/m)		(dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

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4.5.2.3 Radiated emission (electrical field 1 GHz - 40 GHz)

Radiated emissions from the EUT are measured in the frequency range 1 GHz up to the maximum frequency as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a 1.0 X 1.5 metre non-conducting table, 1.5 metre above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. The setup of the equipment under test is following set out in ANSI C63.10. The interface cables that are closer than 40 centimetres to the ground plane are bundled in the centre in a serpentine fashion so they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area. Measurements are made in both the horizontal and vertical polarization planes in a fully anechoic room using a spectrum analyser set to max peak detector function, a resolution bandwidth 1 MHz and video bandwidth 3 MHz. The conditions determined as worst case will then be used for the final measurements. When the EUT is larger than the beam width of the measuring antenna it will be moved over the surface for the four sides of the equipment. Where appropriate, the test distance may be reduced in order to detect emissions under better uncertainty and are calculated at the specified test distance.

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5 TEST CONDITIONS AND RESULTS

5.1 Unwanted emissions in restricted bands, radiated

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

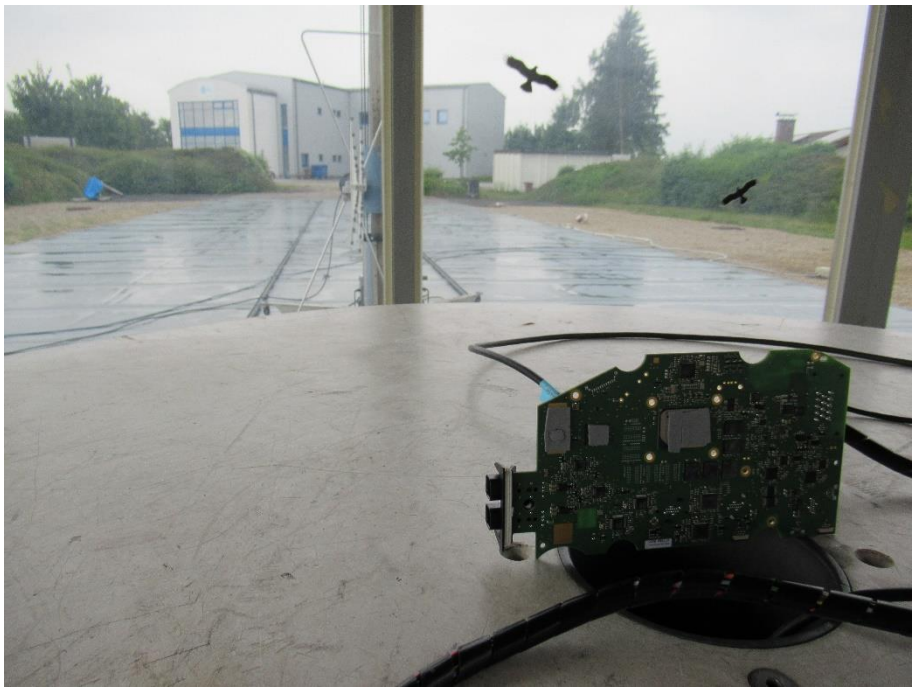
5.1.1 Description of the test location

Test location: OATS 1
Test location: Anechoic chamber 1

Test distance: 3 m

5.1.2 Photo documentation of the test set-up

Open area test site



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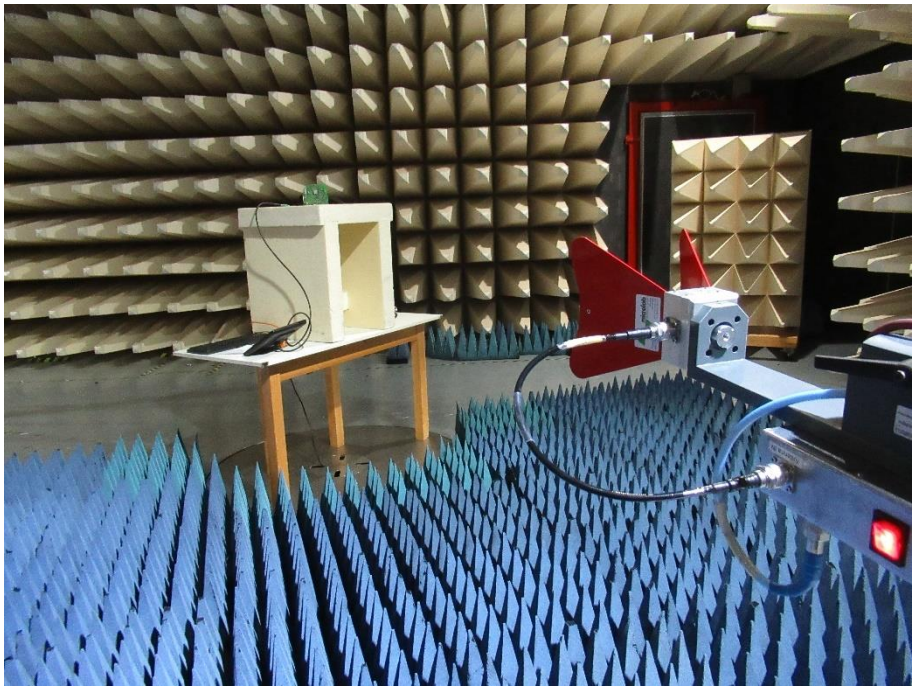
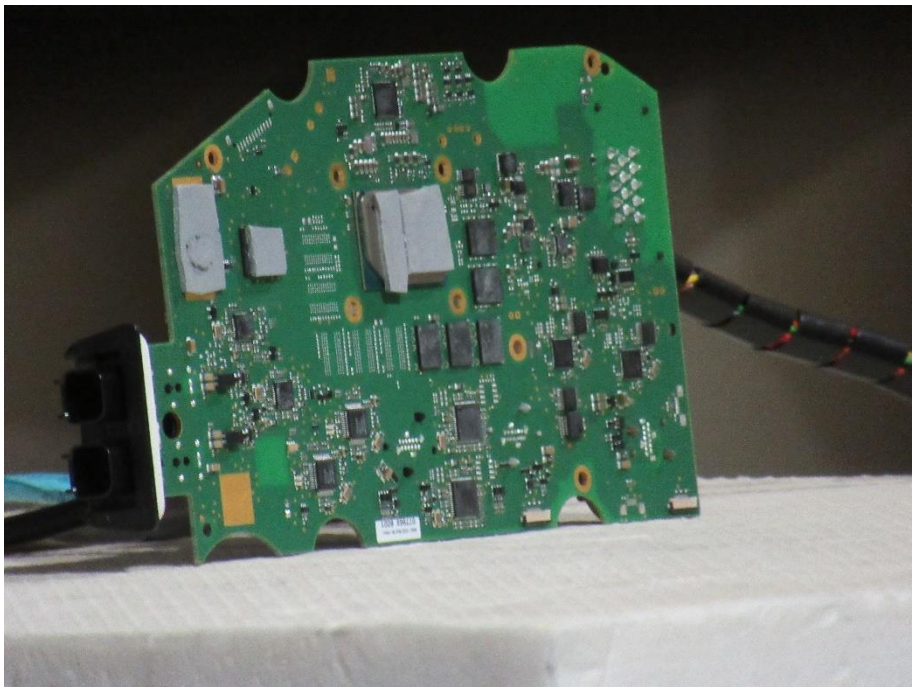
Anechoic chamber





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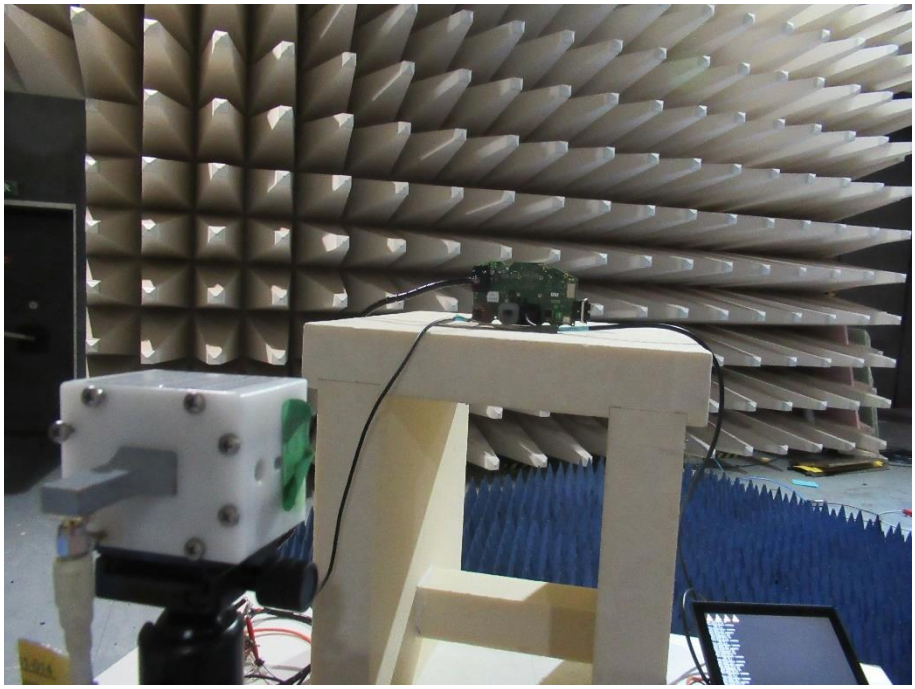

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5.1.3 Applicable standard

According to FCC Part 15, Section 15.205(a):
In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a).

5.1.4 Description of Measurement

The restricted bands are measured radiated. The span of the spectrum analyser is set wide enough to capture the restricted band and measure the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The restricted bands are measured falling emissions into it and the nearest restricted band are checked for emissions also the restricted band for the harmonics of the carrier.

Spectrum analyser settings:
30 MHz – 1000 MHz: RBW: 120 kHz
1000 MHz – 26 GHz: RBW: 1 MHz, VBW: 3 MHz, Sweep: Auto, Detector function: Max Peak

5.1.5 Test result

f < 1000 MHz:

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)
65,90	6,9	9,8	14,3	13,5	21,2	23,3	40,0	-16,7
137,28	12,8	12,0	13,2	14,0	26,0	26,0	43,5	-17,5
144,00	5,6	11,3	13,6	14,4	19,2	25,7	43,5	-17,8
246,20	11,7	15,6	13,6	13,8	25,3	29,4	46,0	-16,6
297,00	8,0	9,6	16,7	16,3	24,7	25,9	46,0	-20,1
445,45	2,7	1,4	21,0	20,8	23,7	22,2	46,0	-22,3
742,51	8,9	6,3	28,1	27,5	37,0	33,8	46,0	-9,0

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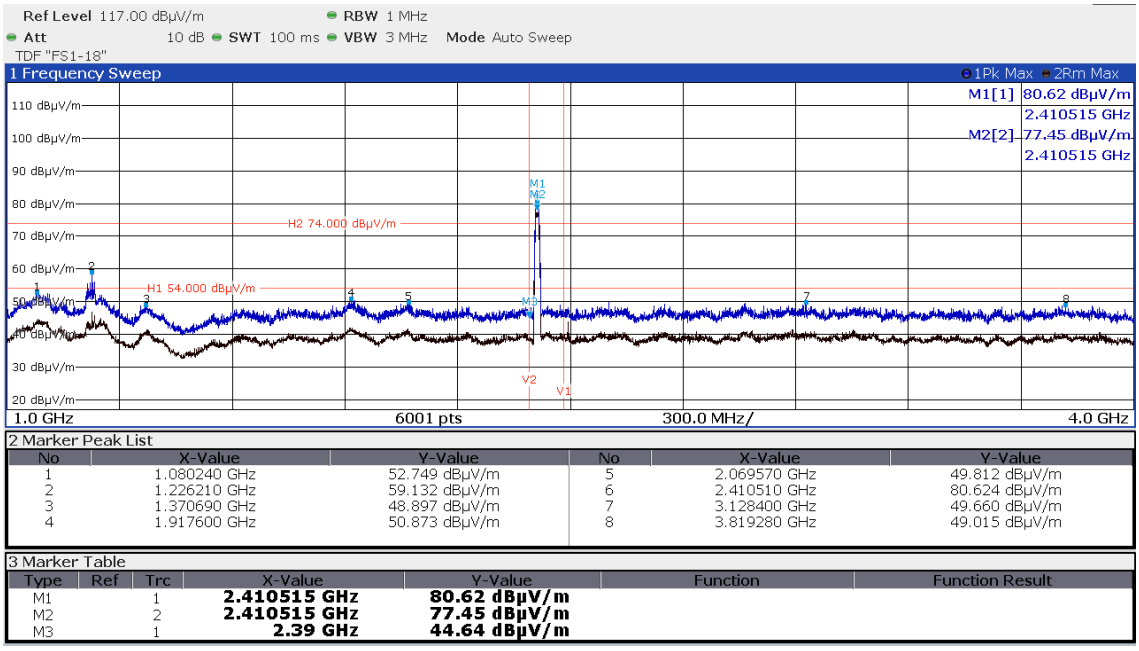
f > 1000 MHz:

5.1.5.1 WLAN Standard 802.11b

CH1 horizontal

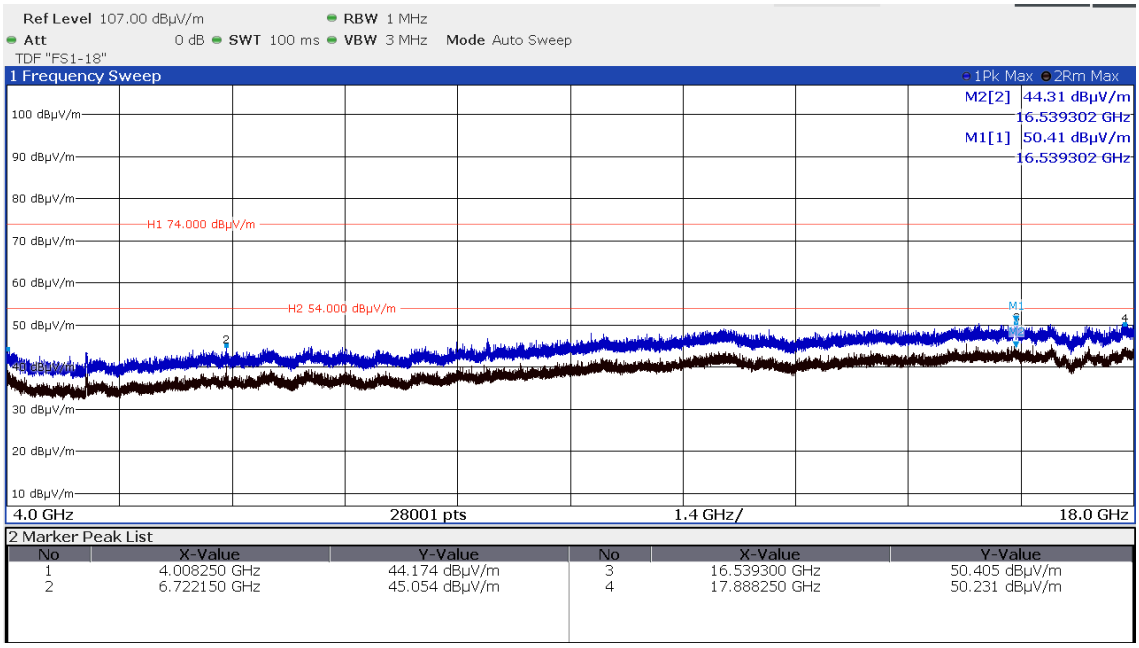


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.080240 GHz	52.749 dBµV/m	5	2.069570 GHz	49.812 dBµV/m
2	1.226210 GHz	59.132 dBµV/m	6	2.410510 GHz	80.624 dBµV/m
3	1.370690 GHz	48.897 dBµV/m	7	3.128400 GHz	49.660 dBµV/m
4	1.917600 GHz	50.873 dBµV/m	8	3.819280 GHz	49.015 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.410515 GHz**	**80.62 dBµV/m**		
M2		2	**2.410515 GHz**	**77.45 dBµV/m**		
M3		1	**2.39 GHz**	**44.64 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.008250 GHz	44.174 dBµV/m	3	16.539300 GHz	50.405 dBµV/m
2	6.722150 GHz	45.054 dBµV/m	4	17.888250 GHz	50.231 dBµV/m

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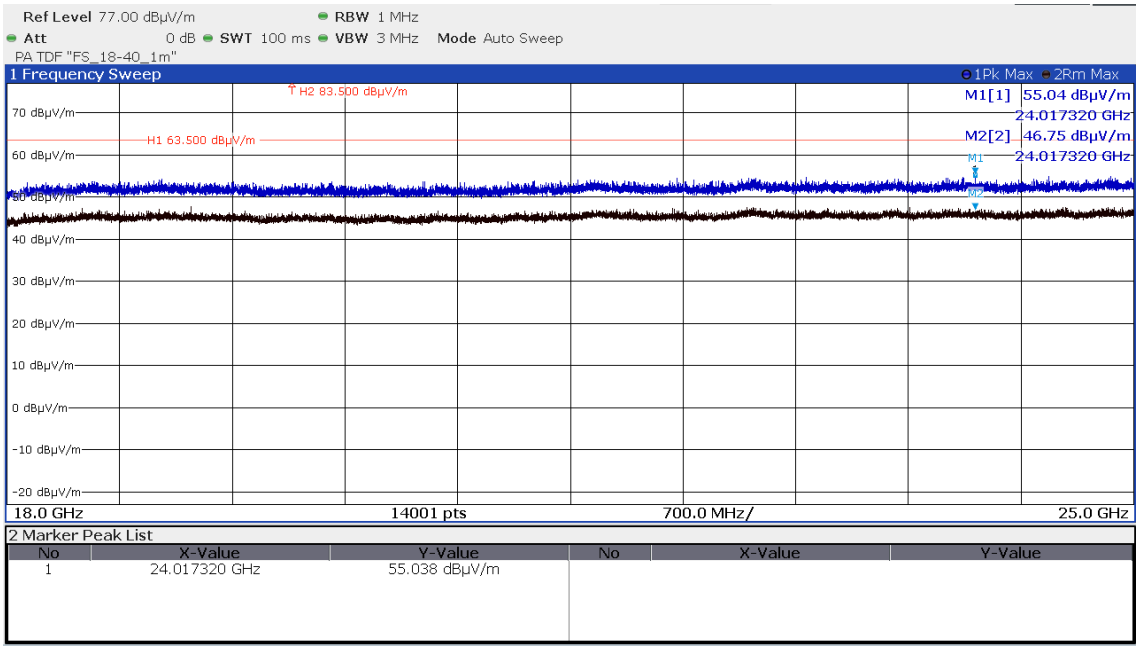
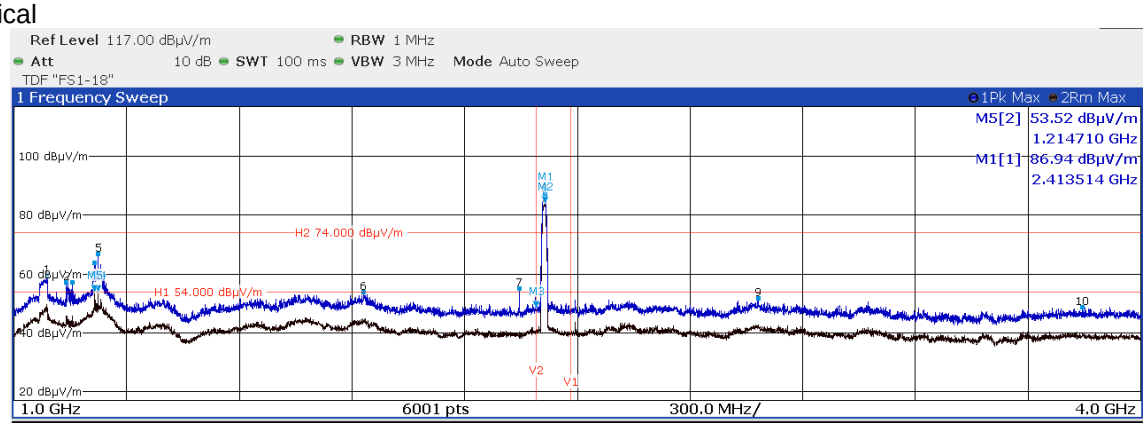


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.017320 GHz	55.038 dBµV/m			

CH1 vertical



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.086240 GHz	59.506 dBµV/m	6	1.930090 GHz	53.968 dBµV/m
2	1.139230 GHz	57.171 dBµV/m	7	2.345530 GHz	55.007 dBµV/m
3	1.154720 GHz	57.190 dBµV/m	8	2.413510 GHz	86.944 dBµV/m
4	1.214710 GHz	63.844 dBµV/m	9	2.981420 GHz	51.811 dBµV/m
5	1.224210 GHz	66.935 dBµV/m	10	3.844780 GHz	48.741 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.413514 GHz**	**86.94 dBµV/m**		
M2		2	**2.413514 GHz**	**83.81 dBµV/m**		
M3		1	**2.39 GHz**	**48.12 dBµV/m**		
M4		2	**1.22421 GHz**	**53.68 dBµV/m**		
M5		2	**1.21471 GHz**	**53.52 dBµV/m**		

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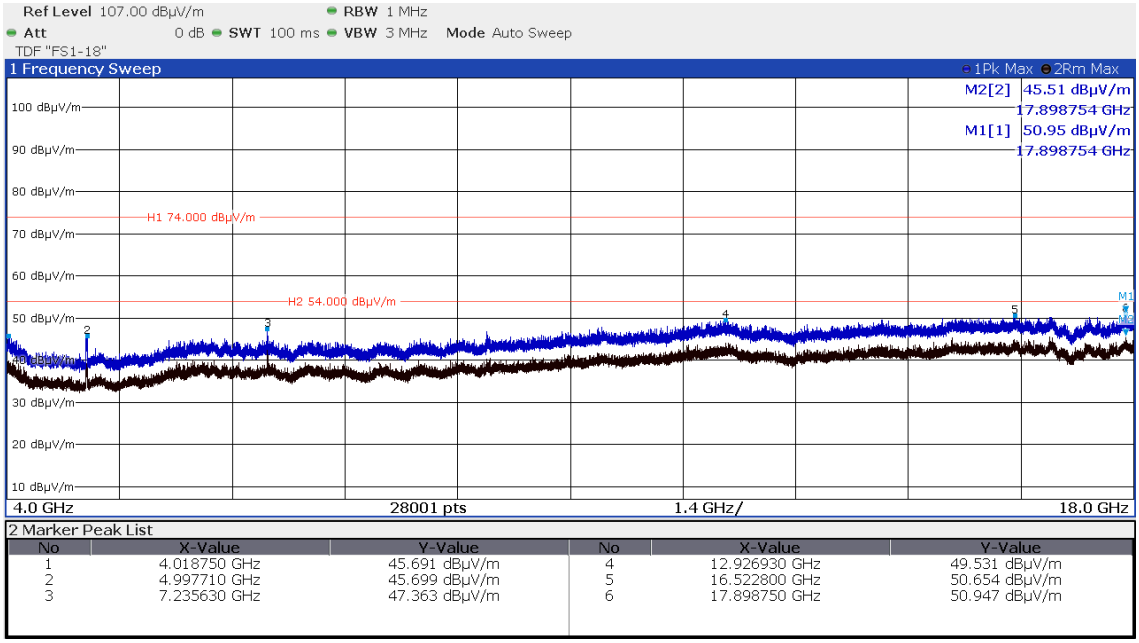
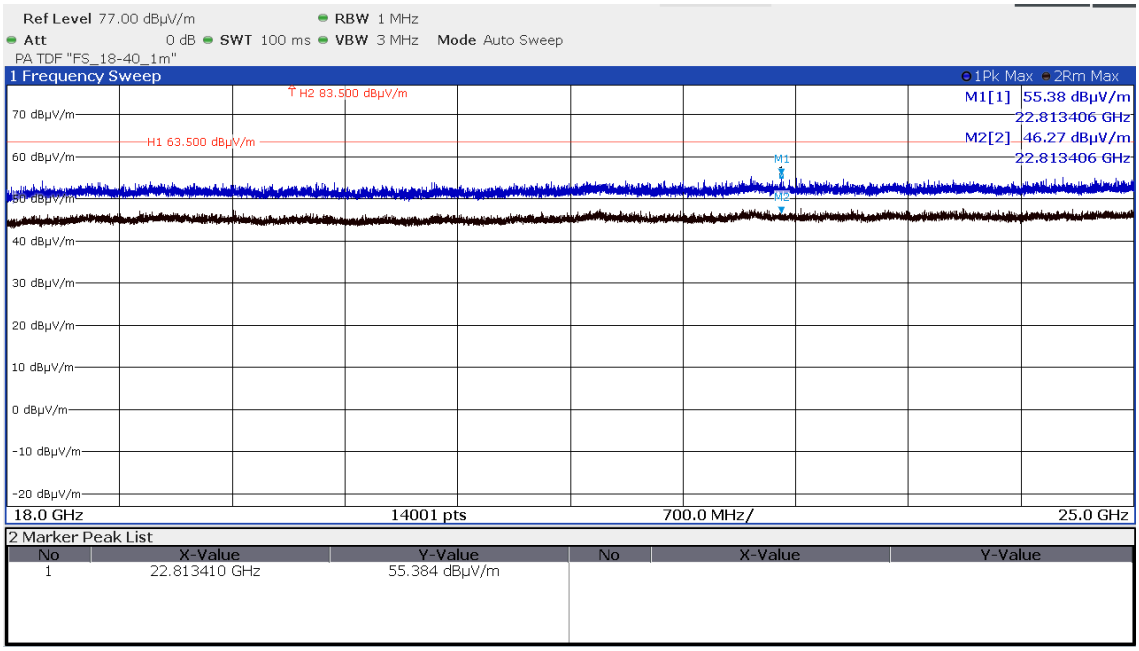


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.018750 GHz	45.691 dBµV/m	4	12.926930 GHz	49.531 dBµV/m
2	4.997710 GHz	45.699 dBµV/m	5	16.522800 GHz	50.654 dBµV/m
3	7.235630 GHz	47.363 dBµV/m	6	17.898750 GHz	50.947 dBµV/m



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	22.813410 GHz	55.384 dBµV/m			

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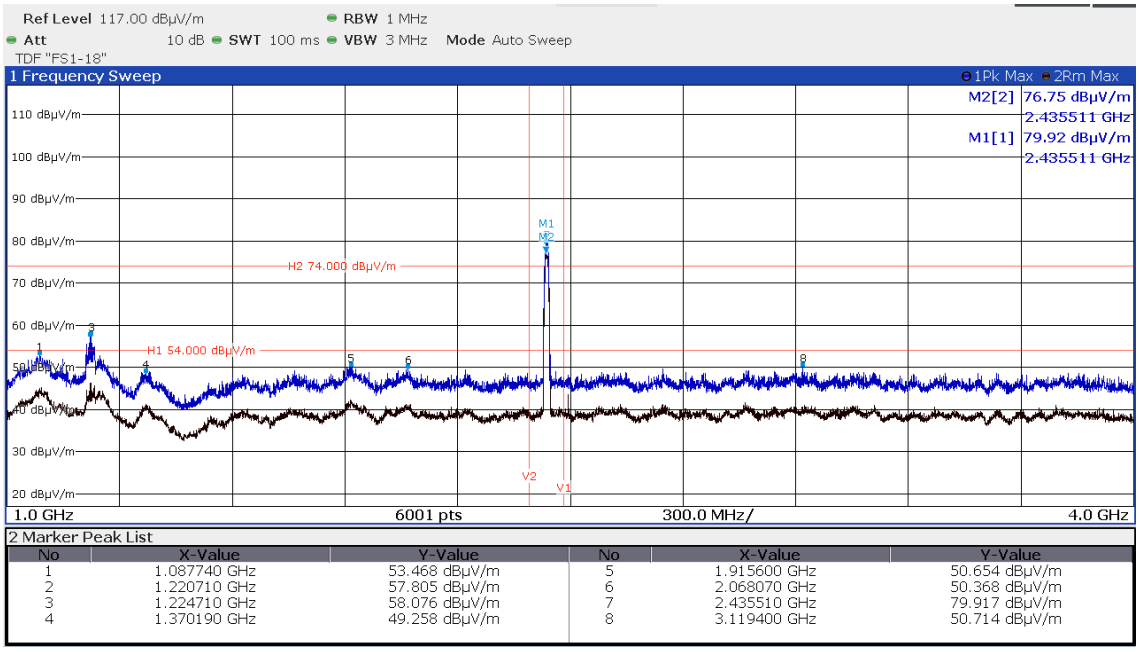
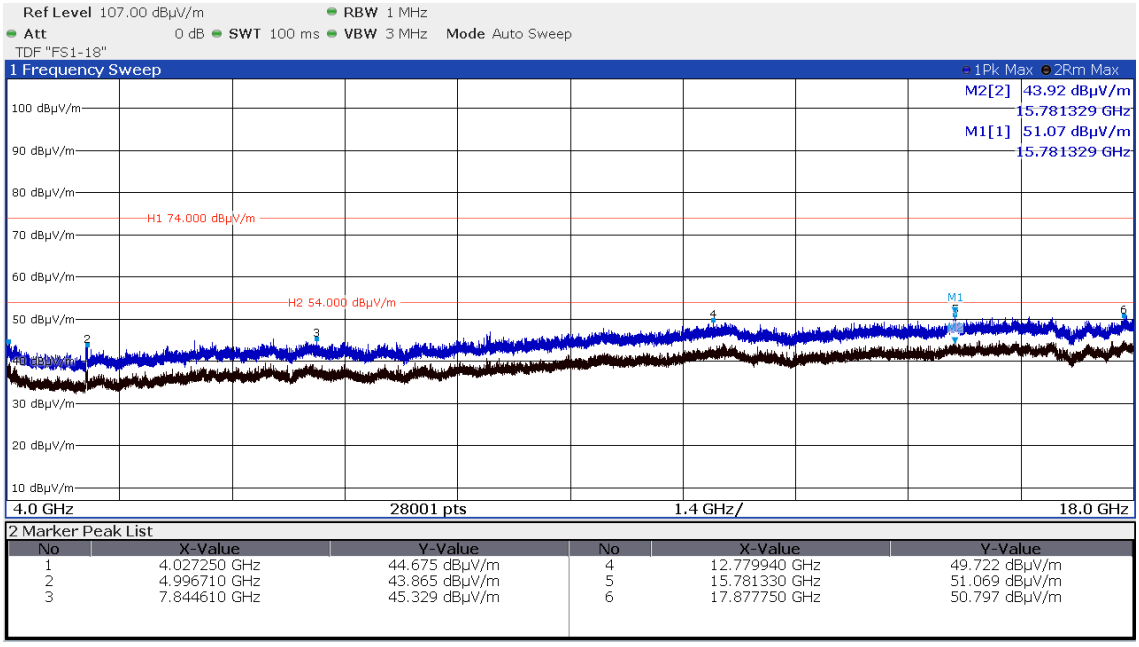
CH6 horizontal



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.087740 GHz	53.468 dBµV/m	5	1.915600 GHz	50.654 dBµV/m
2	1.220710 GHz	57.805 dBµV/m	6	2.068070 GHz	50.368 dBµV/m
3	1.224710 GHz	58.076 dBµV/m	7	2.435510 GHz	79.917 dBµV/m
4	1.370190 GHz	49.258 dBµV/m	8	3.119400 GHz	50.714 dBµV/m



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.027250 GHz	44.675 dBµV/m	4	12.779940 GHz	49.722 dBµV/m
2	4.996710 GHz	43.865 dBµV/m	5	15.781330 GHz	51.069 dBµV/m
3	7.844610 GHz	45.329 dBµV/m	6	17.877750 GHz	50.797 dBµV/m

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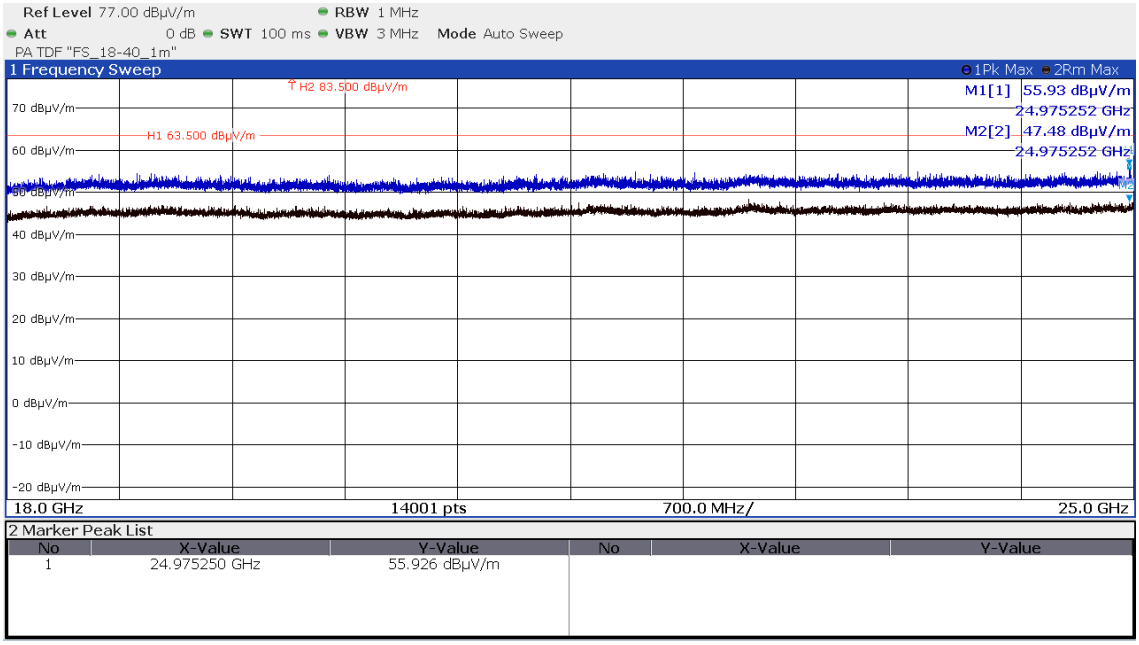
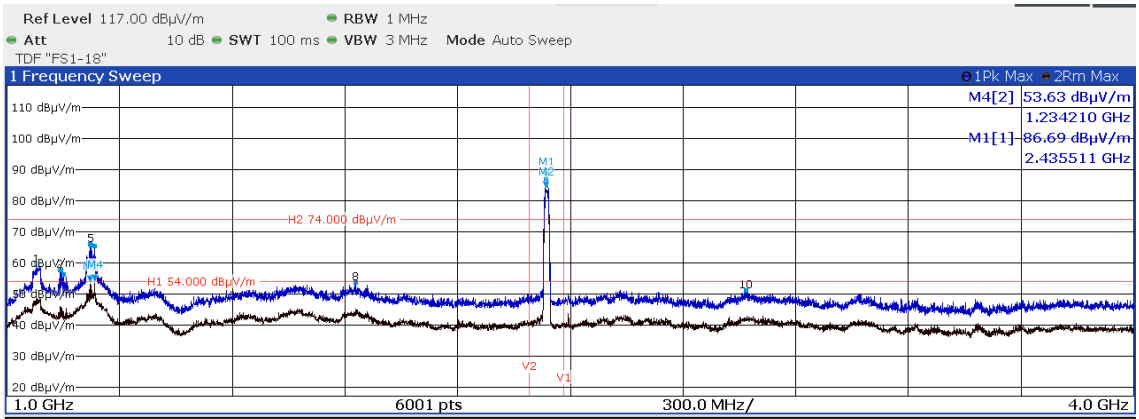


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.975250 GHz	55.926 dBµV/m			

CH6 vertical



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.078240 GHz	59.175 dBµV/m	6	1.224210 GHz	65.514 dBµV/m
2	1.141230 GHz	57.694 dBµV/m	7	1.234210 GHz	65.410 dBµV/m
3	1.143230 GHz	57.523 dBµV/m	8	1.927600 GHz	53.456 dBµV/m
4	1.150720 GHz	56.126 dBµV/m	9	2.435510 GHz	86.688 dBµV/m
5	1.222210 GHz	65.840 dBµV/m	10	2.967920 GHz	50.930 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.435511 GHz**	**86.69 dBµV/m**		
M2		2	**2.435511 GHz**	**83.51 dBµV/m**		
M3		2	**1.22221 GHz**	**53.32 dBµV/m**		
M4		2	**1.23421 GHz**	**53.63 dBµV/m**		

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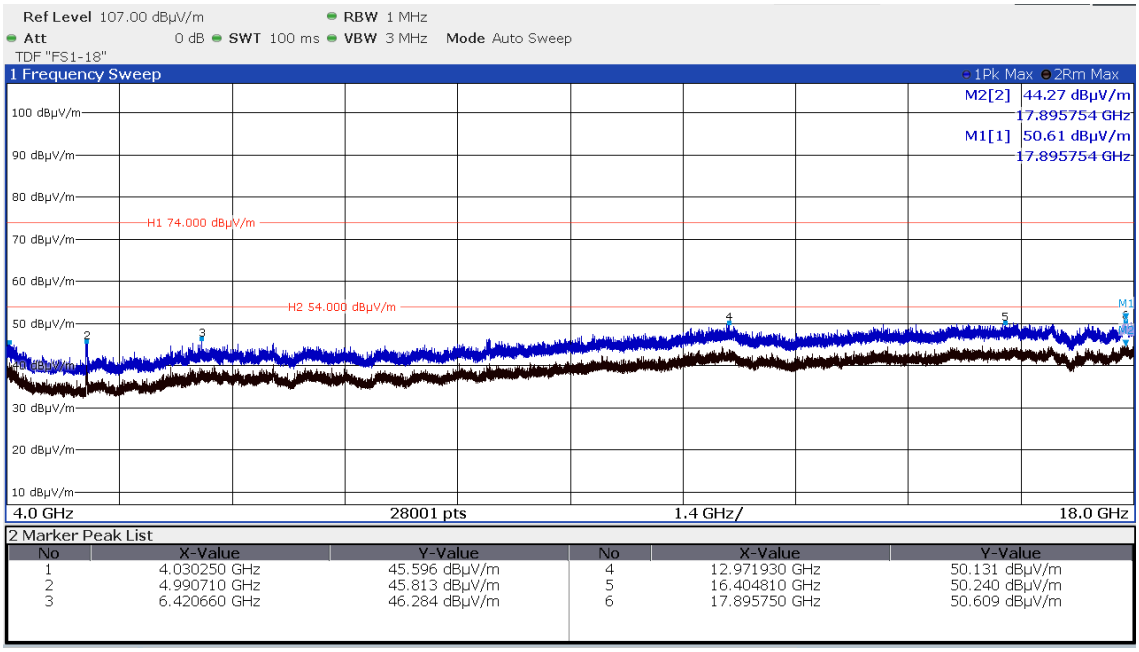
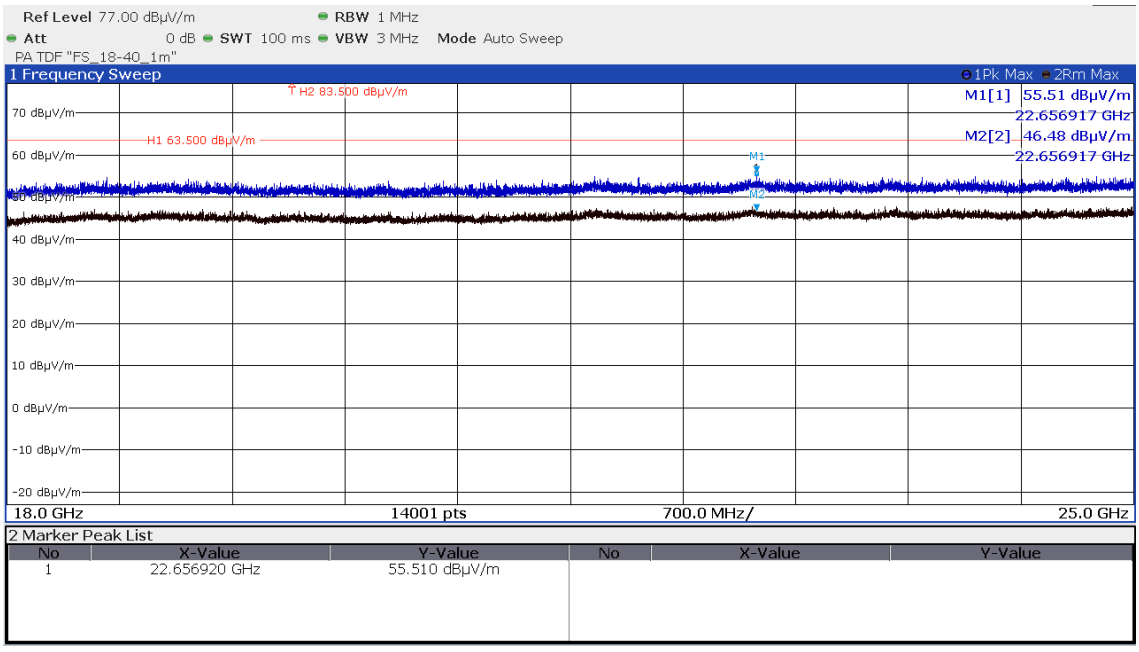


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.030250 GHz	45.596 dBµV/m	4	12.971930 GHz	50.131 dBµV/m
2	4.990710 GHz	45.813 dBµV/m	5	16.404810 GHz	50.240 dBµV/m
3	6.420660 GHz	46.284 dBµV/m	6	17.895750 GHz	50.609 dBµV/m



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	22.656920 GHz	55.510 dBµV/m			

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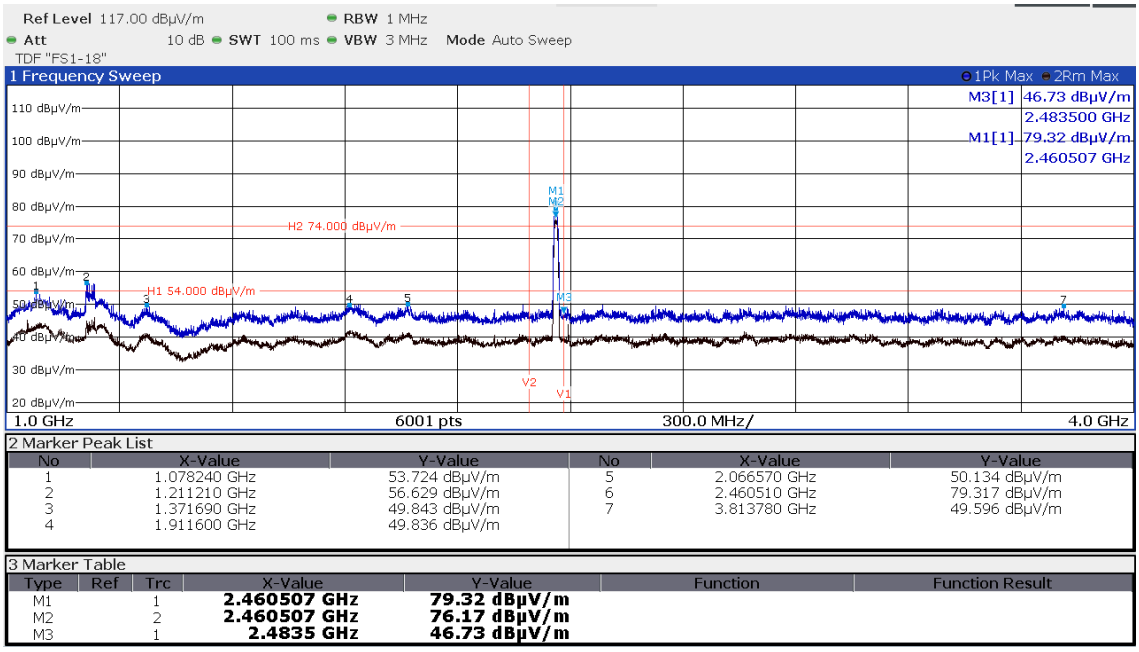
CH11 horizontal

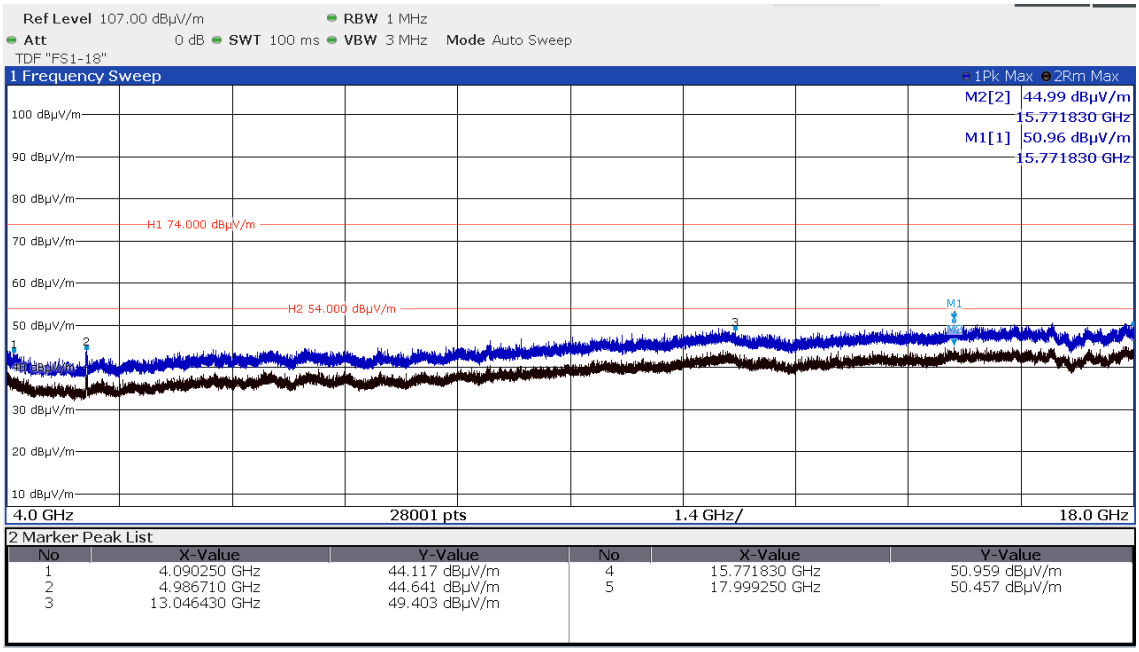


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.078240 GHz	53.724 dBµV/m	5	2.066570 GHz	50.134 dBµV/m
2	1.211210 GHz	56.629 dBµV/m	6	2.460510 GHz	79.317 dBµV/m
3	1.371690 GHz	49.843 dBµV/m	7	3.813780 GHz	49.596 dBµV/m
4	1.911600 GHz	49.836 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.460507 GHz**	**79.32 dBµV/m**		
M2		2	**2.460507 GHz**	**76.17 dBµV/m**		
M3		1	**2.4835 GHz**	**46.73 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.090250 GHz	44.117 dBµV/m	4	15.771830 GHz	50.959 dBµV/m
2	4.986710 GHz	44.641 dBµV/m	5	17.999250 GHz	50.457 dBµV/m
3	13.046430 GHz	49.403 dBµV/m			

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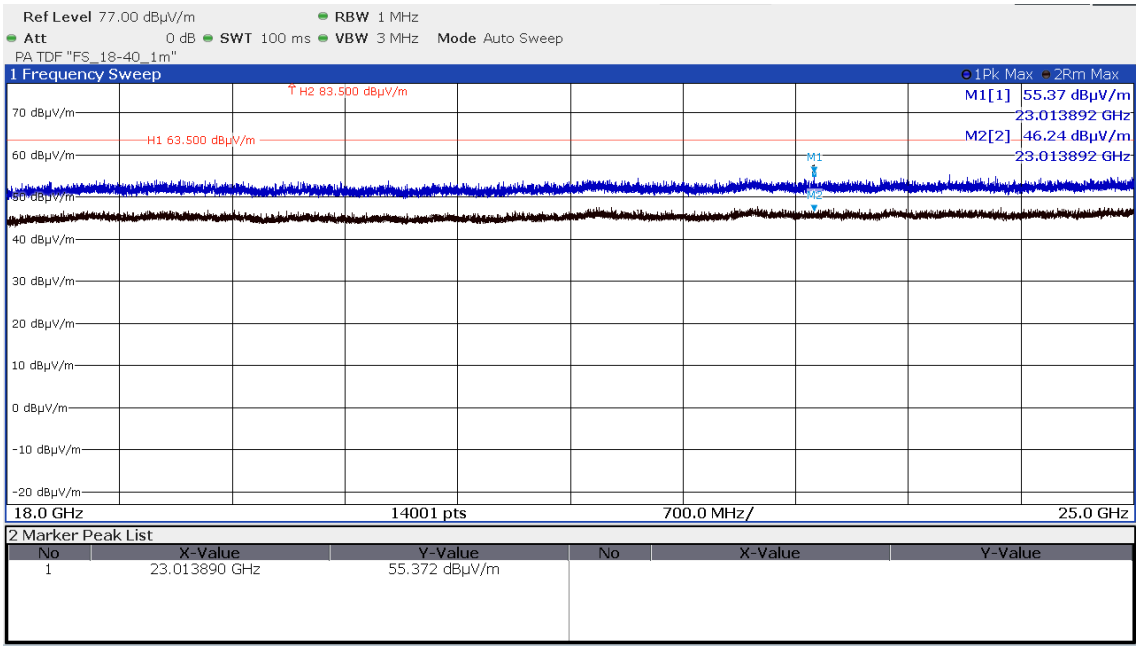
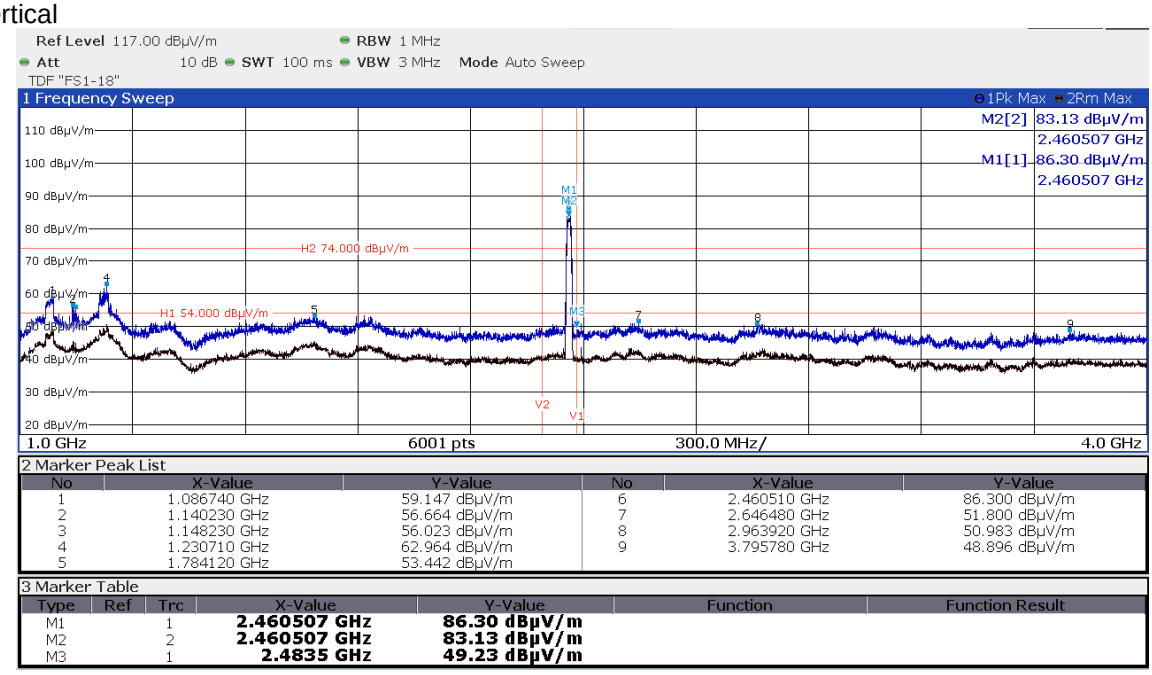


CH11 vertical



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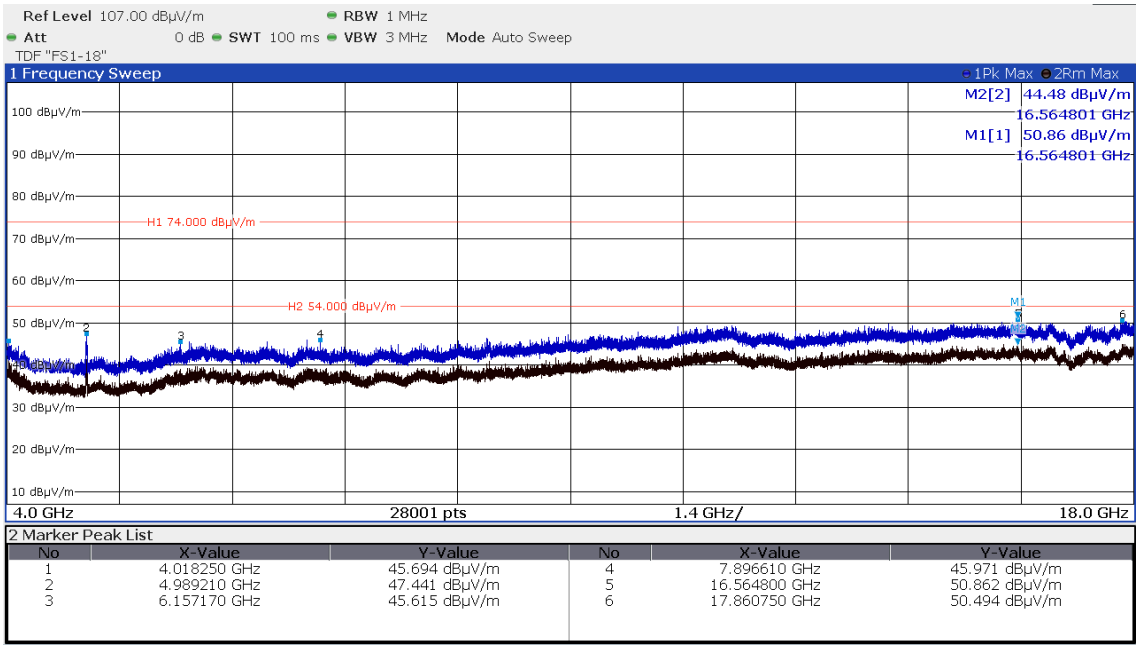

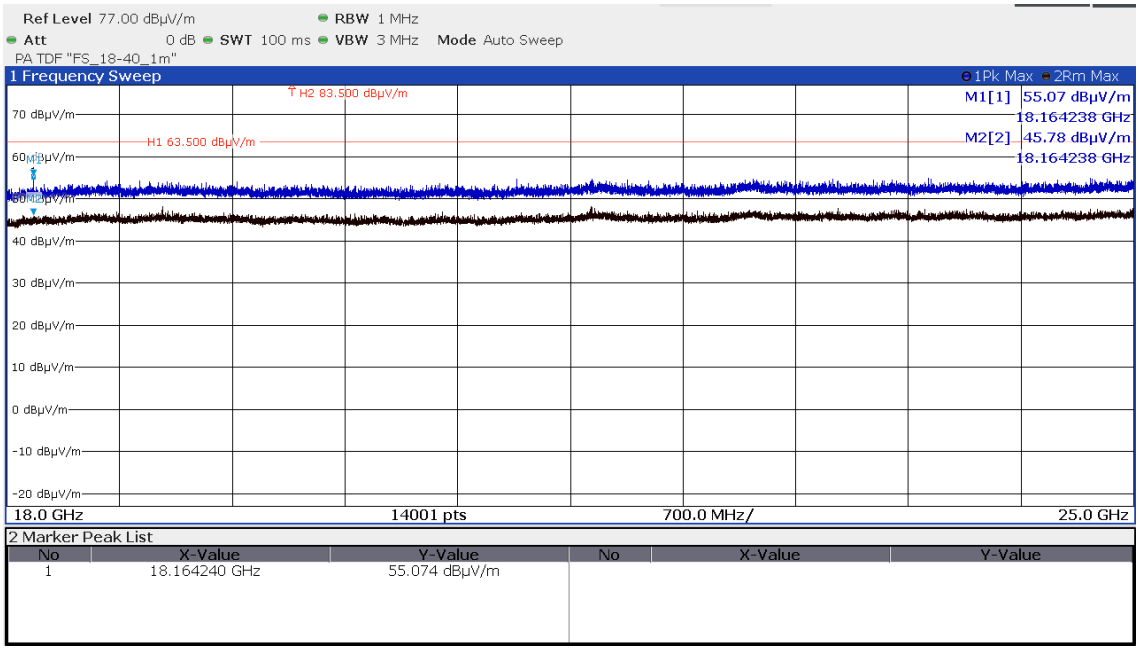

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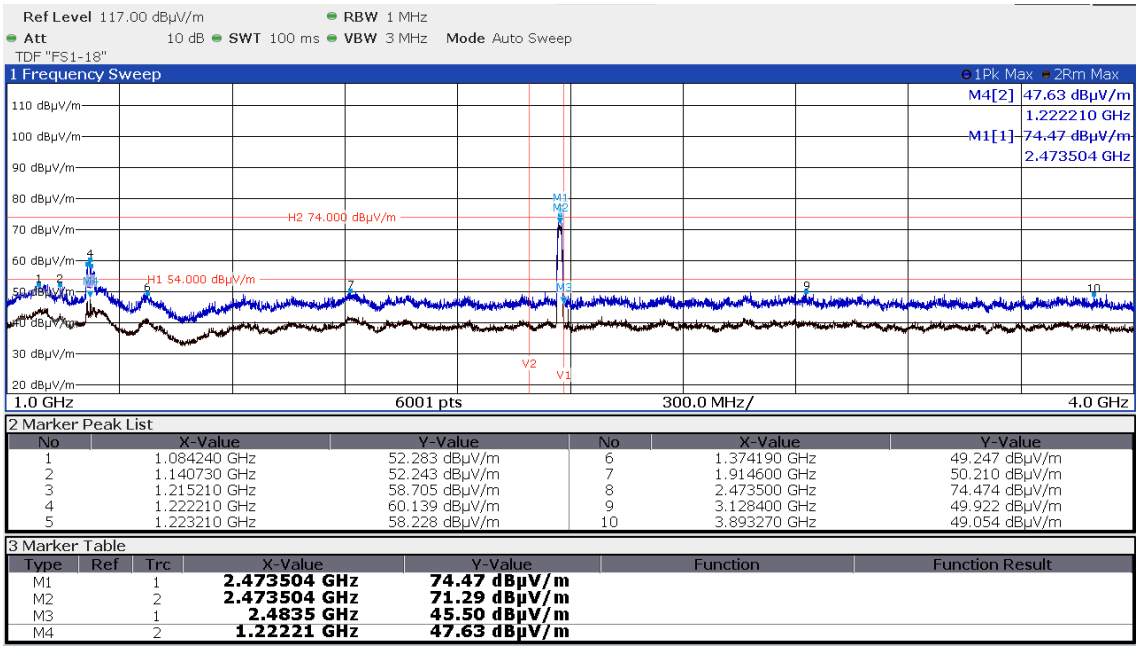
FCC ID: XO2SPB209A

CH13 horizontal

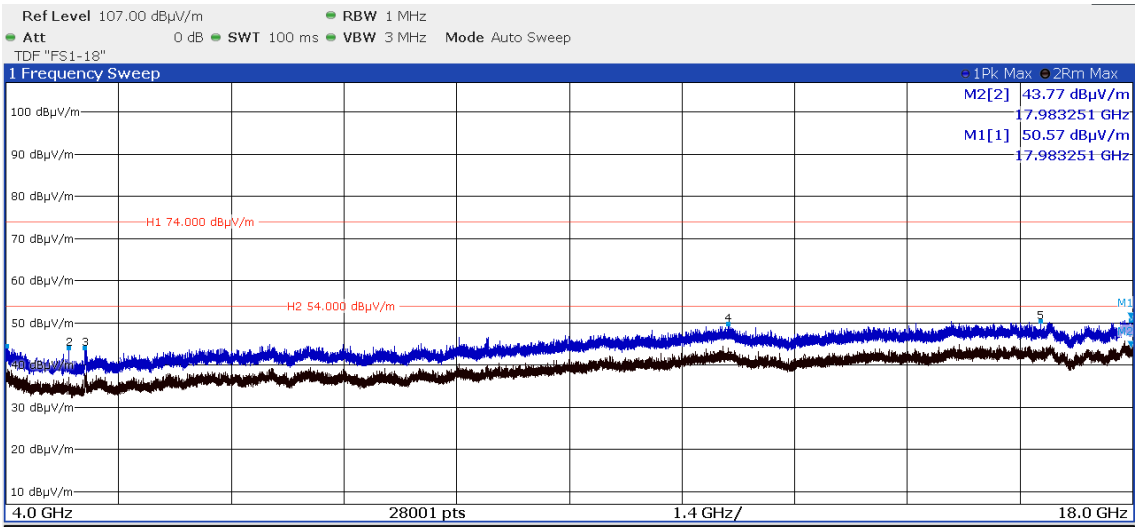


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.084240 GHz	52.283 dBµV/m	6	1.374190 GHz	49.247 dBµV/m
2	1.140730 GHz	52.243 dBµV/m	7	1.914600 GHz	50.210 dBµV/m
3	1.215210 GHz	58.705 dBµV/m	8	2.473500 GHz	74.474 dBµV/m
4	1.222210 GHz	60.139 dBµV/m	9	3.128400 GHz	49.922 dBµV/m
5	1.223210 GHz	58.228 dBµV/m	10	3.893270 GHz	49.054 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.473504 GHz**	**74.47 dBµV/m**		
M2		2	**2.473504 GHz**	**71.29 dBµV/m**		
M3		1	**2.4835 GHz**	**45.50 dBµV/m**		
M4		2	**1.22221 GHz**	**47.63 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.012250 GHz	44.534 dBµV/m	4	12.974430 GHz	49.718 dBµV/m
2	4.782720 GHz	44.073 dBµV/m	5	16.854790 GHz	50.339 dBµV/m
3	4.983210 GHz	44.083 dBµV/m	6	17.983250 GHz	50.572 dBµV/m

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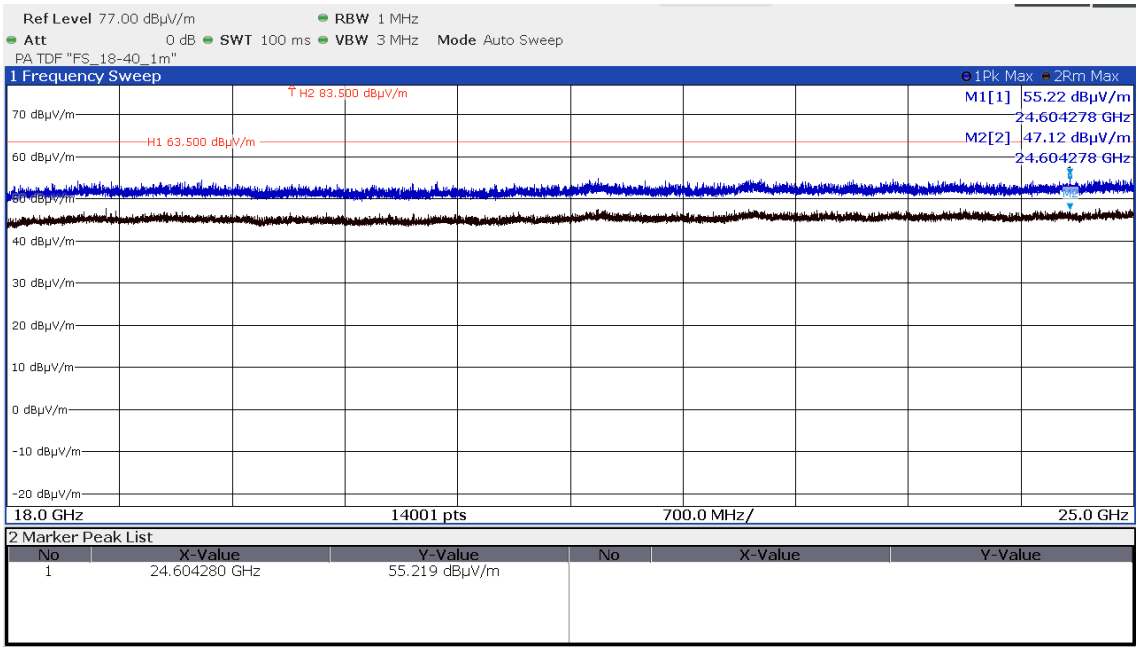
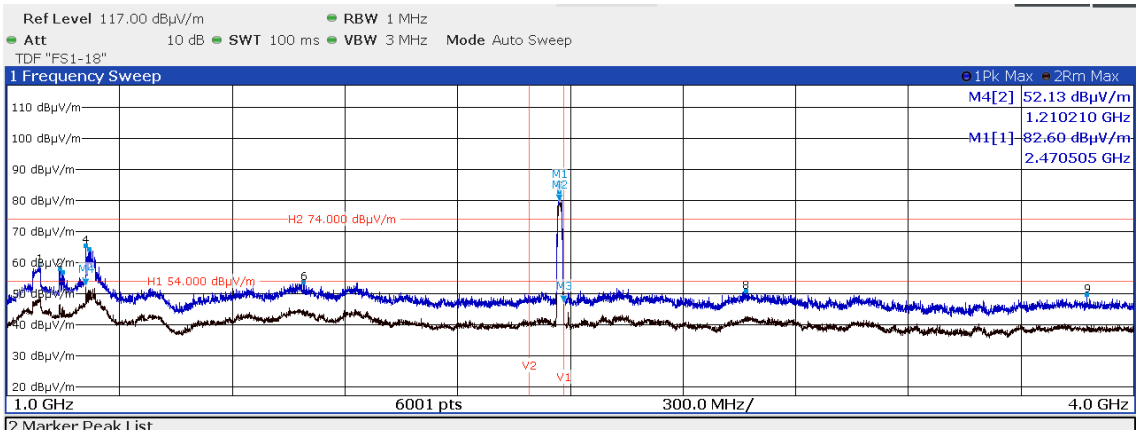


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.604280 GHz	55.219 dBµV/m			

CH13 vertical



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.087740 GHz	59.380 dBµV/m	6	1.790120 GHz	53.467 dBµV/m
2	1.140230 GHz	57.766 dBµV/m	7	2.470500 GHz	82.601 dBµV/m
3	1.148230 GHz	56.696 dBµV/m	8	2.966920 GHz	50.707 dBµV/m
4	1.210210 GHz	65.312 dBµV/m	9	3.875770 GHz	49.439 dBµV/m
5	1.219210 GHz	64.159 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.470505 GHz**	**82.60 dBµV/m**		
M2		2	**2.470505 GHz**	**79.31 dBµV/m**		
M3		1	**2.4835 GHz**	**46.85 dBµV/m**		
M4		2	**1.21021 GHz**	**52.13 dBµV/m**		

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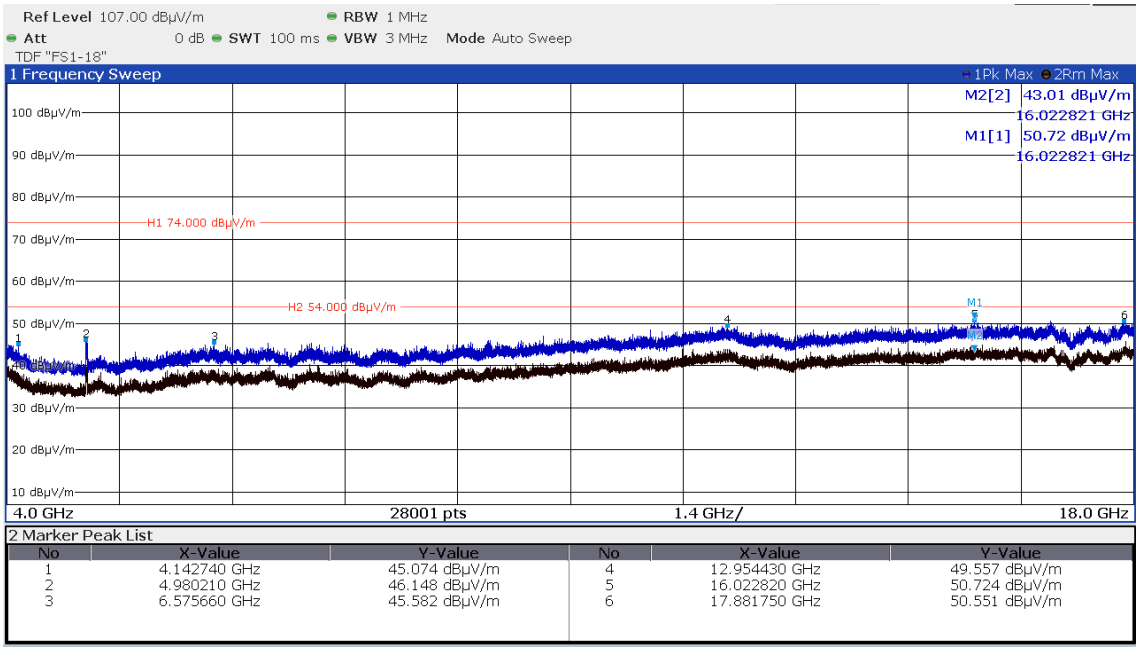
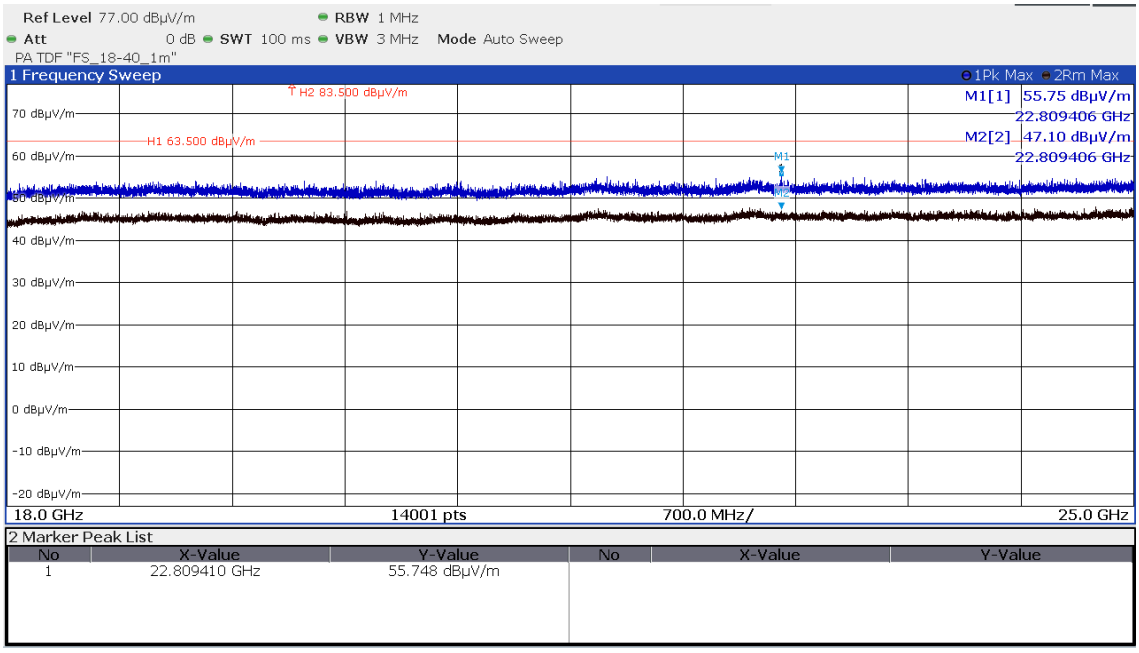


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.142740 GHz	45.074 dBµV/m	4	12.954430 GHz	49.557 dBµV/m
2	4.980210 GHz	46.148 dBµV/m	5	16.022820 GHz	50.724 dBµV/m
3	6.575660 GHz	45.582 dBµV/m	6	17.881750 GHz	50.551 dBµV/m



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	22.809410 GHz	55.748 dBµV/m			

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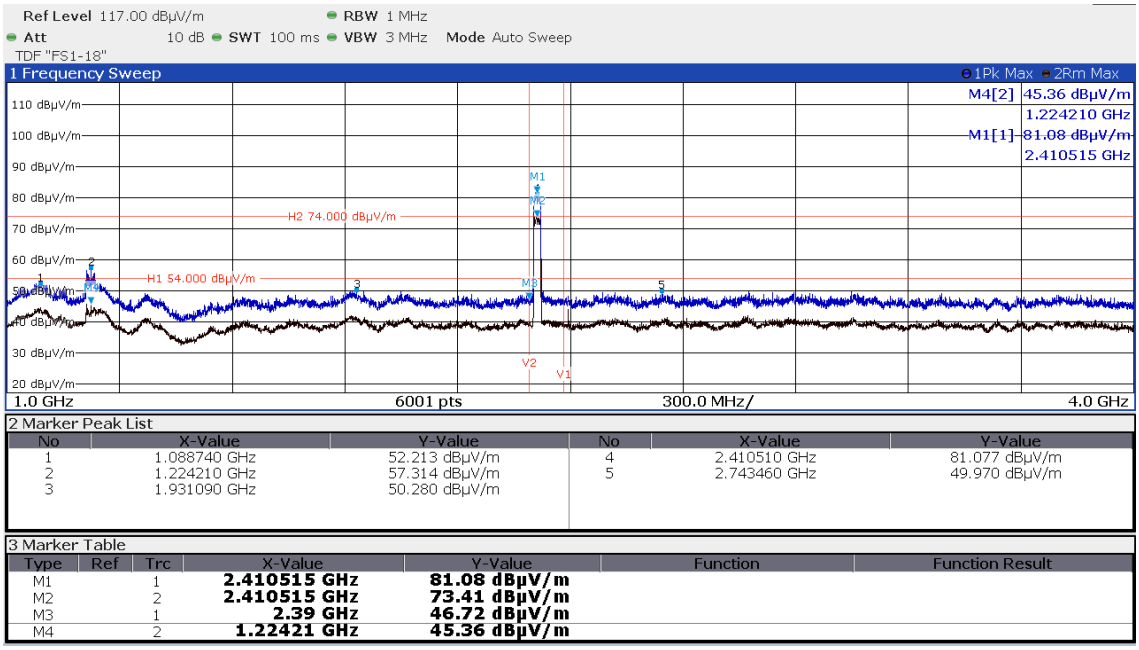
5.1.5.2 WLAN Standard 802.11n HT20

CH1 horizontal

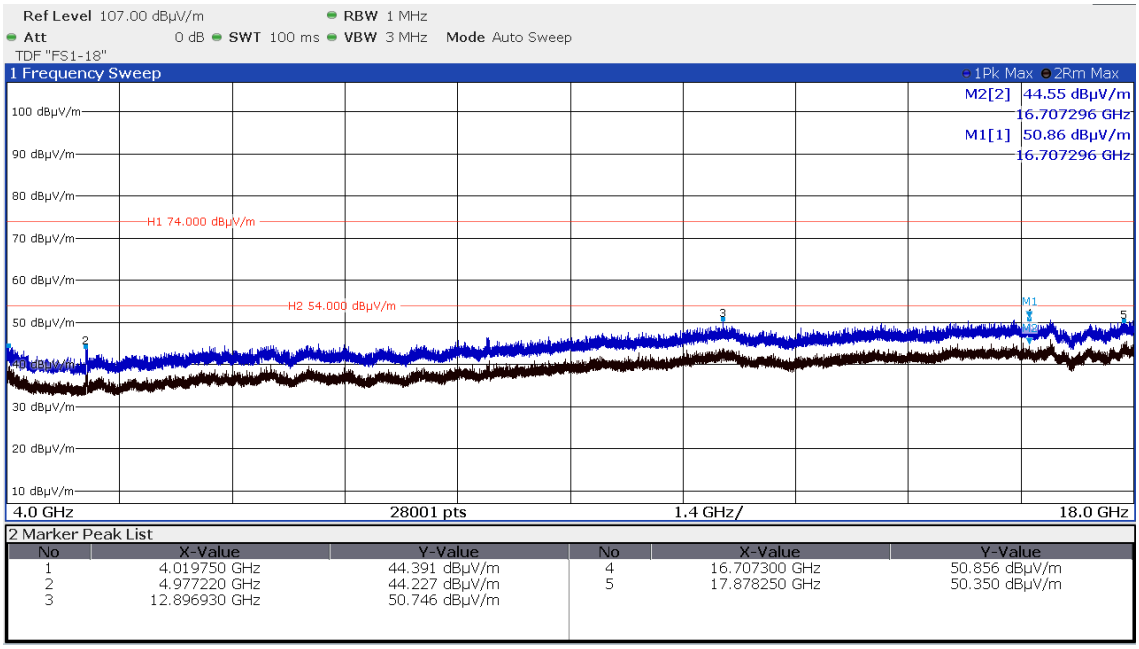


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.088740 GHz	52.213 dBµV/m	4	2.410510 GHz	81.077 dBµV/m
2	1.224210 GHz	57.314 dBµV/m	5	2.743460 GHz	49.970 dBµV/m
3	1.931090 GHz	50.280 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.410515 GHz**	**81.08 dBµV/m**		
M2		2	**2.410515 GHz**	**73.41 dBµV/m**		
M3		1	**2.39 GHz**	**46.72 dBµV/m**		
M4		2	**1.22421 GHz**	**45.36 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.019750 GHz	44.391 dBµV/m	4	16.707300 GHz	50.856 dBµV/m
2	4.977220 GHz	44.227 dBµV/m	5	17.878250 GHz	50.350 dBµV/m
3	12.896930 GHz	50.746 dBµV/m			

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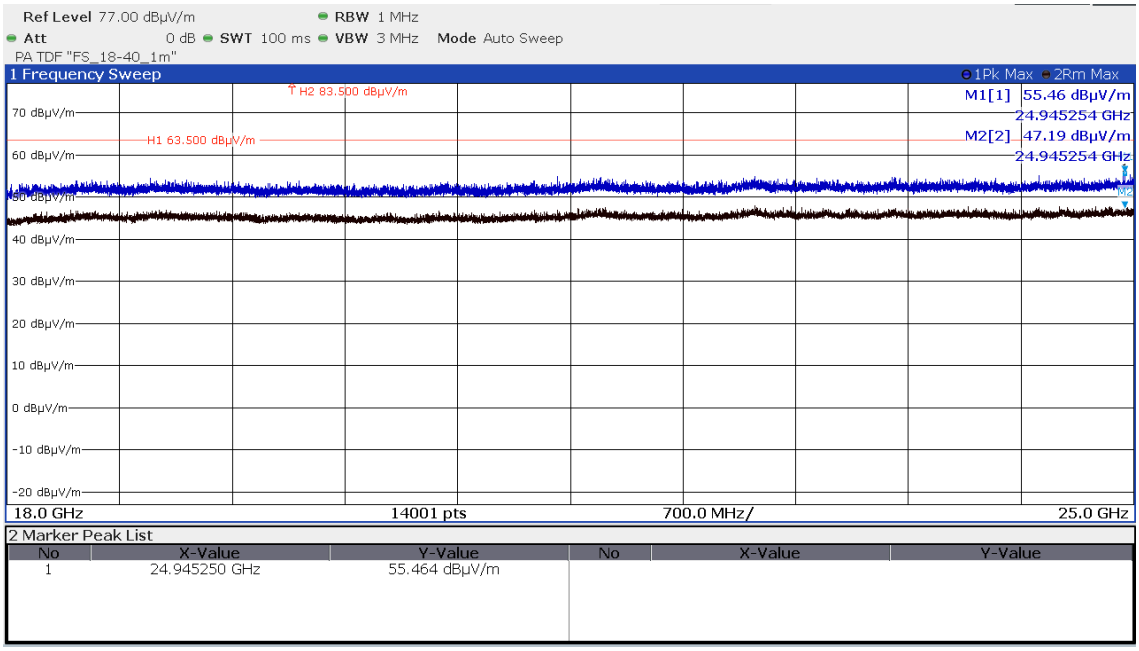
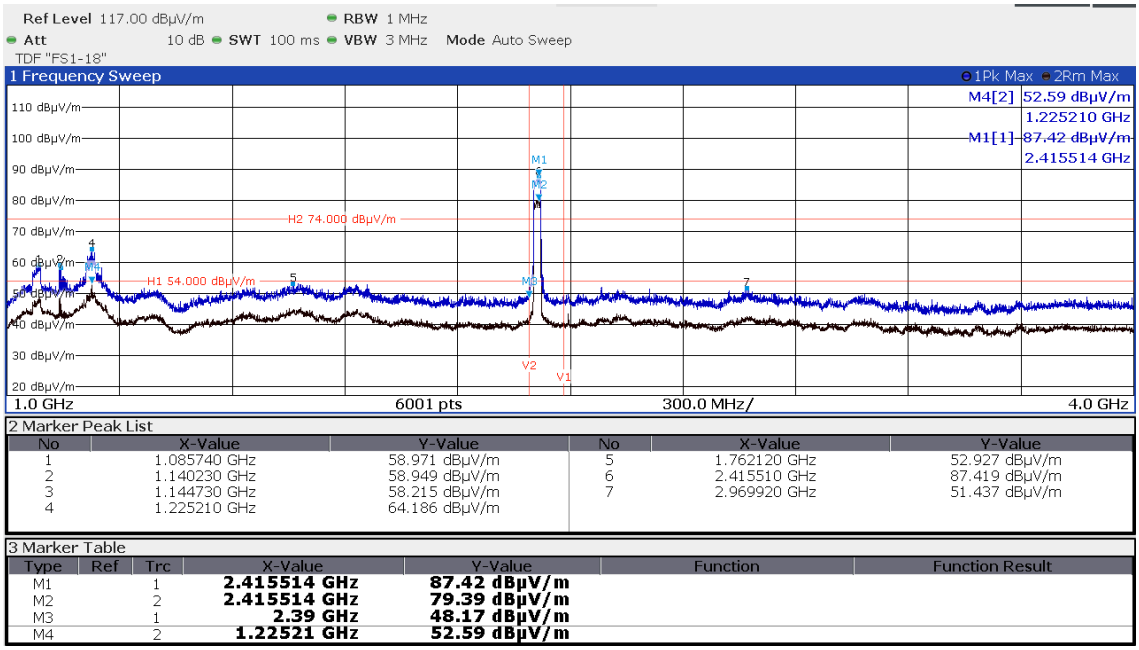


CH1 vertical



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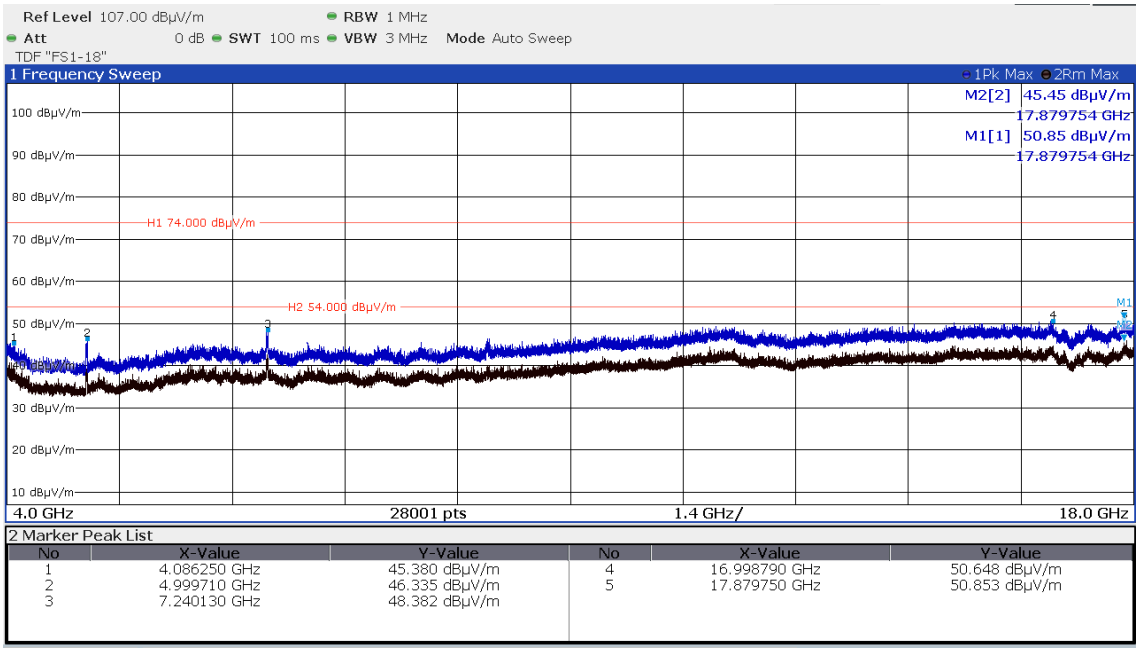
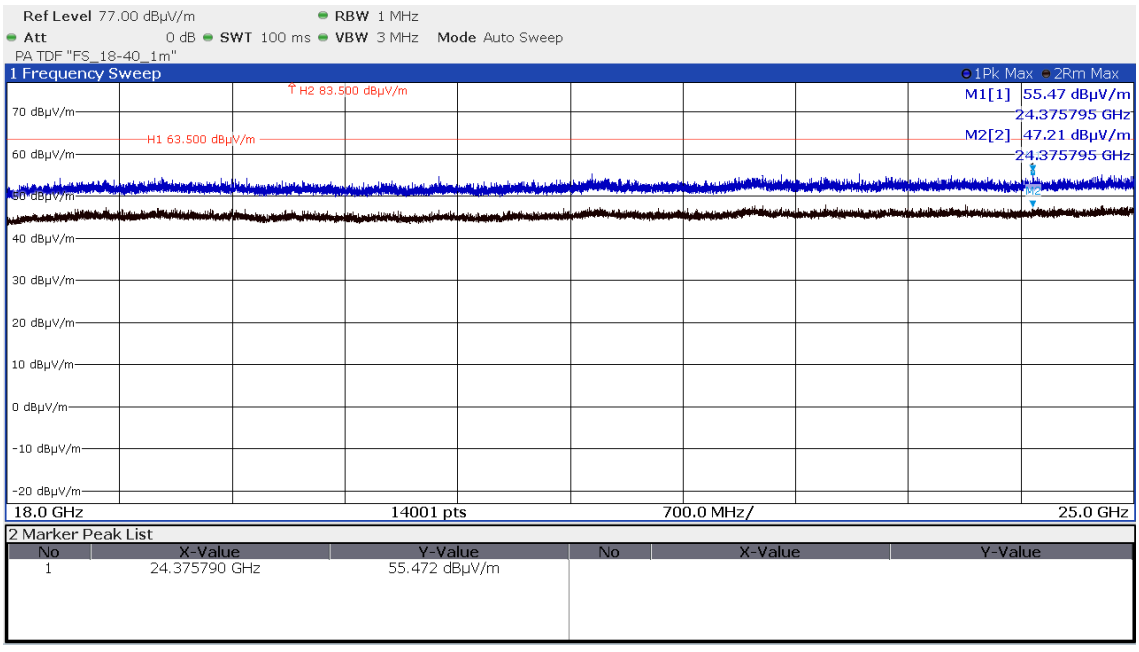


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.086250 GHz	45.380 dBµV/m	4	16.998790 GHz	50.648 dBµV/m
2	4.999710 GHz	46.335 dBµV/m	5	17.879750 GHz	50.853 dBµV/m
3	7.240130 GHz	48.382 dBµV/m			



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.375790 GHz	55.472 dBµV/m			

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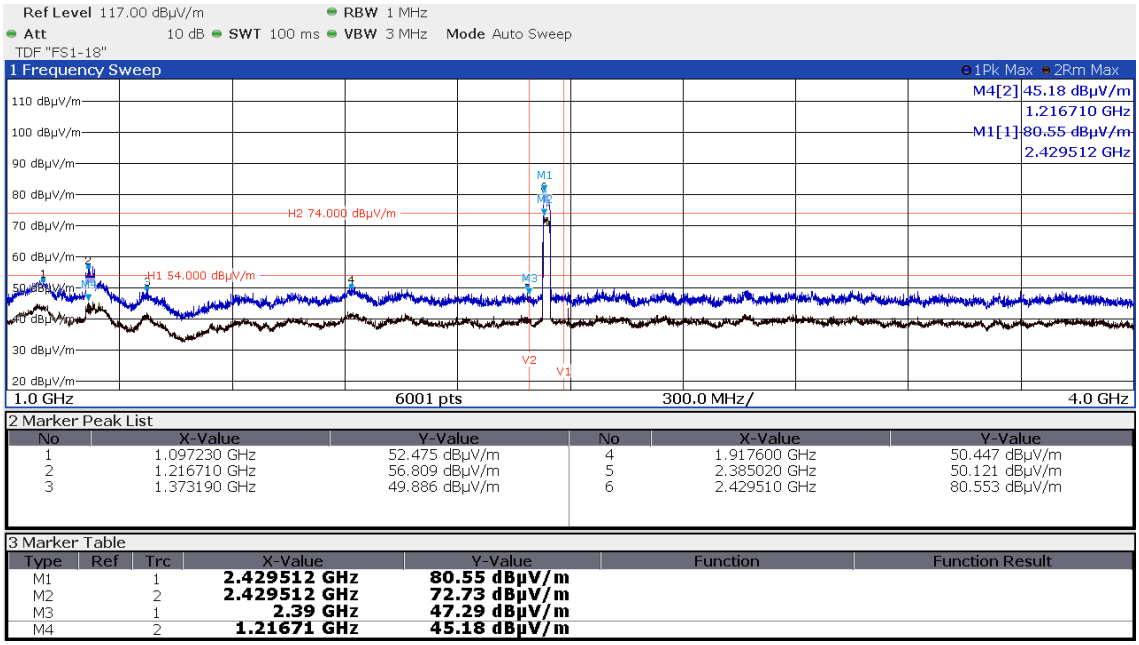
CH6 horizontal

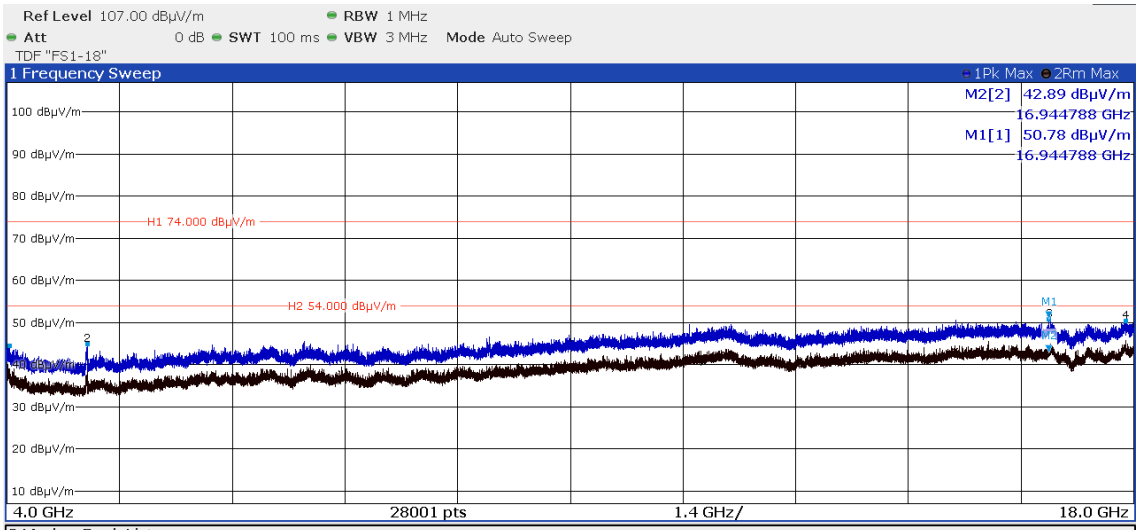


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.097230 GHz	52.475 dBµV/m	4	1.917600 GHz	50.447 dBµV/m
2	1.216710 GHz	56.809 dBµV/m	5	2.385020 GHz	50.121 dBµV/m
3	1.373190 GHz	49.886 dBµV/m	6	2.429510 GHz	80.553 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.429512 GHz**	**80.55 dBµV/m**		
M2		2	**2.429512 GHz**	**72.73 dBµV/m**		
M3		1	**2.39 GHz**	**47.29 dBµV/m**		
M4		2	**1.21671 GHz**	**45.18 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.032750 GHz	44.417 dBµV/m	3	16.944790 GHz	50.778 dBµV/m
2	4.999710 GHz	44.835 dBµV/m	4	17.895750 GHz	50.379 dBµV/m

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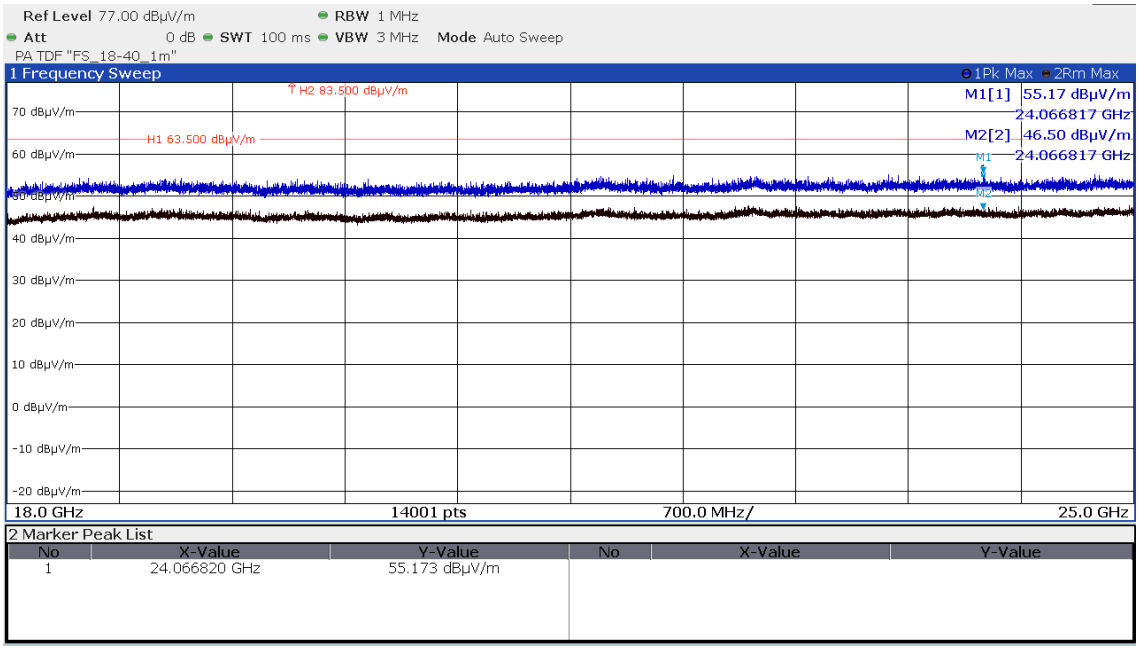
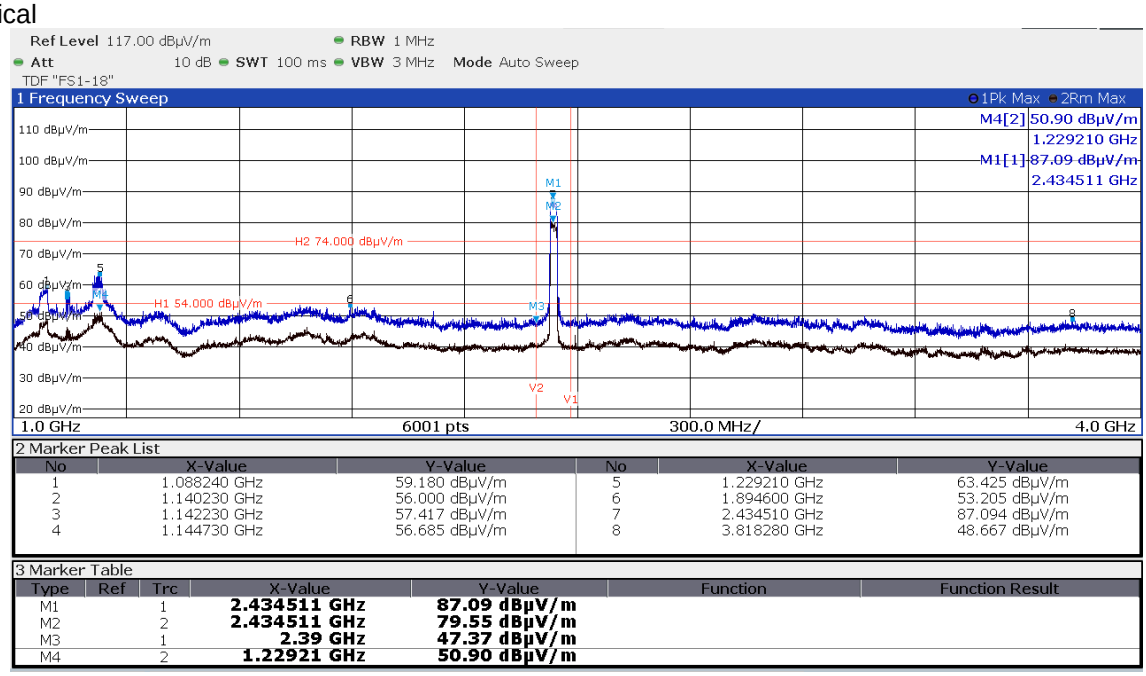


CH6 vertical



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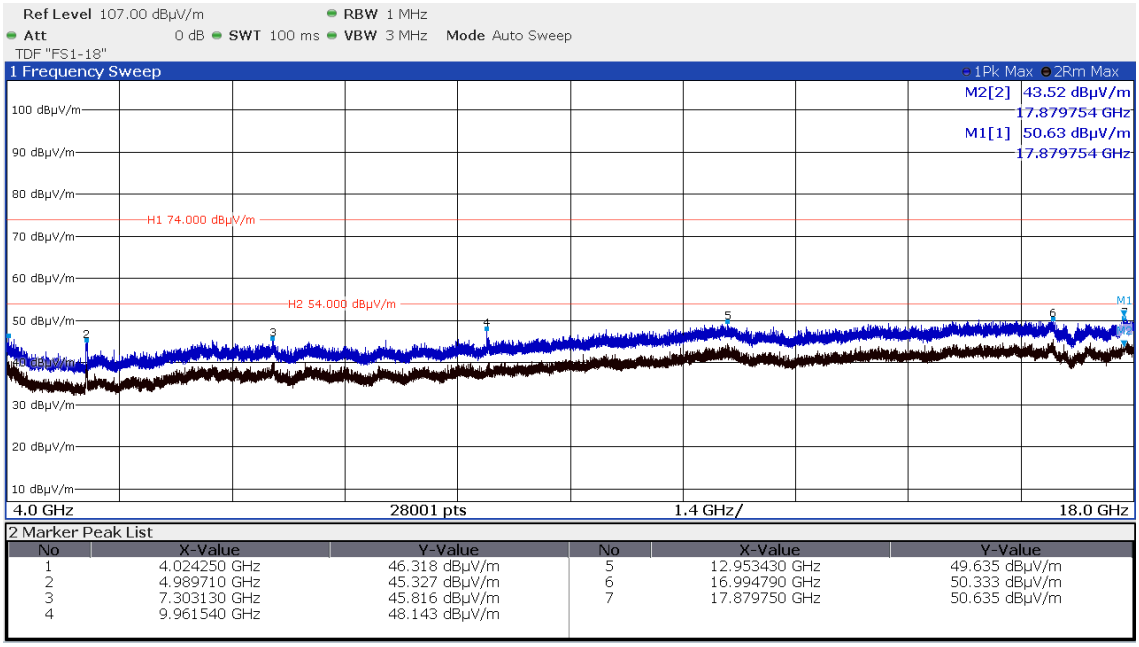
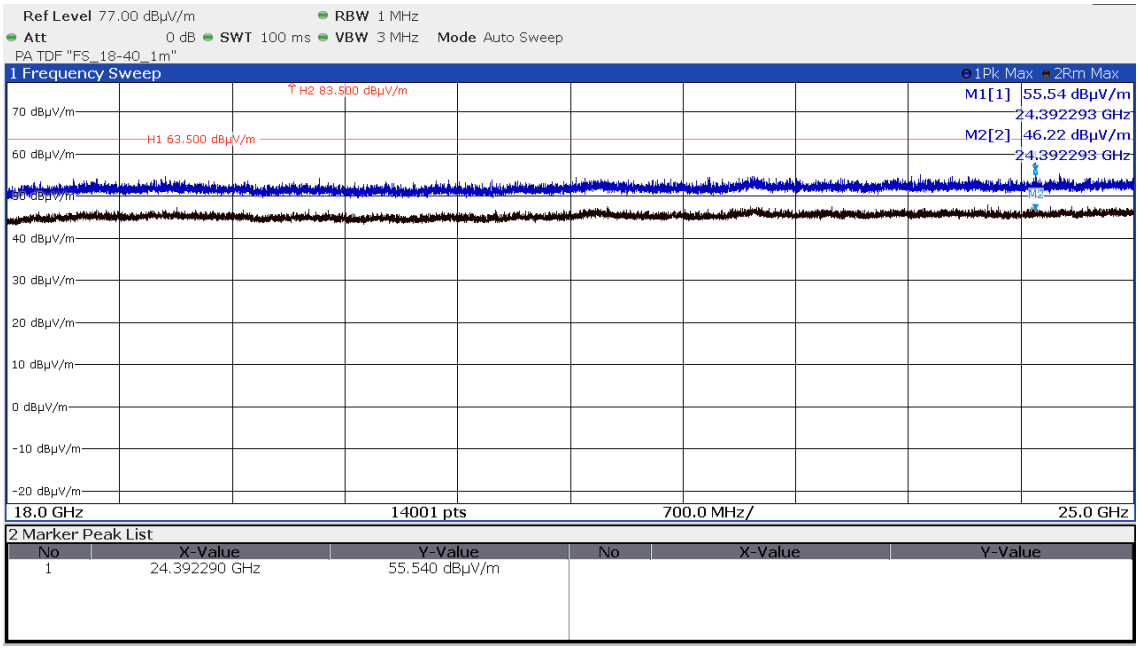


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.024250 GHz	46.318 dBµV/m	5	12.953430 GHz	49.635 dBµV/m
2	4.989710 GHz	45.327 dBµV/m	6	16.994790 GHz	50.333 dBµV/m
3	7.303130 GHz	45.816 dBµV/m	7	17.879750 GHz	50.635 dBµV/m
4	9.961540 GHz	48.143 dBµV/m			



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.392290 GHz	55.540 dBµV/m			

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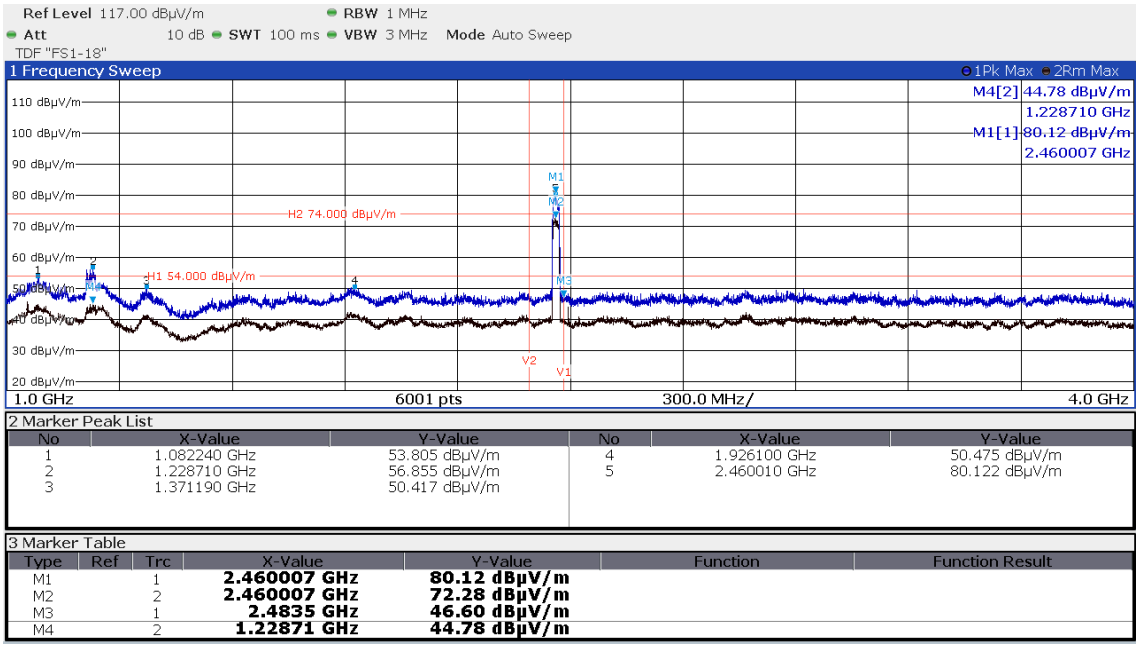
CH11 horizontal

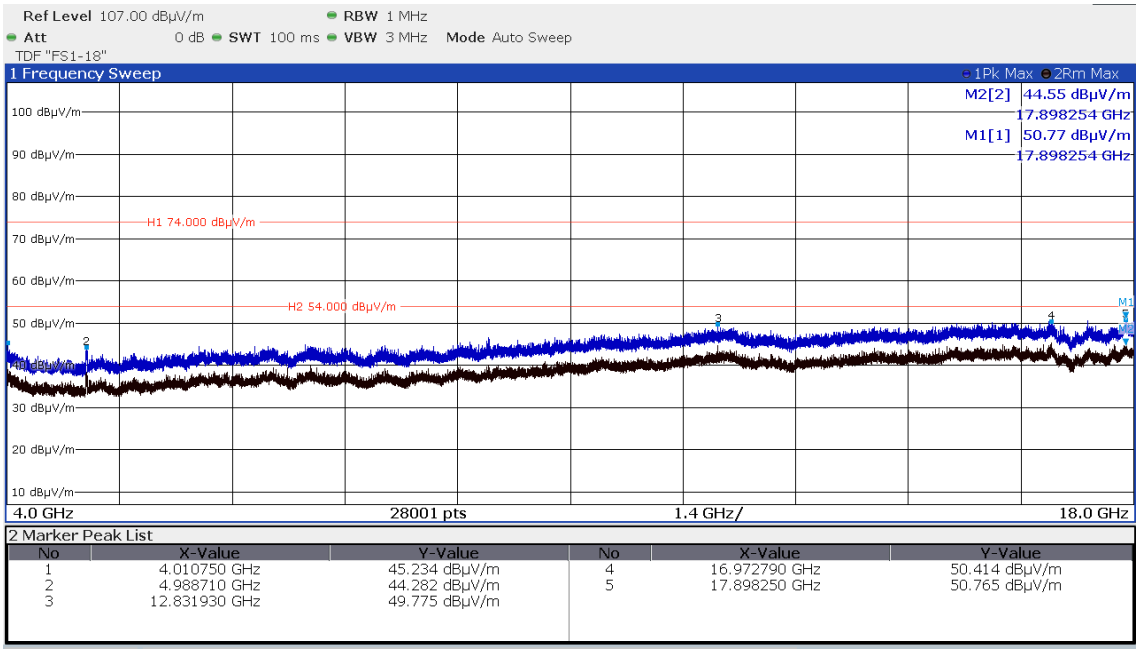


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.082240 GHz	53.805 dBµV/m	4	1.926100 GHz	50.475 dBµV/m
2	1.228710 GHz	56.855 dBµV/m	5	2.460010 GHz	80.122 dBµV/m
3	1.371190 GHz	50.417 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.460007 GHz**	**80.12 dBµV/m**		
M2		2	**2.460007 GHz**	**72.28 dBµV/m**		
M3		1	**2.4835 GHz**	**46.60 dBµV/m**		
M4		2	**1.22871 GHz**	**44.78 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.010750 GHz	45.234 dBµV/m	4	16.972790 GHz	50.414 dBµV/m
2	4.988710 GHz	44.282 dBµV/m	5	17.898250 GHz	50.765 dBµV/m
3	12.831930 GHz	49.775 dBµV/m			

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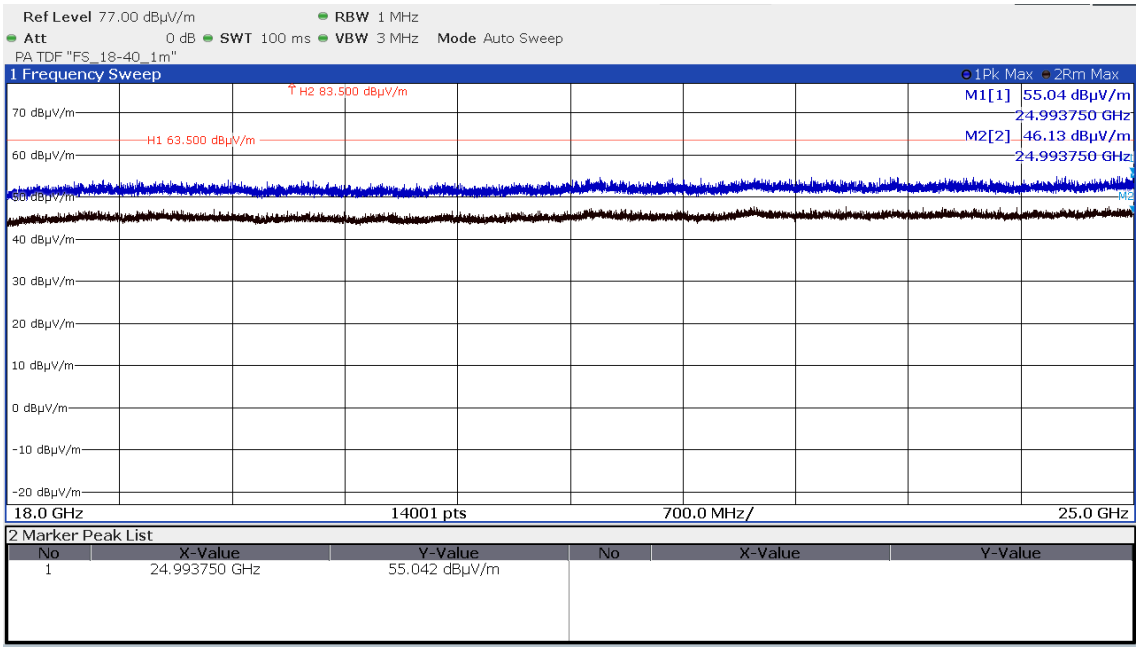
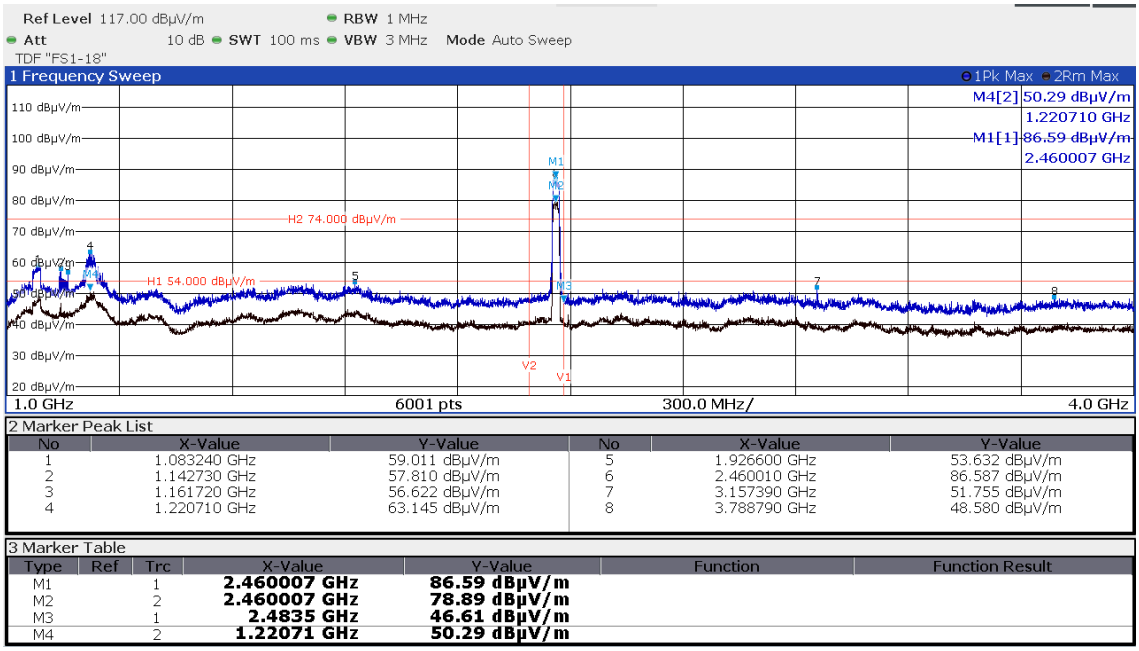
FCC ID: XO2SPB209A



CH11 vertical



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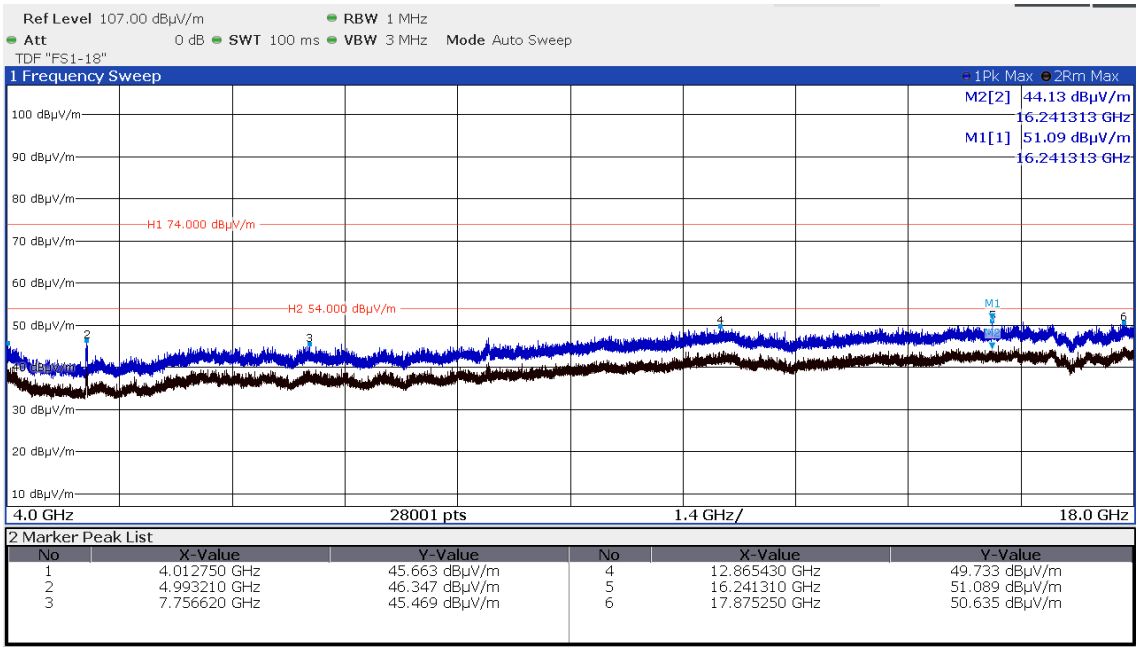
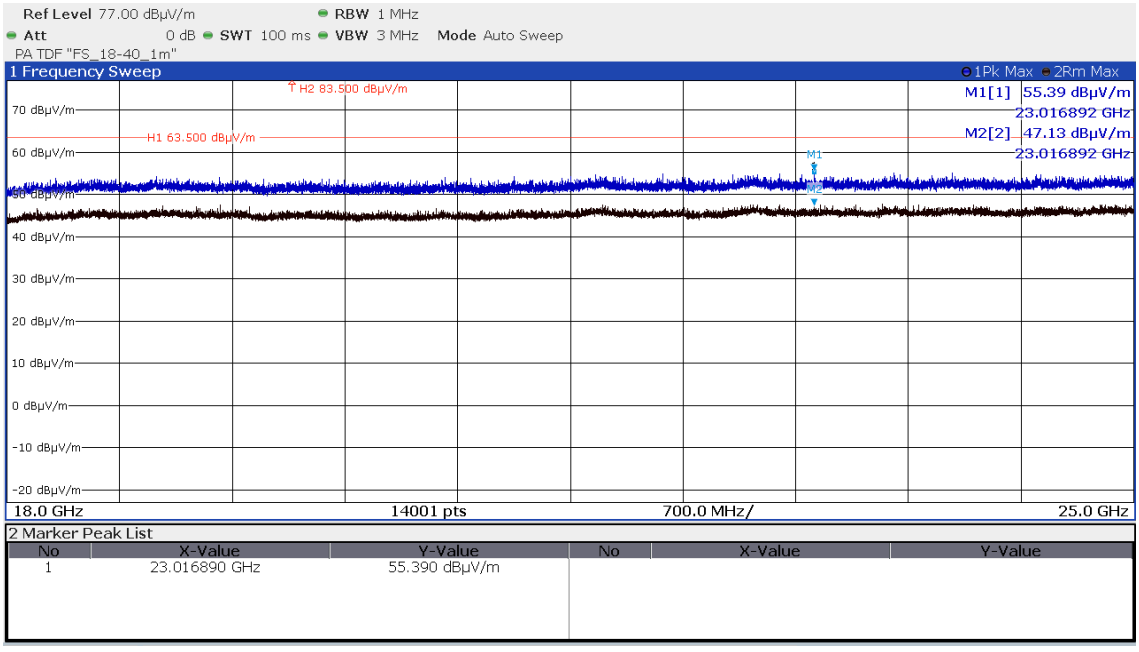
FCC ID: XO2SPB209A



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.012750 GHz	45.663 dBµV/m	4	12.865430 GHz	49.733 dBµV/m
2	4.993210 GHz	46.347 dBµV/m	5	16.241310 GHz	51.089 dBµV/m
3	7.756620 GHz	45.469 dBµV/m	6	17.875250 GHz	50.635 dBµV/m



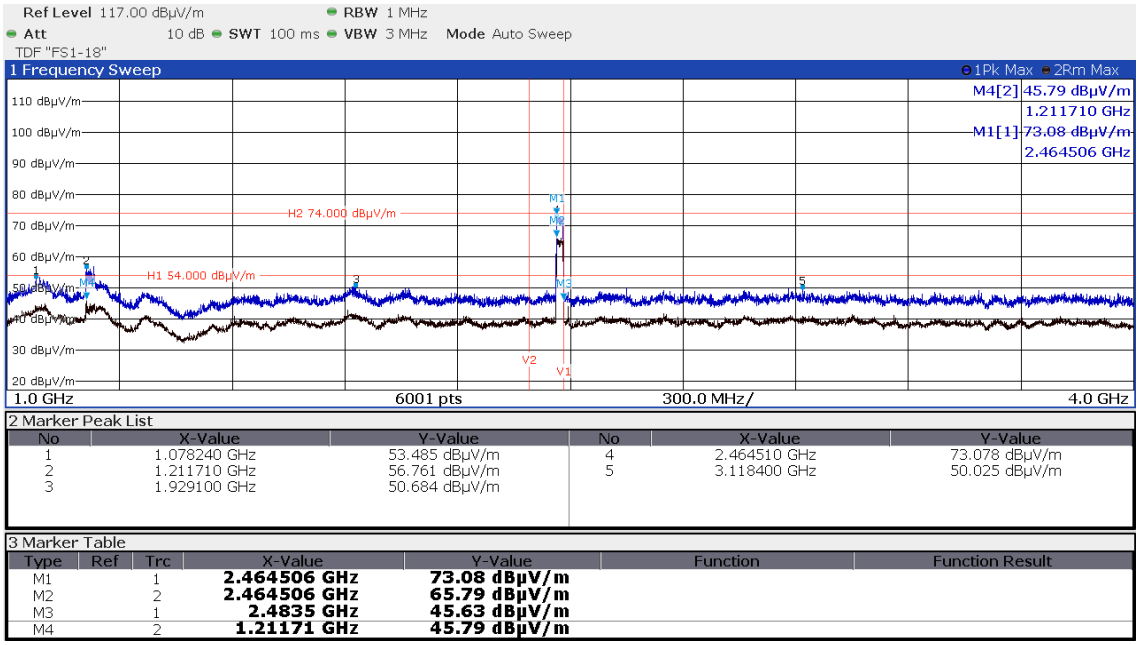
2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	23.016890 GHz	55.390 dBµV/m			

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.

FCC ID: XO2SPB209A

CH13 horizontal

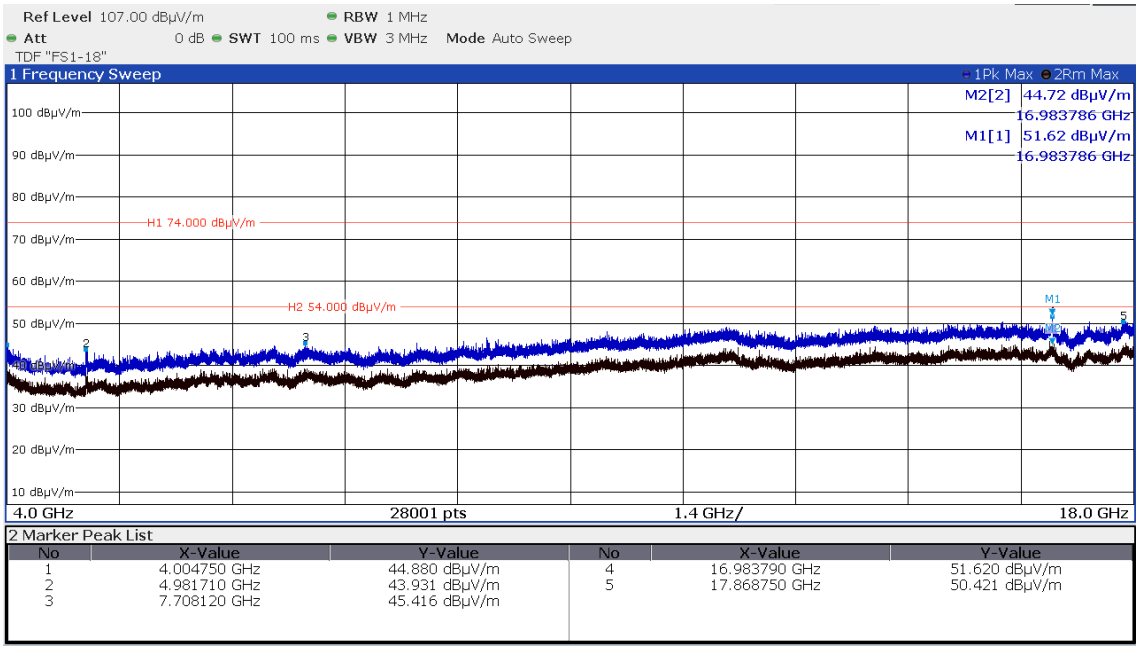


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.078240 GHz	53.485 dBµV/m	4	2.464510 GHz	73.078 dBµV/m
2	1.211710 GHz	56.761 dBµV/m	5	3.118400 GHz	50.025 dBµV/m
3	1.929100 GHz	50.684 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.464506 GHz**	**73.08 dBµV/m**		
M2		2	**2.464506 GHz**	**65.79 dBµV/m**		
M3		1	**2.4835 GHz**	**45.63 dBµV/m**		
M4		2	**1.21171 GHz**	**45.79 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.004750 GHz	44.880 dBµV/m	4	16.983790 GHz	51.620 dBµV/m
2	4.981710 GHz	43.931 dBµV/m	5	17.868750 GHz	50.421 dBµV/m
3	7.708120 GHz	45.416 dBµV/m			

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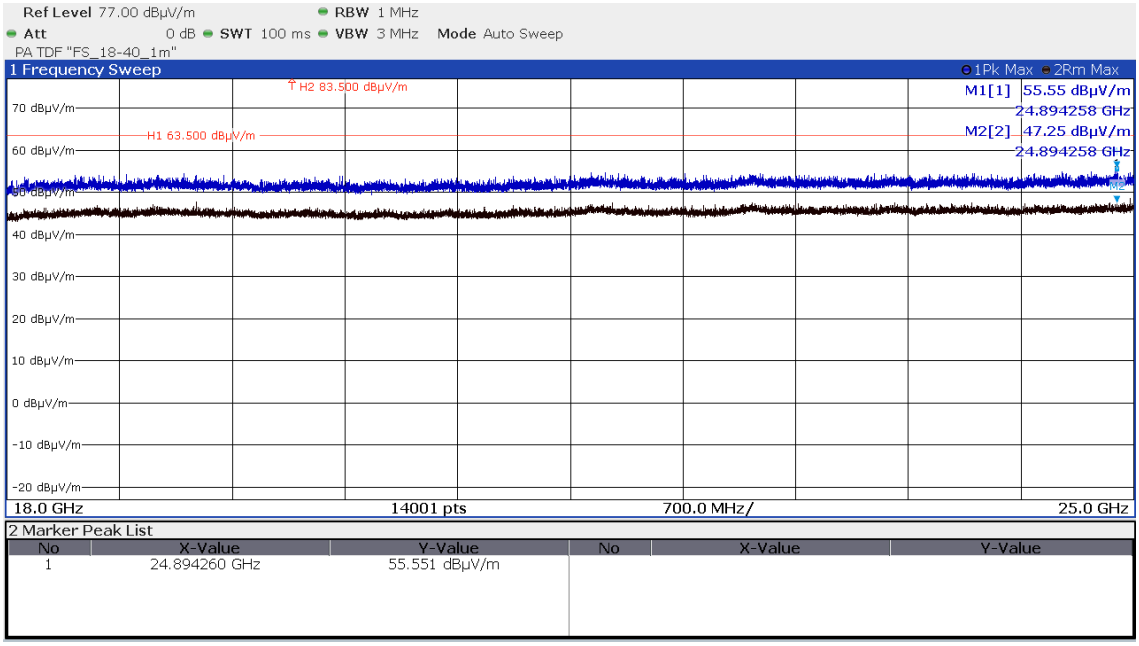
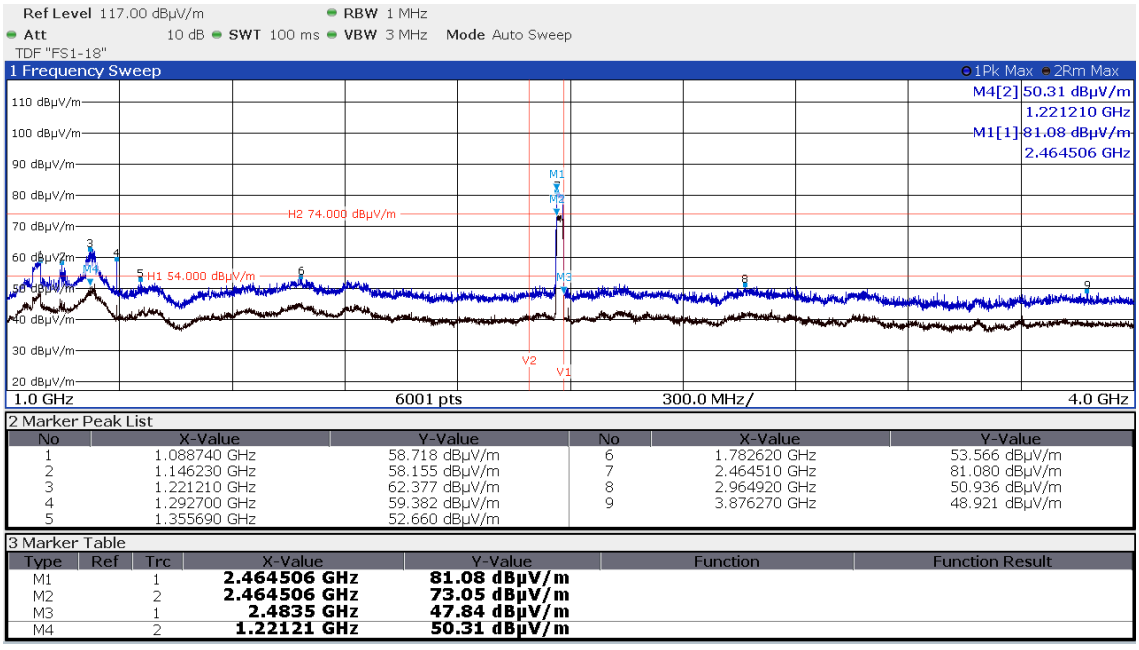
FCC ID: XO2SPB209A



CH13 vertical



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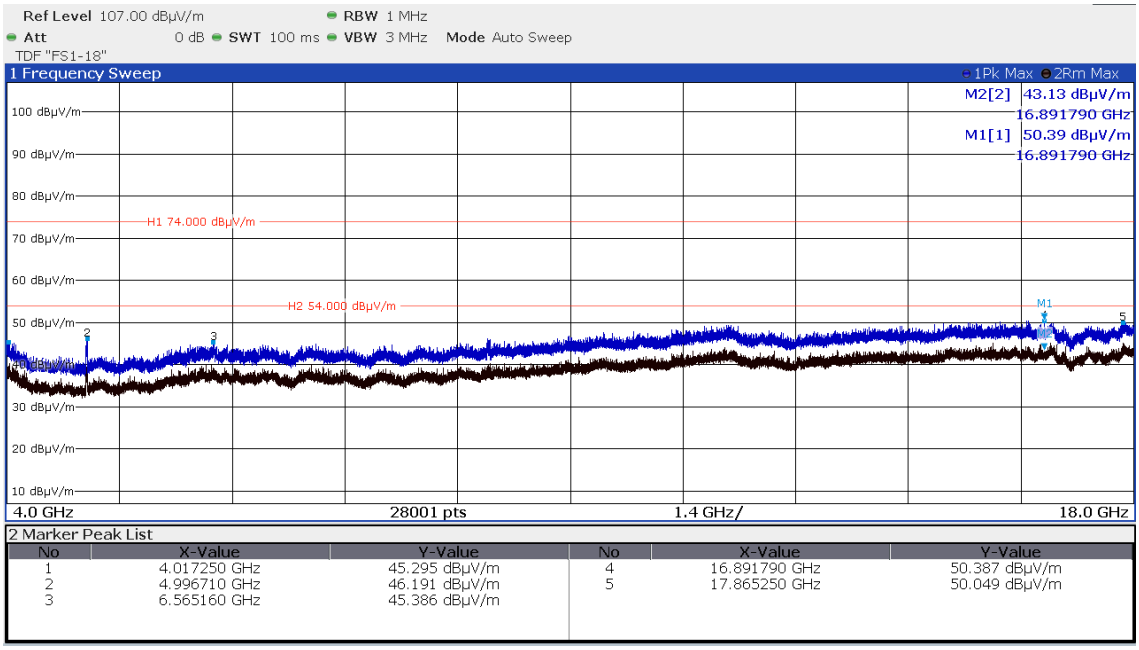
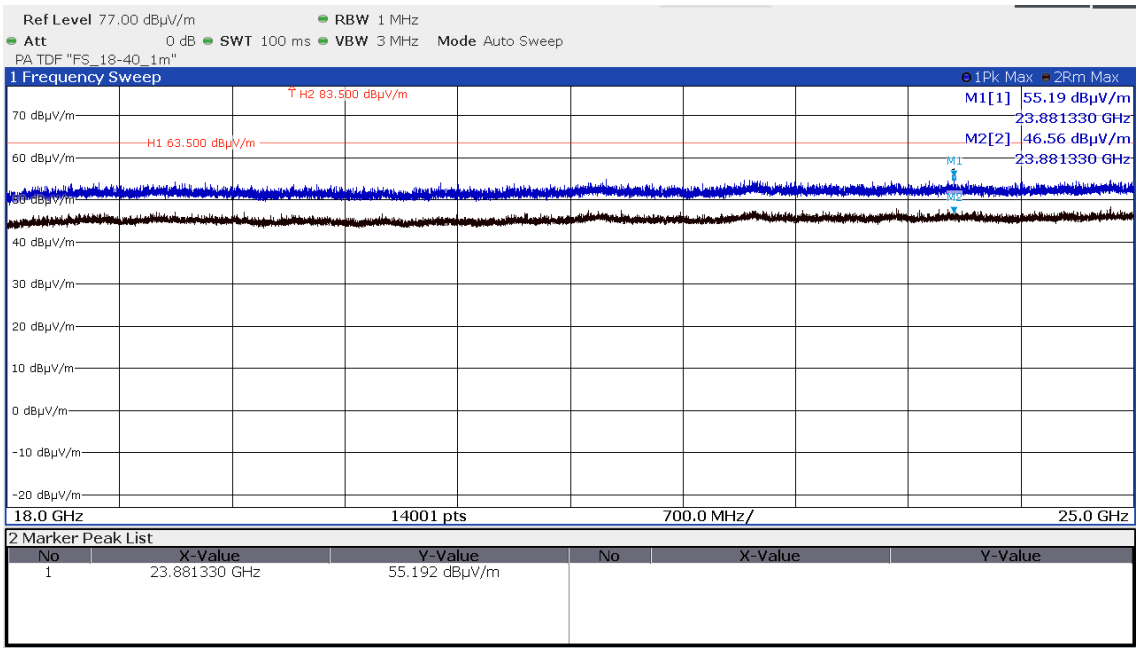
FCC ID: XO2SPB209A



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.017250 GHz	45.295 dBµV/m	4	16.891790 GHz	50.387 dBµV/m
2	4.996710 GHz	46.191 dBµV/m	5	17.865250 GHz	50.049 dBµV/m
3	6.565160 GHz	45.386 dBµV/m			



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	23.881330 GHz	55.192 dBµV/m			

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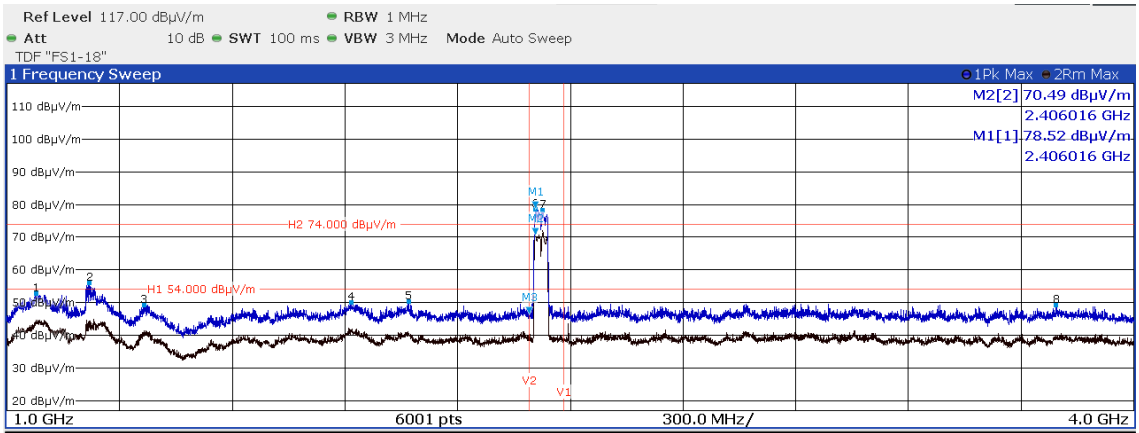
FCC ID: XO2SPB209A

5.1.5.3 WLAN Standard 802.11n HT40

CH1up horizontal

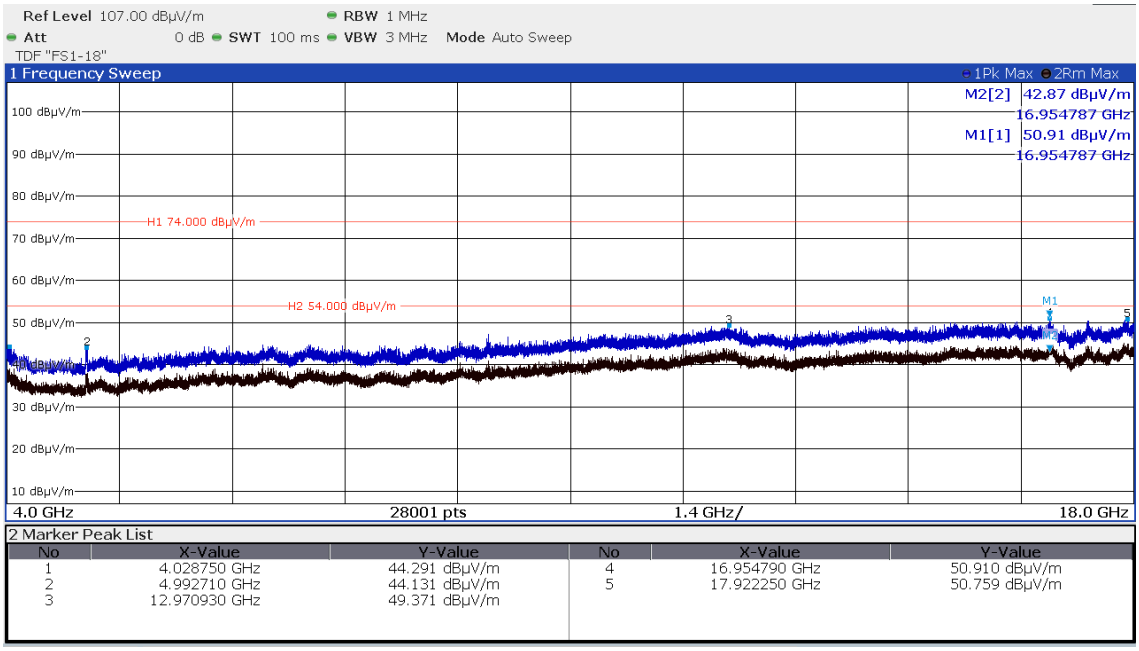


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.076740 GHz	52.875 dBµV/m	5	2.069570 GHz	50.440 dBµV/m
2	1.219210 GHz	56.141 dBµV/m	6	2.406020 GHz	78.516 dBµV/m
3	1.364190 GHz	49.337 dBµV/m	7	2.426010 GHz	78.265 dBµV/m
4	1.915600 GHz	50.029 dBµV/m	8	3.793780 GHz	49.364 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.406016 GHz**	**78.52 dBµV/m**		
M2		2	**2.406016 GHz**	**70.49 dBµV/m**		
M3		1	**2.39 GHz**	**46.27 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.028750 GHz	44.291 dBµV/m	4	16.954790 GHz	50.910 dBµV/m
2	4.992710 GHz	44.131 dBµV/m	5	17.922250 GHz	50.759 dBµV/m
3	12.970930 GHz	49.371 dBµV/m			

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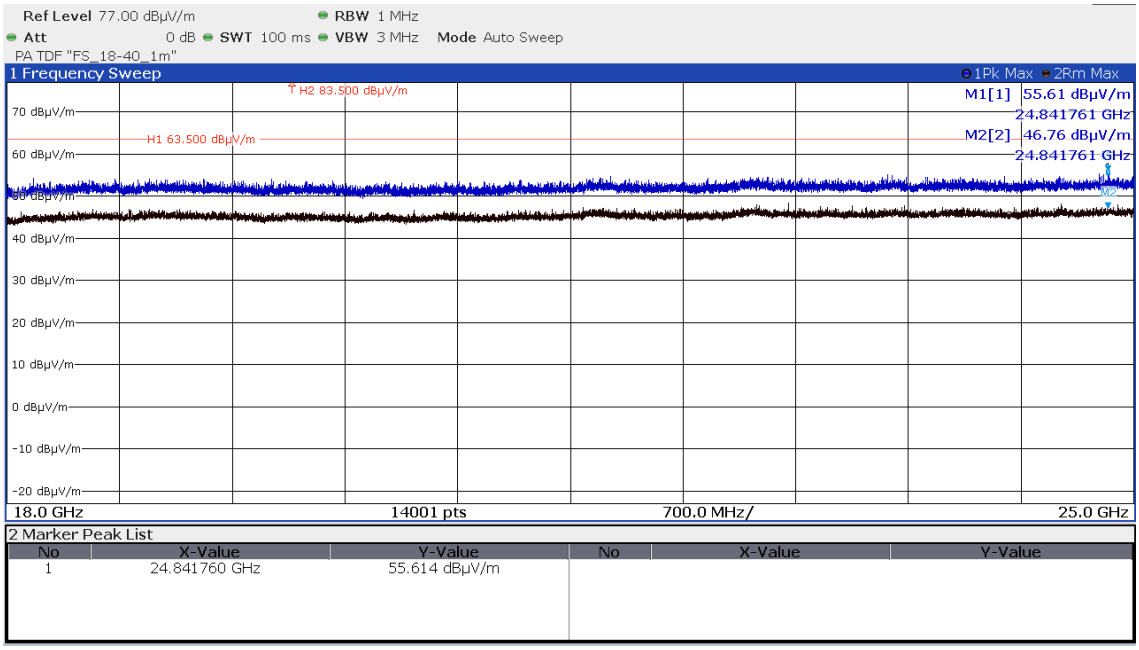
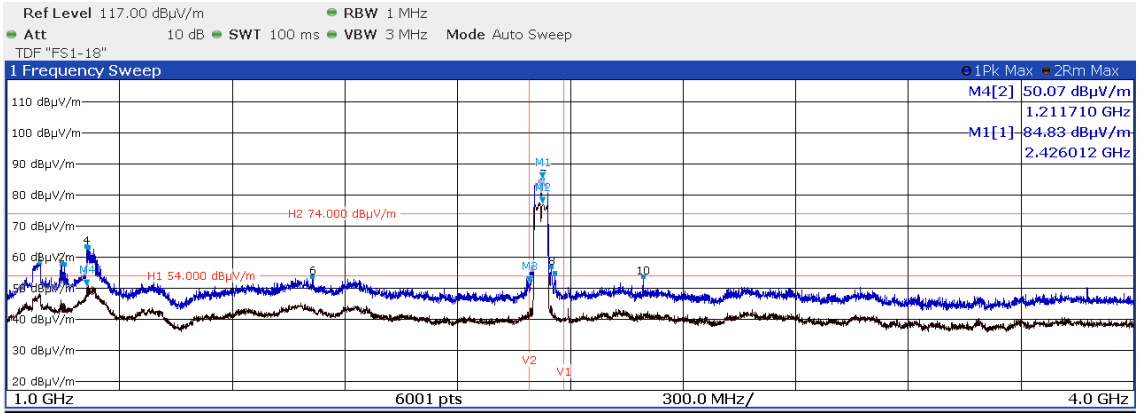
FCC ID: XO2SPB209A



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.841760 GHz	55.614 dBµV/m			

CH1up vertical



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.087740 GHz	58.132 dBµV/m	6	1.814110 GHz	53.711 dBµV/m
2	1.145230 GHz	57.768 dBµV/m	7	2.426010 GHz	84.826 dBµV/m
3	1.152220 GHz	57.483 dBµV/m	8	2.449510 GHz	56.776 dBµV/m
4	1.211710 GHz	63.153 dBµV/m	9	2.459510 GHz	54.700 dBµV/m
5	1.215710 GHz	62.912 dBµV/m	10	2.693470 GHz	53.571 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.426012 GHz**	**84.83 dBµV/m**		
M2		2	**2.426012 GHz**	**76.82 dBµV/m**		
M3		1	**2.39 GHz**	**51.25 dBµV/m**		
M4		2	**1.21171 GHz**	**50.07 dBµV/m**		

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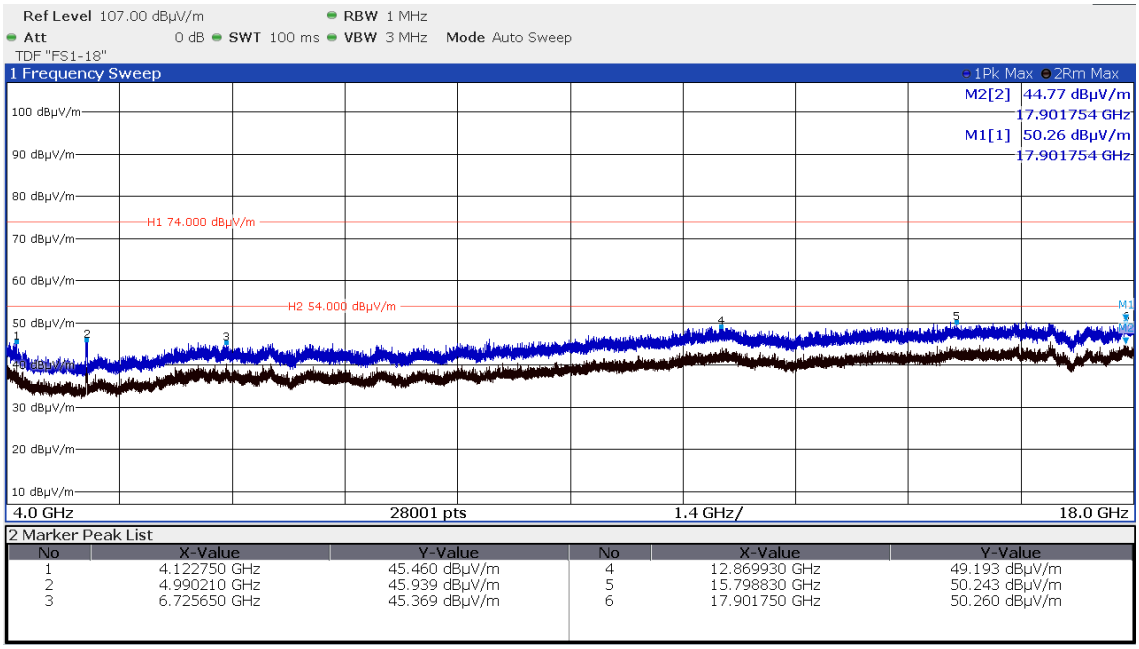
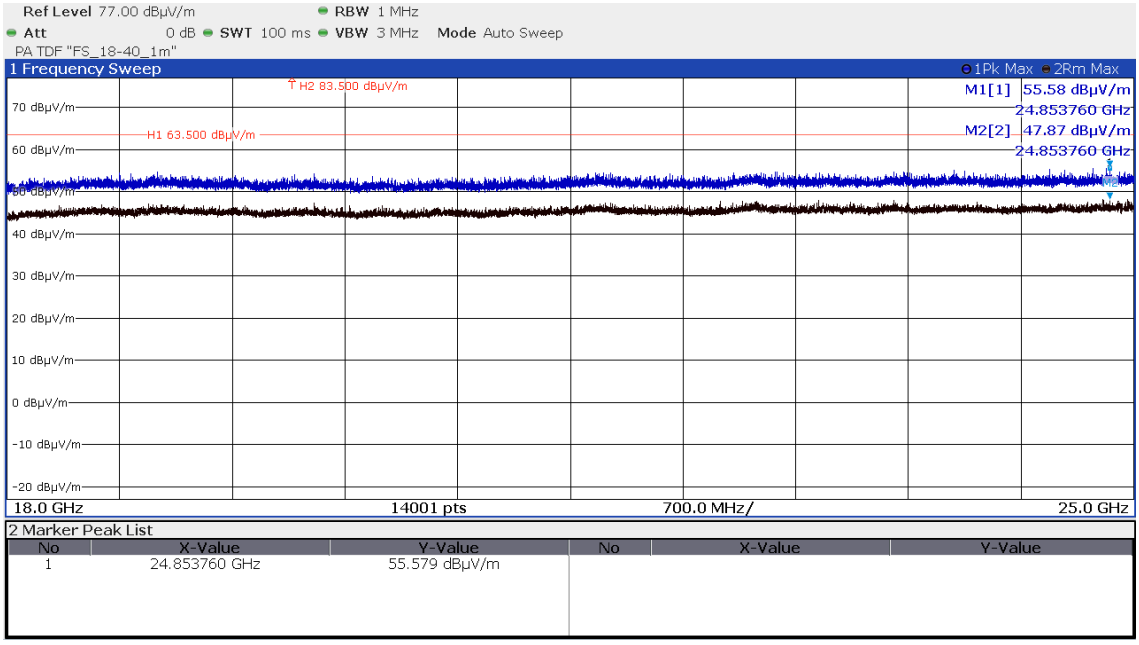
FCC ID: XO2SPB209A



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.122750 GHz	45.460 dBµV/m	4	12.869930 GHz	49.193 dBµV/m
2	4.990210 GHz	45.939 dBµV/m	5	15.798830 GHz	50.243 dBµV/m
3	6.725650 GHz	45.369 dBµV/m	6	17.901750 GHz	50.260 dBµV/m



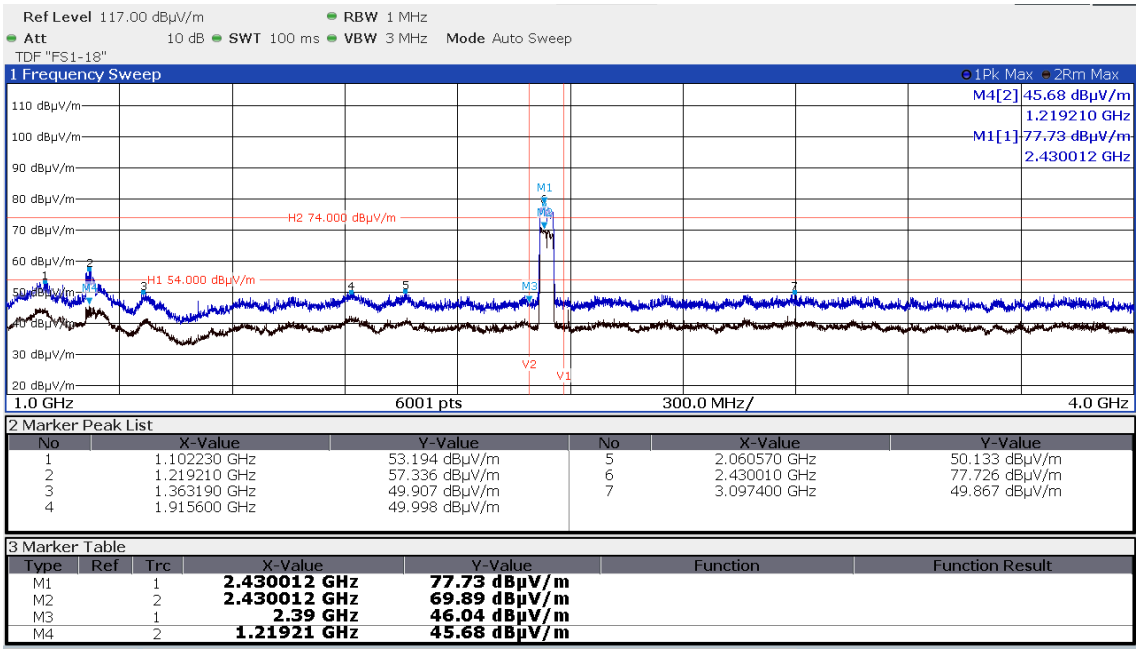
2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	24.853760 GHz	55.579 dBµV/m			

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.

FCC ID: XO2SPB209A

CH4up horizontal

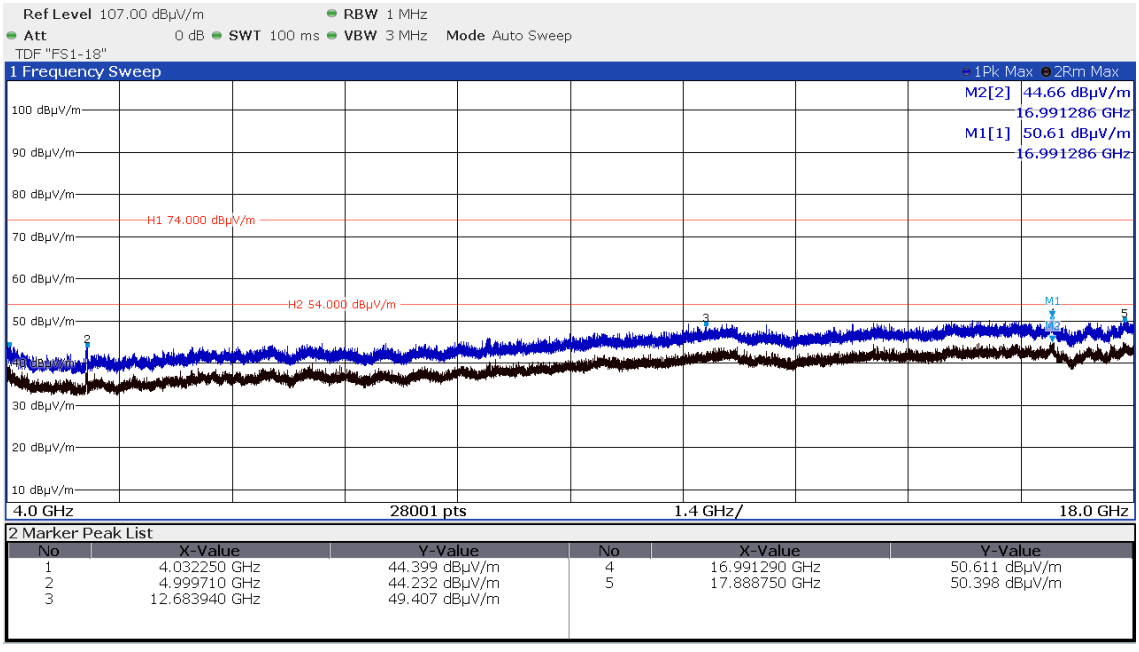


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.102230 GHz	53.194 dBµV/m	5	2.060570 GHz	50.133 dBµV/m
2	1.219210 GHz	57.336 dBµV/m	6	2.430010 GHz	77.726 dBµV/m
3	1.363190 GHz	49.907 dBµV/m	7	3.097400 GHz	49.867 dBµV/m
4	1.915600 GHz	49.998 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.430012 GHz**	**77.73 dBµV/m**		
M2		2	**2.430012 GHz**	**69.89 dBµV/m**		
M3		1	**2.39 GHz**	**46.04 dBµV/m**		
M4		2	**1.21921 GHz**	**45.68 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.032250 GHz	44.399 dBµV/m	4	16.991290 GHz	50.611 dBµV/m
2	4.999710 GHz	44.232 dBµV/m	5	17.888750 GHz	50.398 dBµV/m
3	12.683940 GHz	49.407 dBµV/m			

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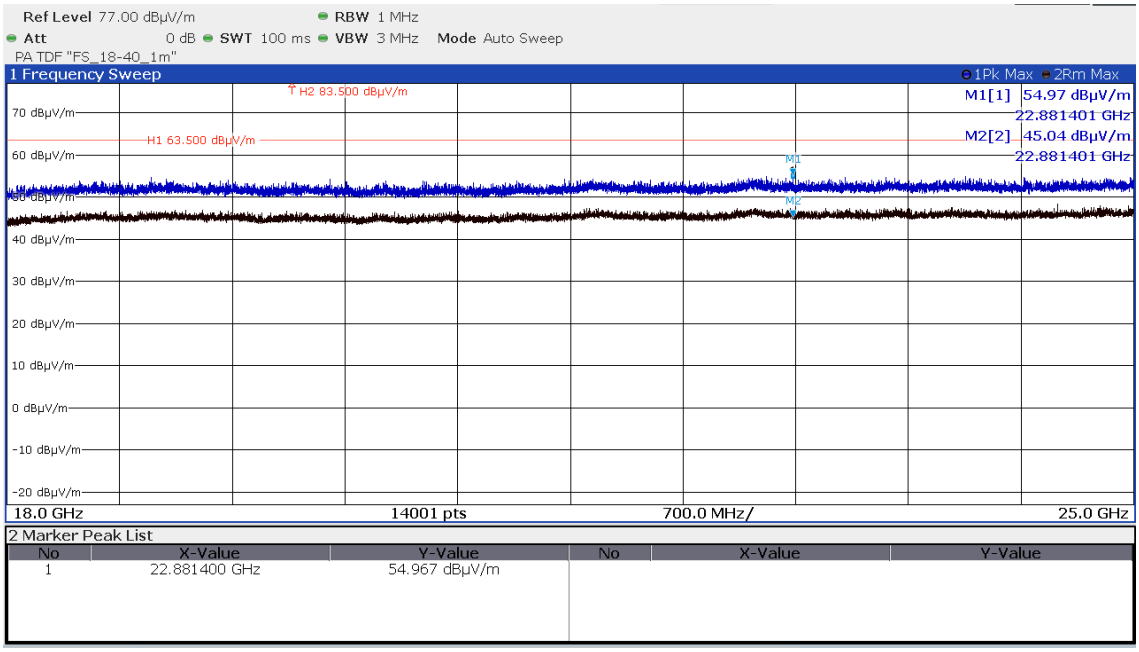
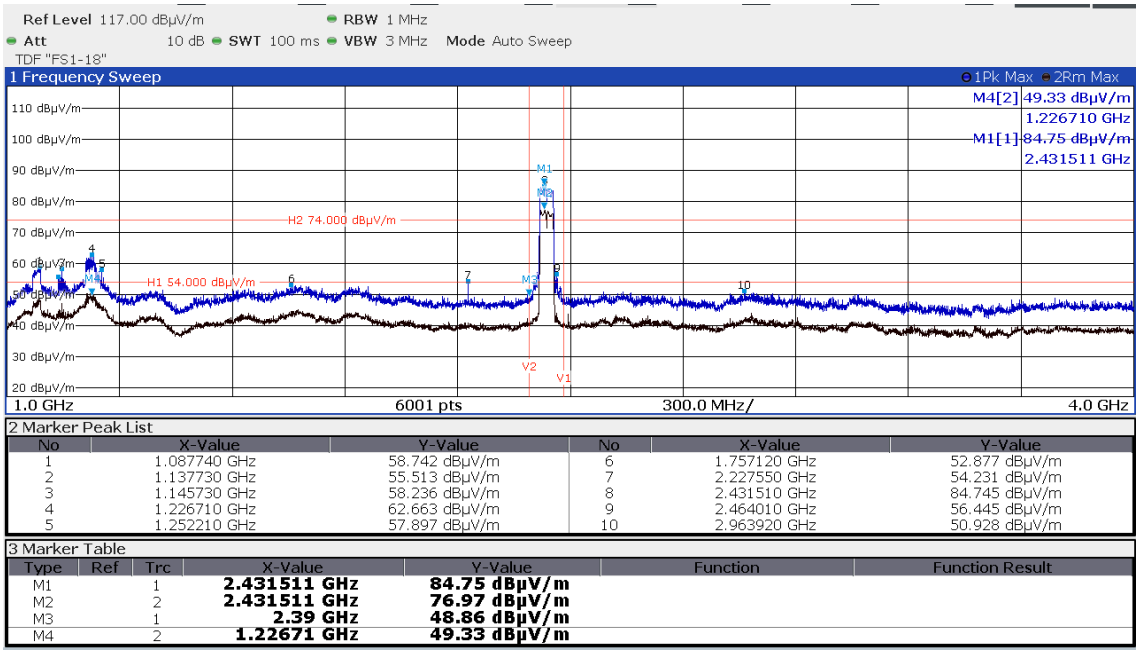
FCC ID: XO2SPB209A

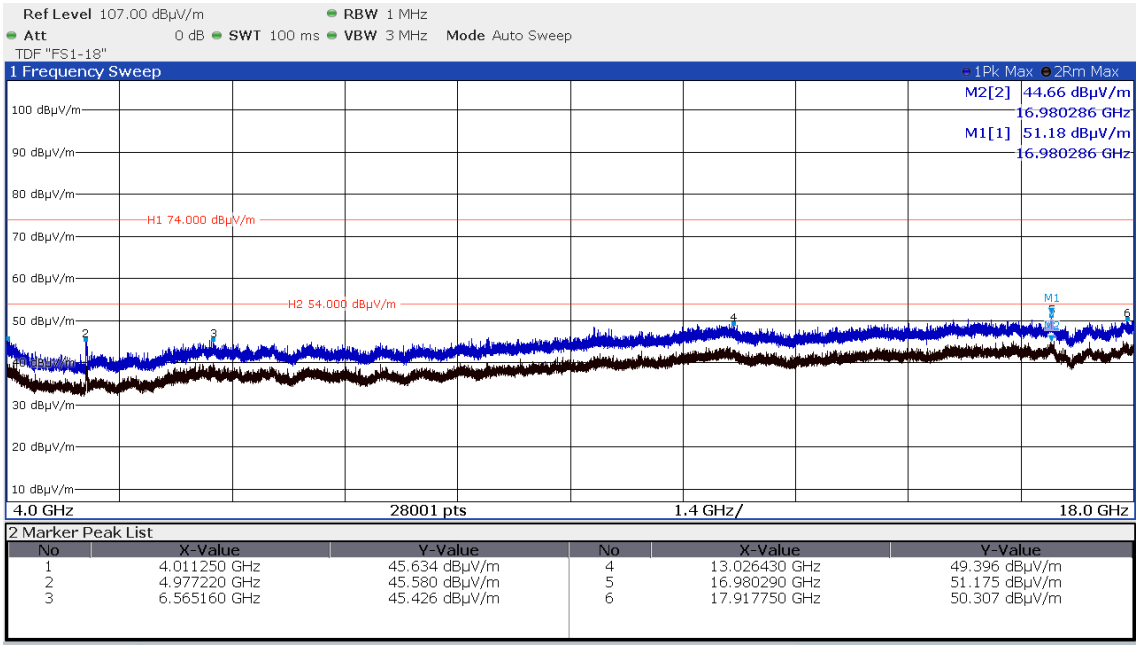


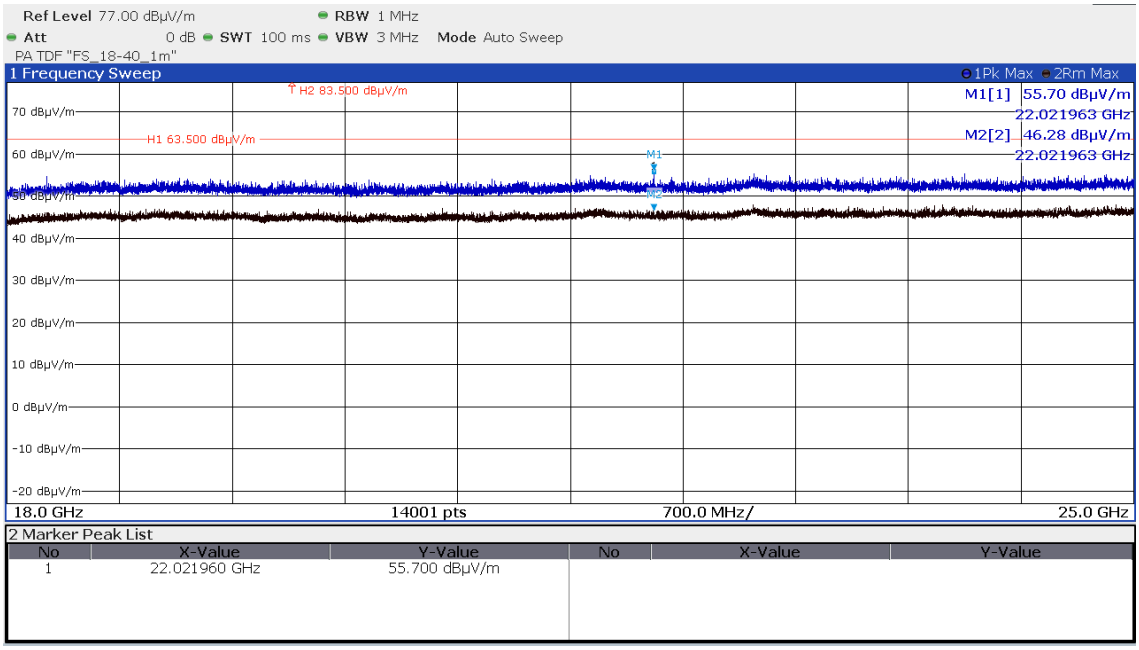
CH4up vertical



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.

FCC ID: XO2SPB209A





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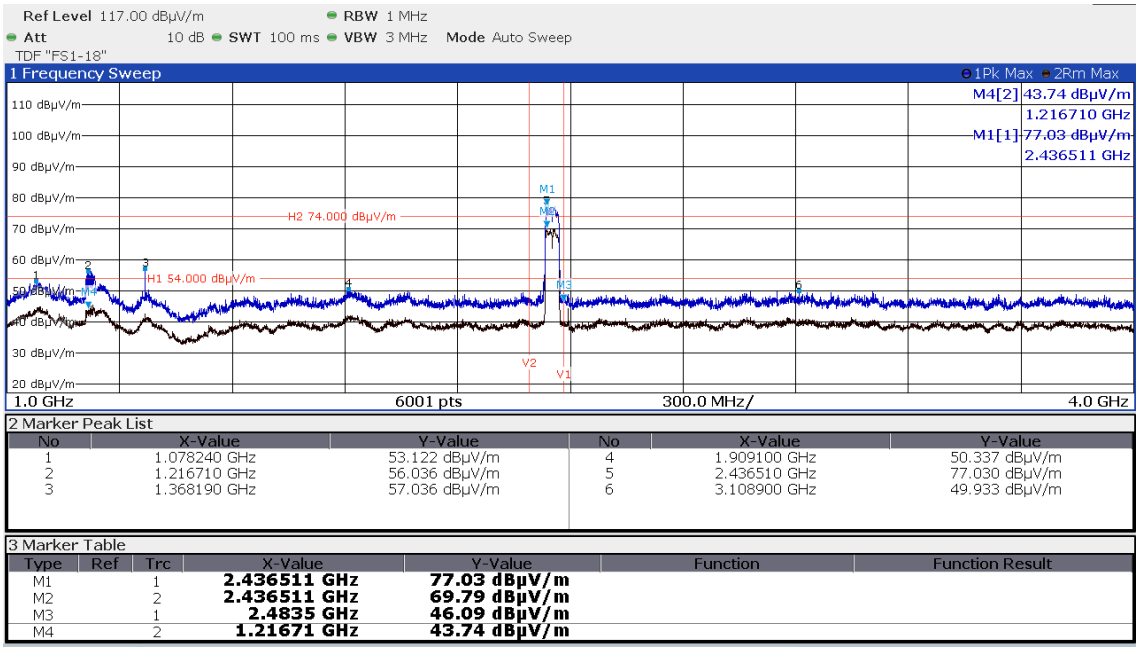
FCC ID: XO2SPB209A

CH7up horizontal

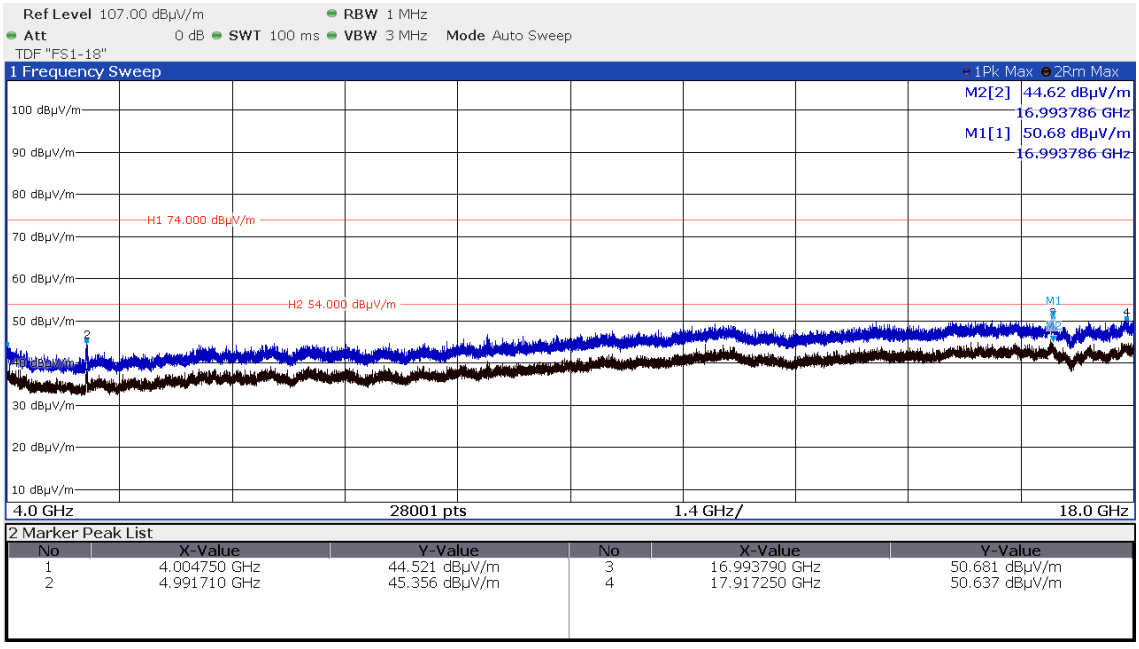


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.078240 GHz	53.122 dBµV/m	4	1.909100 GHz	50.337 dBµV/m
2	1.216710 GHz	56.036 dBµV/m	5	2.436510 GHz	77.030 dBµV/m
3	1.368190 GHz	57.036 dBµV/m	6	3.108900 GHz	49.933 dBµV/m

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.436511 GHz**	**77.03 dBµV/m**		
M2		2	**2.436511 GHz**	**69.79 dBµV/m**		
M3		1	**2.4835 GHz**	**46.09 dBµV/m**		
M4		2	**1.21671 GHz**	**43.74 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.004750 GHz	44.521 dBµV/m	3	16.993790 GHz	50.681 dBµV/m
2	4.991710 GHz	45.356 dBµV/m	4	17.917250 GHz	50.637 dBµV/m

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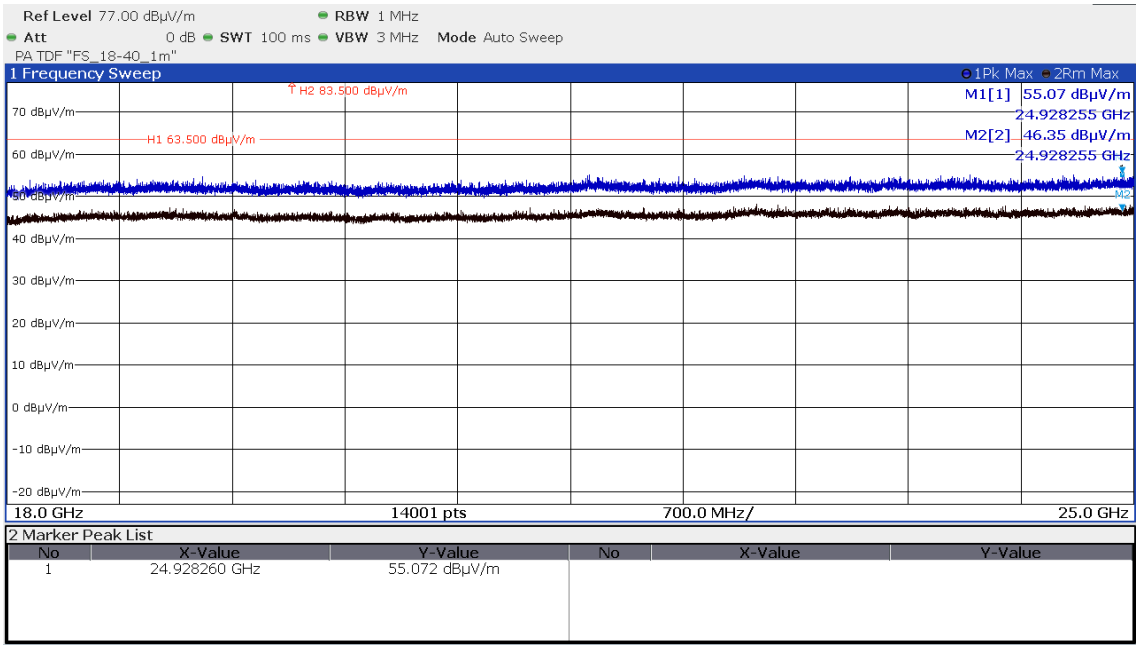
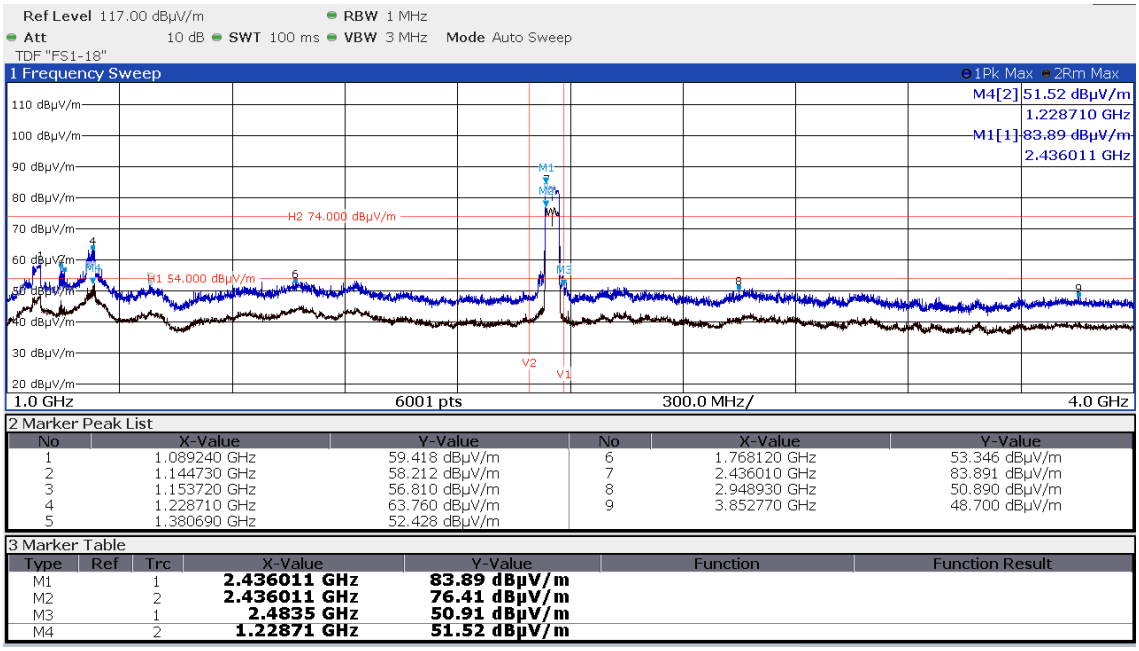
FCC ID: XO2SPB209A



CH7up vertical



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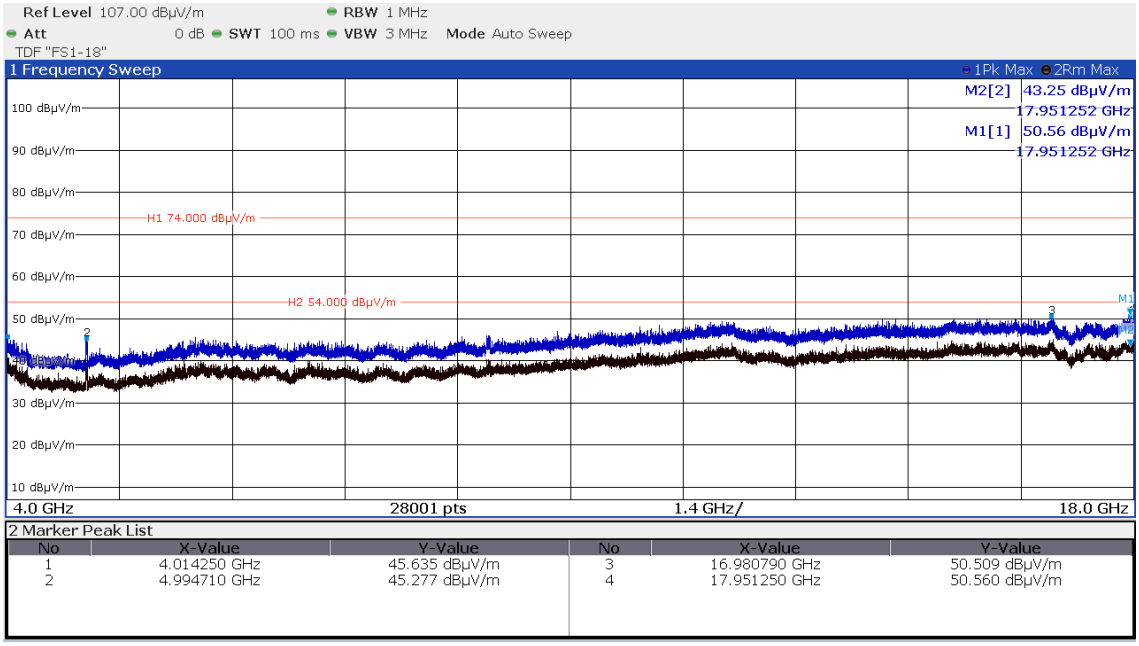
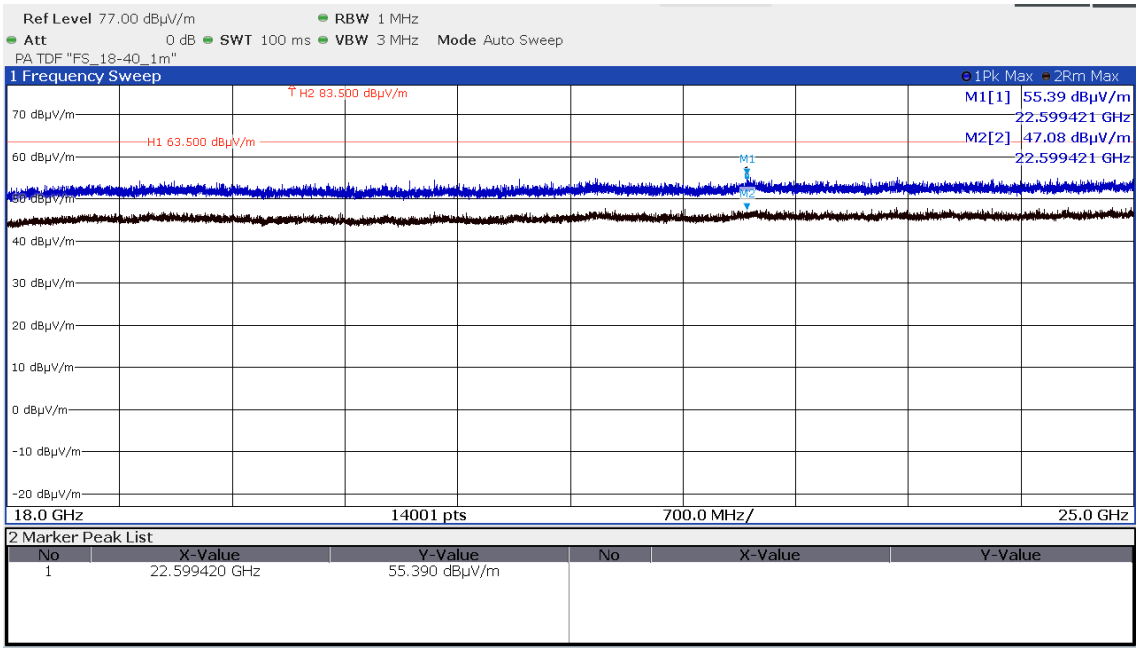
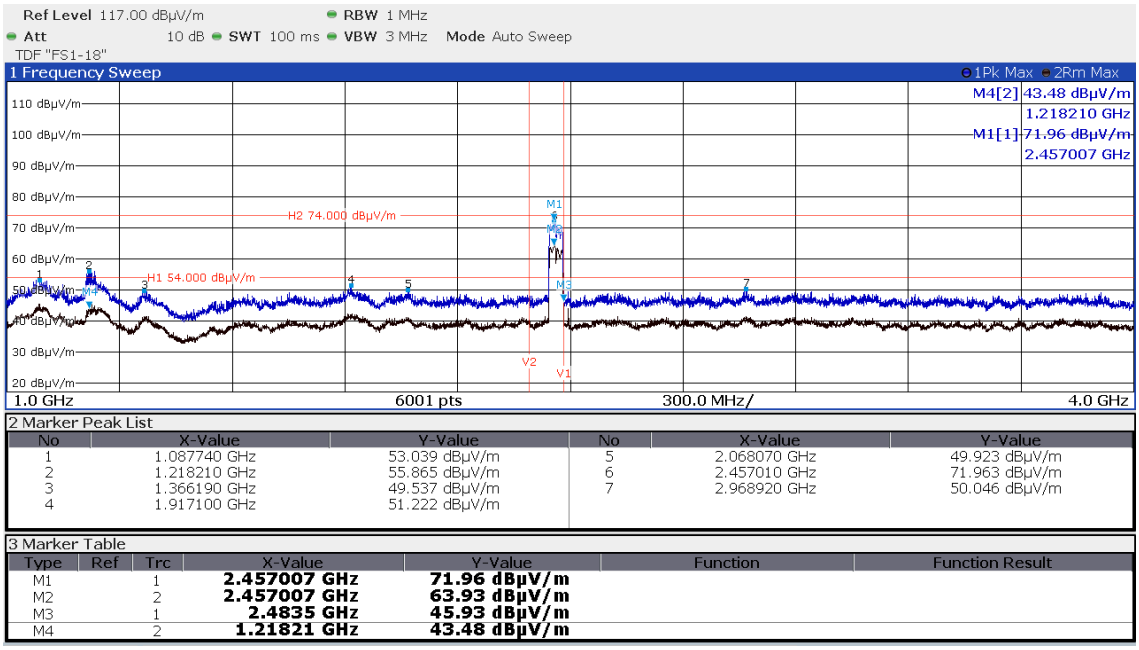




The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: XO2SPB209A

CH9up horizontal

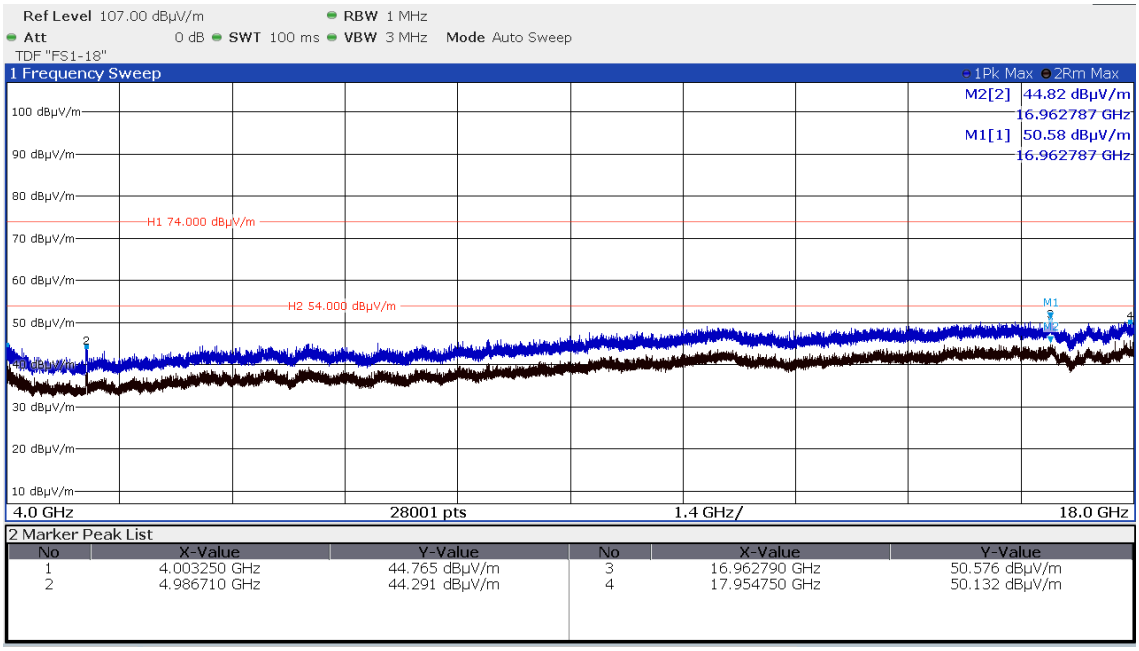


2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.087740 GHz	53.039 dBµV/m	5	2.068070 GHz	49.923 dBµV/m
2	1.218210 GHz	55.865 dBµV/m	6	2.457010 GHz	71.963 dBµV/m
3	1.366190 GHz	49.537 dBµV/m	7	2.968920 GHz	50.046 dBµV/m
4	1.917100 GHz	51.222 dBµV/m			

3 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**2.457007 GHz**	**71.96 dBµV/m**		
M2		2	**2.457007 GHz**	**63.93 dBµV/m**		
M3		1	**2.4835 GHz**	**45.93 dBµV/m**		
M4		2	**1.21821 GHz**	**43.48 dBµV/m**		



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.003250 GHz	44.765 dBµV/m	3	16.962790 GHz	50.576 dBµV/m
2	4.986710 GHz	44.291 dBµV/m	4	17.954750 GHz	50.132 dBµV/m

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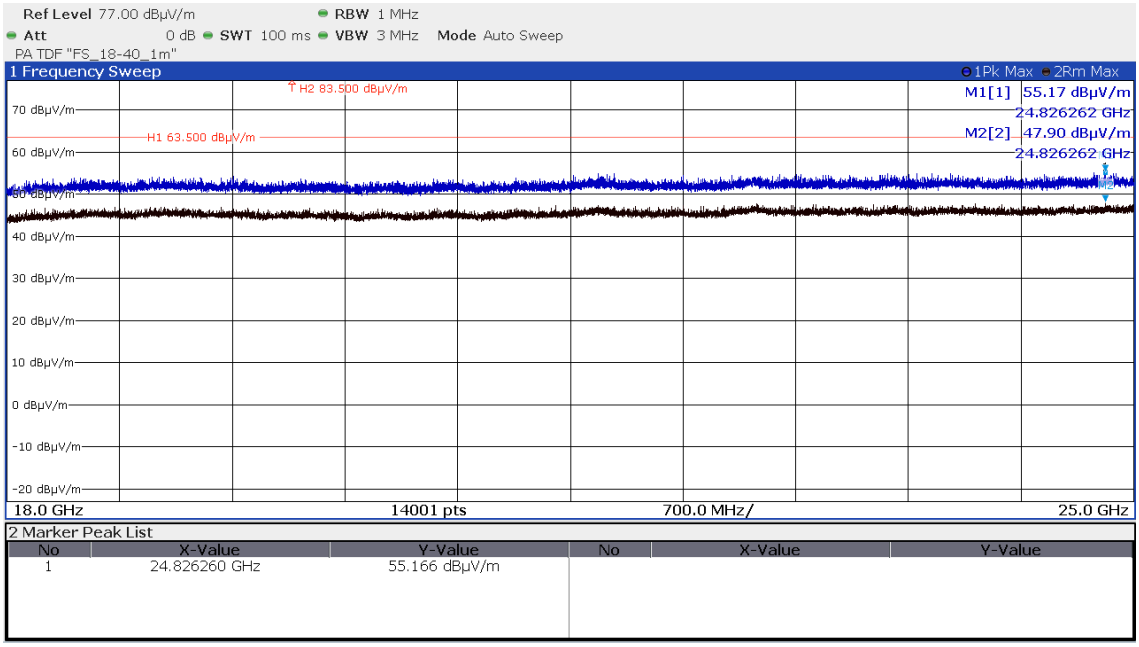
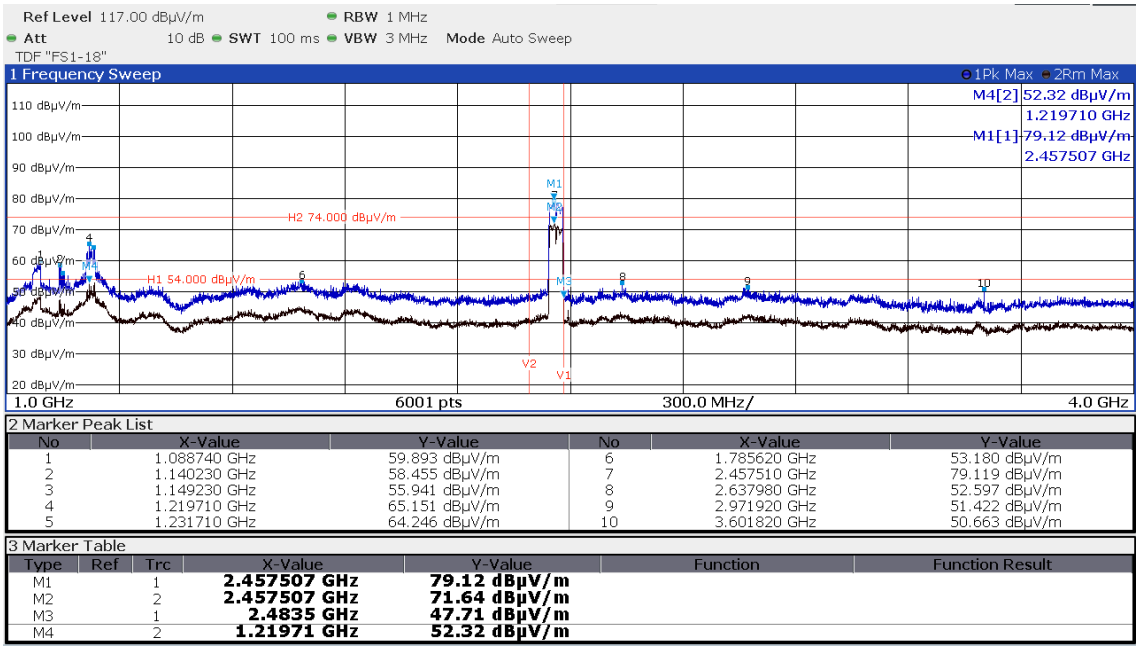
FCC ID: XO2SPB209A



CH9up vertical



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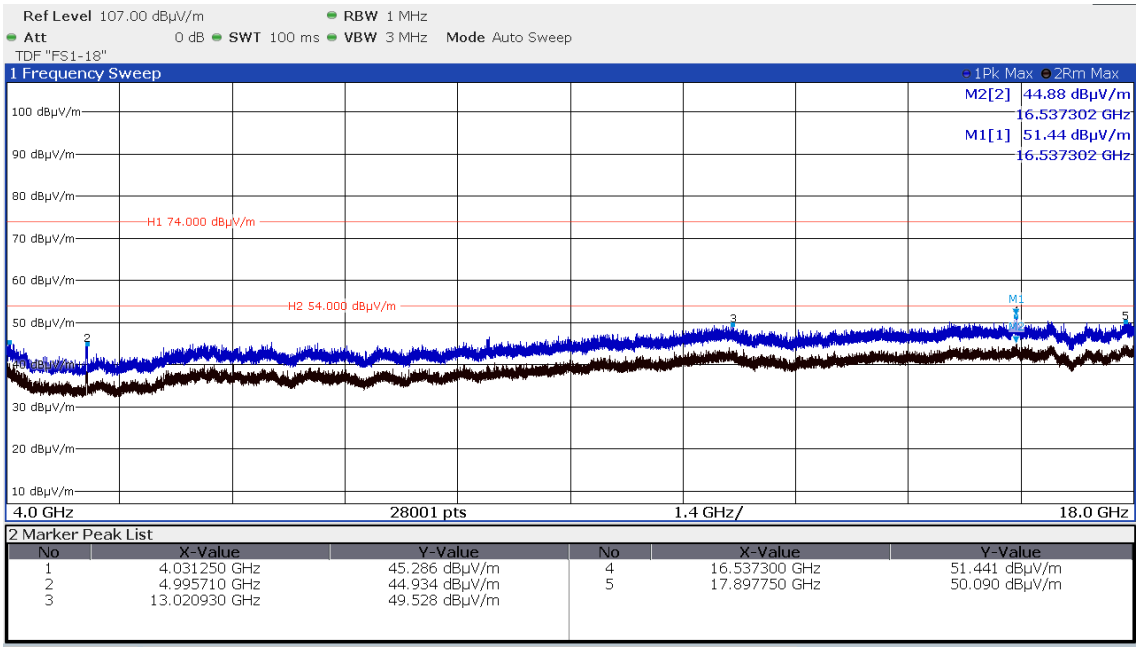

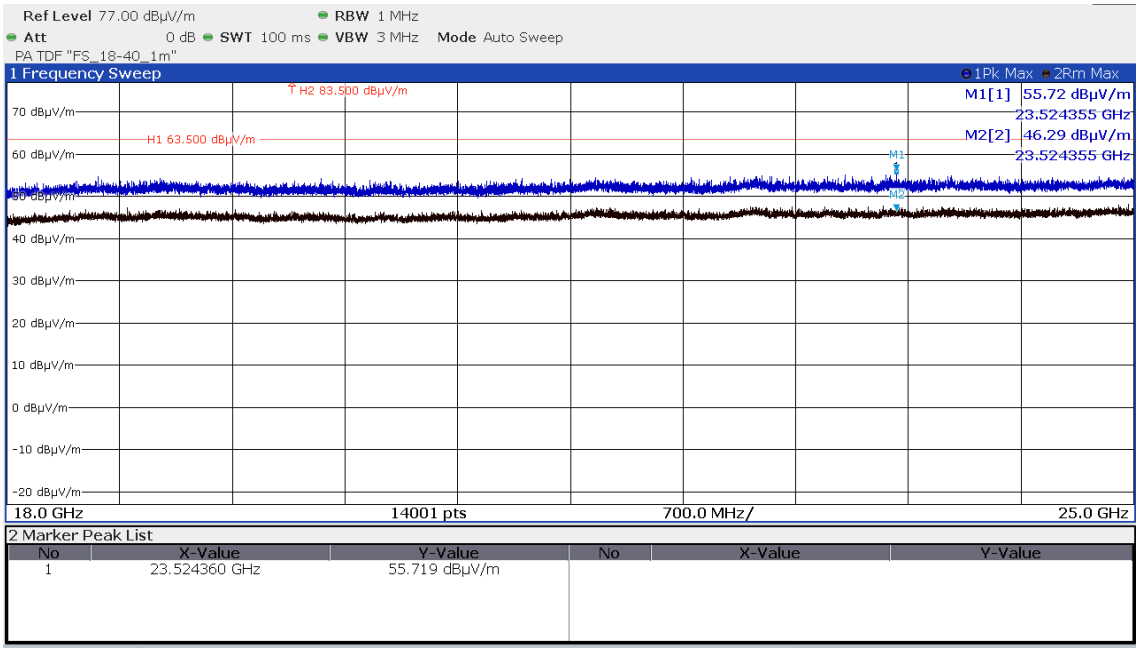

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FCC ID: XO2SPB209A

Radiated limits according to FCC Part 15 Section 15.209(a) for spurious emissions which fall in restricted bands:

Frequency	Field strength of spurious emissions		Measurement distance
(MHz)	(µV/m)	dB(µV/m)	(metres)
0.009-0.490	2400/F (kHz)		300
0.490-1.705	24000/F (kHz)		30
1.705-30	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

Restricted bands of operation:

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6

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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RSS-Gen, Table 6 – Restricted Frequency Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	12.57675 - 12.57725	399.9 - 410	7.250 - 7.750
0.495 - 0.505	13.36 - 13.41	608 - 614	8.025 – 8.500
2.1735 - 2.1905	16.42 - 16.423	960 - 1427	9.0 - 9.2
3.020 - 3.026	16.69475 - 16.69525	1435 - 1626.5	9.3 - 9.5
4.125 - 4.128	16.80425 - 16.80475	1645.5 - 1646.5	10.6 - 12.7
4.17725 - 4.17775	25.5 - 25.67	1660 - 1710	13.25 - 13.4
4.20725 - 4.20775	37.5 - 38.25	1718.8 - 1722.2	14.47 - 14.5
5.677 - 5.683	73 - 74.6	2200 - 2300	15.35 - 16.2
6.215 - 6.218	74.8 - 75.2	2310 - 2390	17.7 - 21.4
6.26775 - 6.26825	108 – 138	2483.5 - 2500	22.01 - 23.12
6.31175 - 6.31225	149.9 - 150.05	2655 - 2900	23.6 - 24.0
8.291 - 8.294	156.52475 - 156.52525	3260 – 3267	31.2 - 31.8
8.362 - 8.366	156.7 - 156.9	3332 - 3339	36.43 - 36.5
8.37625 - 8.38675	162.0125 - 167.17	3345.8 - 3358	Above 38.6
8.41425 - 8.41475	167.72 - 173.2	3500 - 4400	
12.29 - 12.293	240 – 285	4500 - 5150	
12.51975 - 12.52025	322 - 335.4	5350 - 5460	

The requirements are **FULFILLED.**

Remarks: The measurement was performed up to the 10th harmonic.

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5.2 Antenna application

5.2.1 Applicable standard

According to FCC Part 15C, Section 15.203:
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit that broken antennas can be replaced by the user, but the use of a standard antenna jack is prohibited.

5.2.2 Antenna requirements

According to FCC Part 15C, Section 15.247(b)(4):
The conducted output power limit specified in paragraph (b) of 15.247 is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from intentional radiator shall be reduced below the stated values in paragraph (b)(1), (b)(2) and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Defacto EIRP-Limit:

$$Pout = 30 – (Gx – 6);$$

Remarks: .

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.

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.
SER 2	ESVS 30	02-02/03-05-006	19/08/2020	19/08/2019		
	VULB 9168	02-02/24-05-005	19/07/2020	19/07/2019		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
SER 3	FSW43	02-02/11-15-001	02/04/2021	02/04/2020		
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	3117	02-02/24-05-009	06/06/2020	06/06/2019		
	BBHA 9170	02-02/24-05-014	12/06/2021	12/06/2018	14/01/2021	14/01/2020
	KMS102-0.2 m	02-02/50-11-020				
	18N-20	02-02/50-17-003				
	NMS111-GL200SC01-NMS11	02-02/50-17-012				
	BAM 4.5-P	02-02/50-17-024				
	NCD	02-02/50-17-025				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				

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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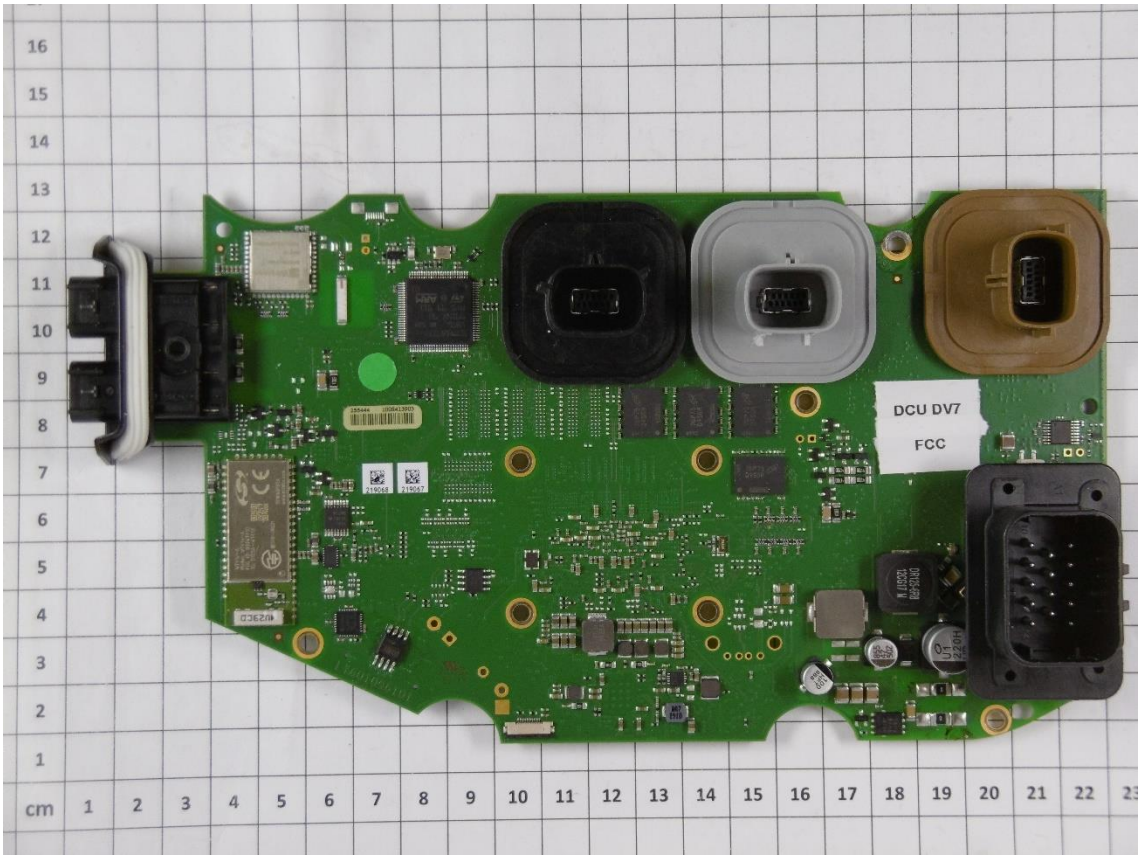
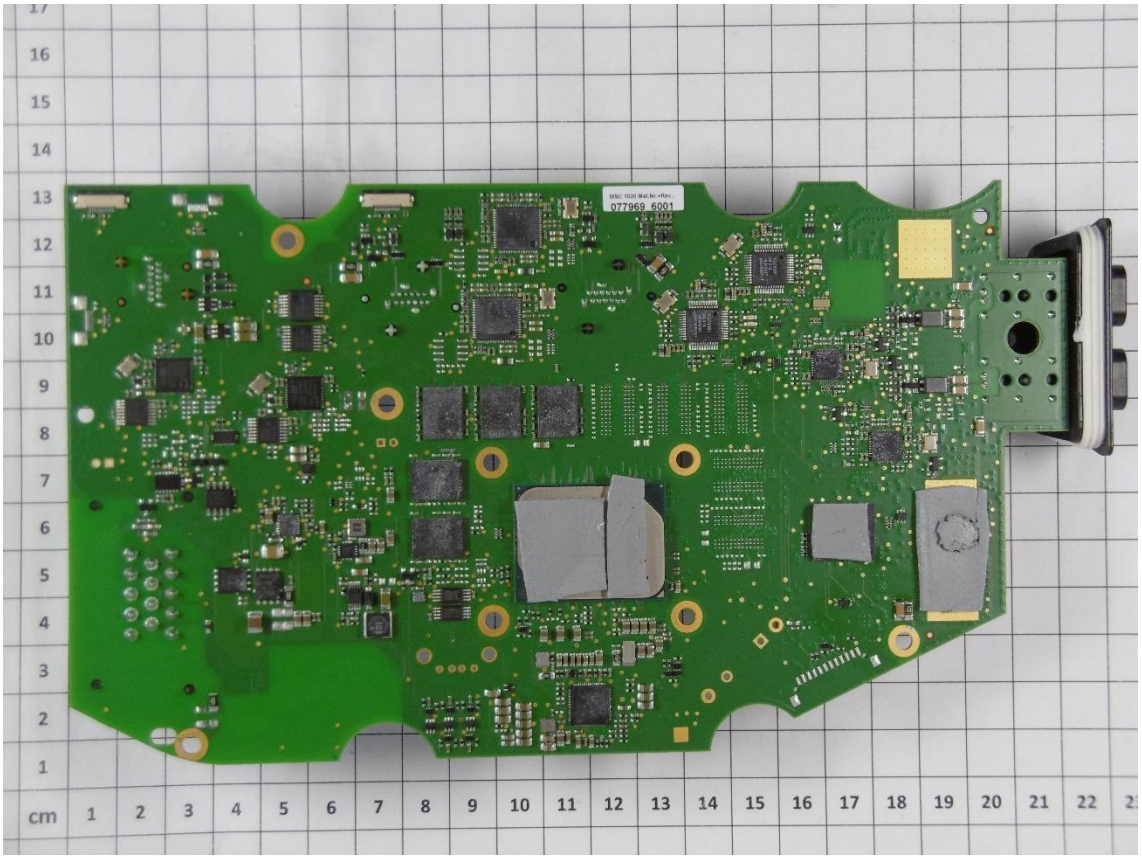
ATTACHMENT A





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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- End of attachment A -

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.