TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15.247

TEST REPORT

For

SZ DJI TECHNOLOGY CO., LTD

14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan, Shenzhen, Guangdong, China

FCC ID: SS3-T161906

Report Type:	**Product Type:**
Original Report	AGRAS T16

Report Number:	RDG190510002-00B
Report Date:	2019-06-14
Reviewed By:	Allen Qiao RF Supervisor
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	AGRAS T16
EUT Model:	3WWDZ-15A
Operation Frequency:	1.4M: 2403.5MHz~2477.5MHz 10M: 2405.5MHz~2477.5MHz
Output Power (Conducted):	1.4M: 27.56dBm 10M: 27.35dBm
Modulation Type:	OFDM
FCC ID:	SS3-T161906
Rated Input Voltage:	51.8Vdc from Battery
External Dimension:	1795mm(L)* 1510m(W)* 732mm(H)
Serial Number:	190510002
EUT Received Date:	2019.05.10

Objective

This report is prepared on behalf of ***SZ DJI TECHNOLOGY CO., LTD*** *in* accordance with Part 2, Subpart J, Part 15, Subparts A, and C of the Federal Communications Commission's rules

The tests were performed in order to determine the compliance of the EUT with FCC Rules Part 15-Subpart C, section 15.203, 15.205, 15.209, 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15E NII submissions with FCC ID: SS3-T161906.
Part of system grant with FCC ID: SS3-GL300N1801.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode.

The device employs 1.4MHz, 10MHz modes, and the EUT has 2 antennas, the system configure 1T1R depending on better performance by the system automatically recognizes.

For 1.4MHz modes, 38 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2403.5	20	2441.5
2	2405.5	…	…
…	…	…	…
…	…	…	…
…	…	37	2475.5
19	2439.5	38	2477.5

For 10MHz modes, the device employs 73 channels as below:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2405.5	38	2442.5
2	2406.5	…	…
…	…	…	…
…	…	…	…
…	…	73	2477.5
37	2441.5	/	/

For 1.4M, channel 1, 20 and 38 were tested, for 10M, channel 1, 37 and 73 were tested.

Equipment Modifications

No modification was made to the EUT tested.

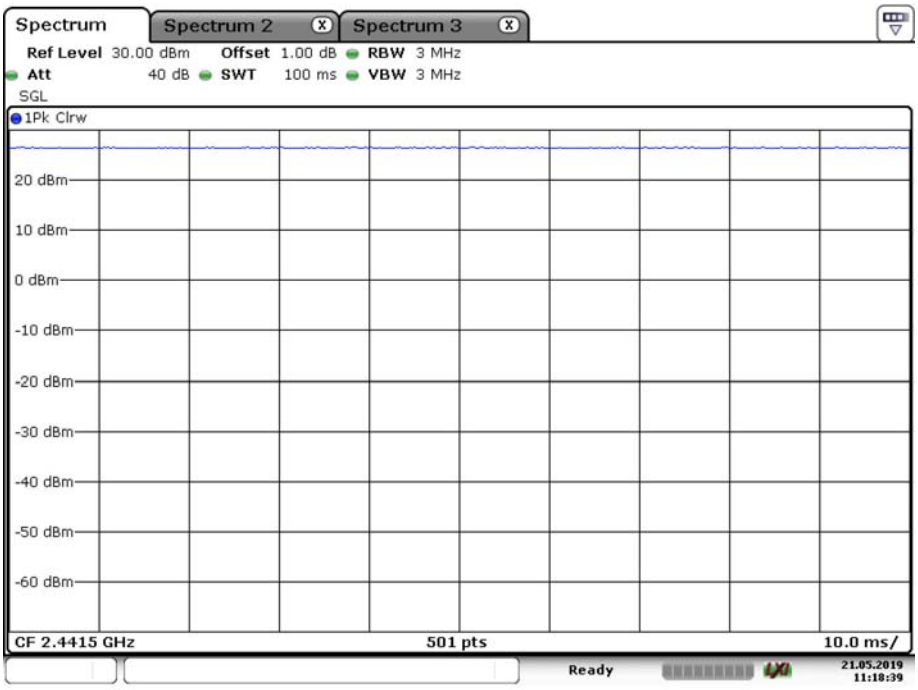
EUT Exercise Software

The software “OCUSYNC-DjiSdrConsole_V1.3.5.54.exe” was used for testing, which was provided by manufacturer. The maximum power with maximum duty cycle was configured as default setting, Per pretest the conducted output power, 10MHz mode’s power in difference power level, all test items performed at Low, Middle and High Channel, radiation emission test and output power were tested with additional channels according to the pretest output power test results.

The maximum duty cycle as following table:

Test mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
1.4MHz	100	100	100
10MHz	100	100	100

1.4MHz



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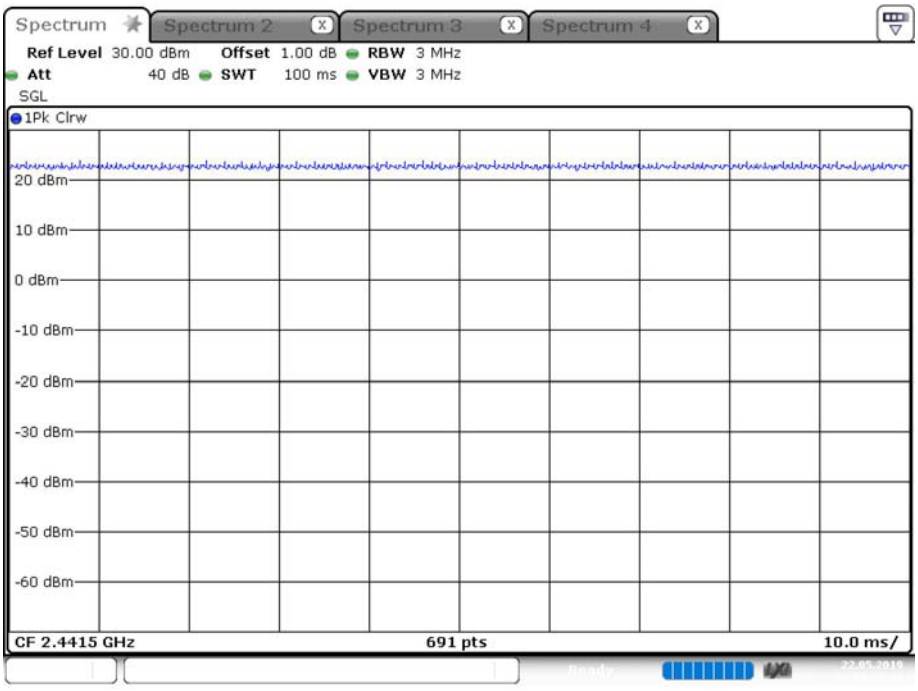
10MHz



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Local Support Equipment List and Details

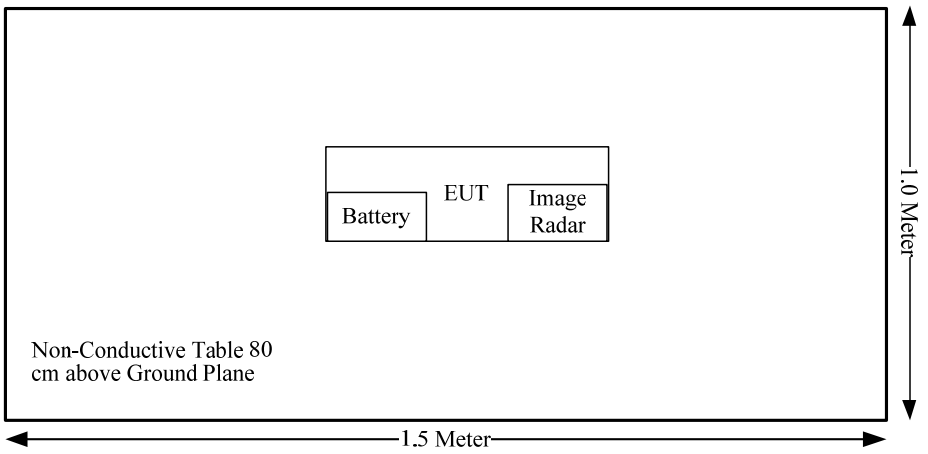
Manufacturer	Description	Model	Serial Number
DJI	Battery	AB2-17500mAh-51.8V	/
DJI	High-Precision DBF Imaging Radar	RD2418R	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
/	/	/	/	/	/

Block Diagram of Test Setup

Below 1GHz:



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliance
FCC§15.203,	Antenna Requirement	Compliance
FCC§15.207 (a)	AC Line Conducted Emissions	Not Applicable
FCC§15.205, §15.209, FCC §15.247(d)	Spurious Emissions	Compliance
FCC§15.247 (a)(2)	6 dB Bandwidth and 99% Occupied Bandwidth	Compliance
FCC§15.247(b)(3)	Maximum Conducted Output Power	Compliance
FCC§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
FCC§15.247(e)	Power Spectral Density	Compliance

Not Applicable: this device was powered by battery.

FCC §15.247 (i) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247(i)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Frequency Band	**Antenna Gain**		**Max. Target Power including Tolerance**		**Evaluation Distance (cm)**	**Power Density (W/m^2)**	**MPE Limit (W/m^2)**
	(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
2.4GHz Band	3	2	28	630.96	20.00	0.25	1.0
5.8GHz Band	3	2	23	199.53	20.00	0.08	1.0

Note: the Max. Target Power including Tolerance was declared by manufacturer.
The 2.4GHz band and 5.8GHz band can`t transmit simultaneously

Result: Compliance, The device meets MPE requirement for Devices Used by the General Public (Uncontrolled Environment) at distance ≥20 cm.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC§ 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 so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Information and Connector Construction

The EUT has 2 external antennas attached to the unit and the antenna gain is 3dBi which fulfill the requirement of the item. Please refer to the internal photos.

Result: Compliance.

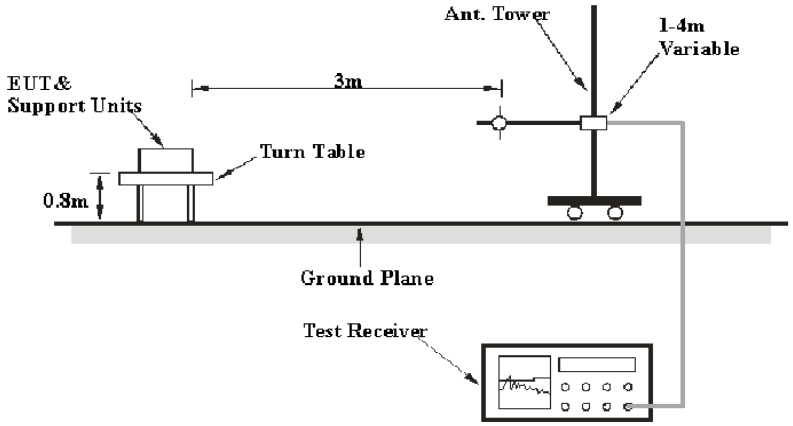
FCC §15.209, §15.205, §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

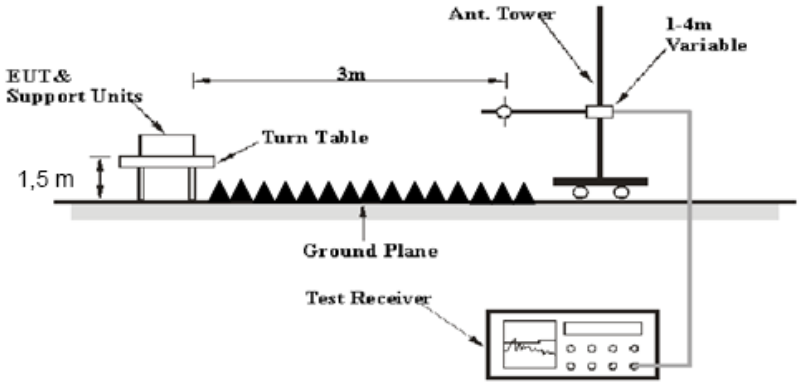
FCC §15.247 (d); §15.209; §15.205.

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site A for the range 30MHz to 1GHz and the 3 meters chamber B test site for above 1GHz, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30MHz-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 26.5GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Note: T is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit –Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2018-12-11	2019-12-11
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2017-01-05	2020-01-04
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2018-06-27	2019-06-27
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2018-06-27	2019-06-27
E-Microwave	Band-stop Filters	OBSF-2400-2483.5-S	OE01601525	2018-06-16	2019-06-16
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2018-06-16	2019-06-16

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

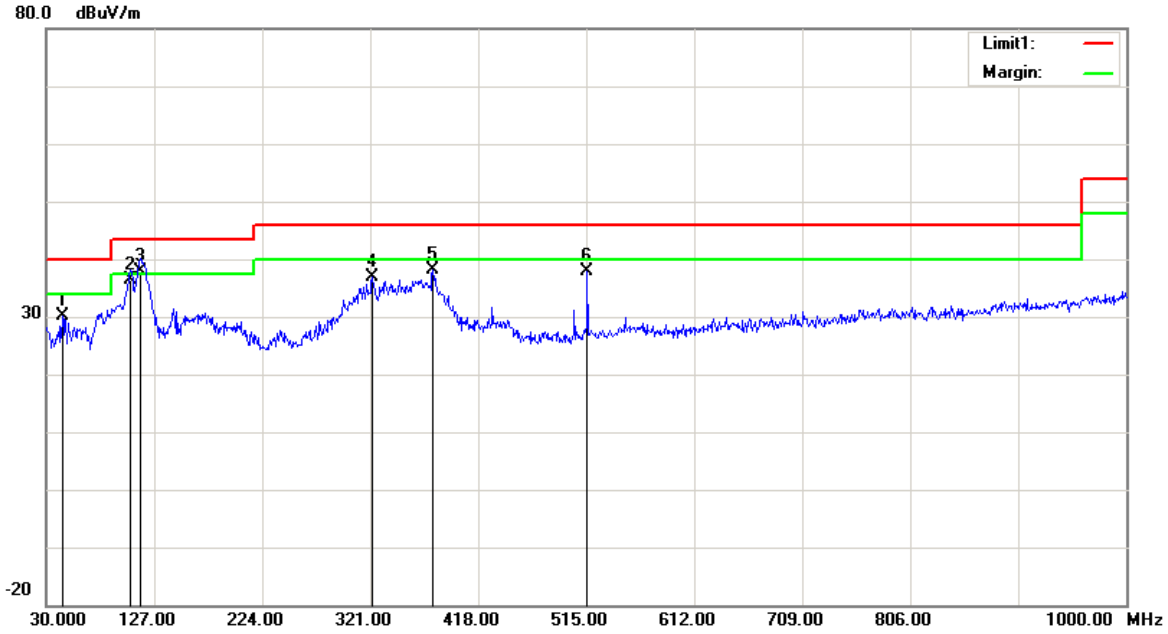
Temperature:	24.2~25.2°C
Relative Humidity:	52~57 %
ATM Pressure:	100.3~101.2 kPa

** The testing was performed by Tyler Pan and Lucy Lu from 2019-05-25 to 2019-05-30.*

Test Mode: Transmitting

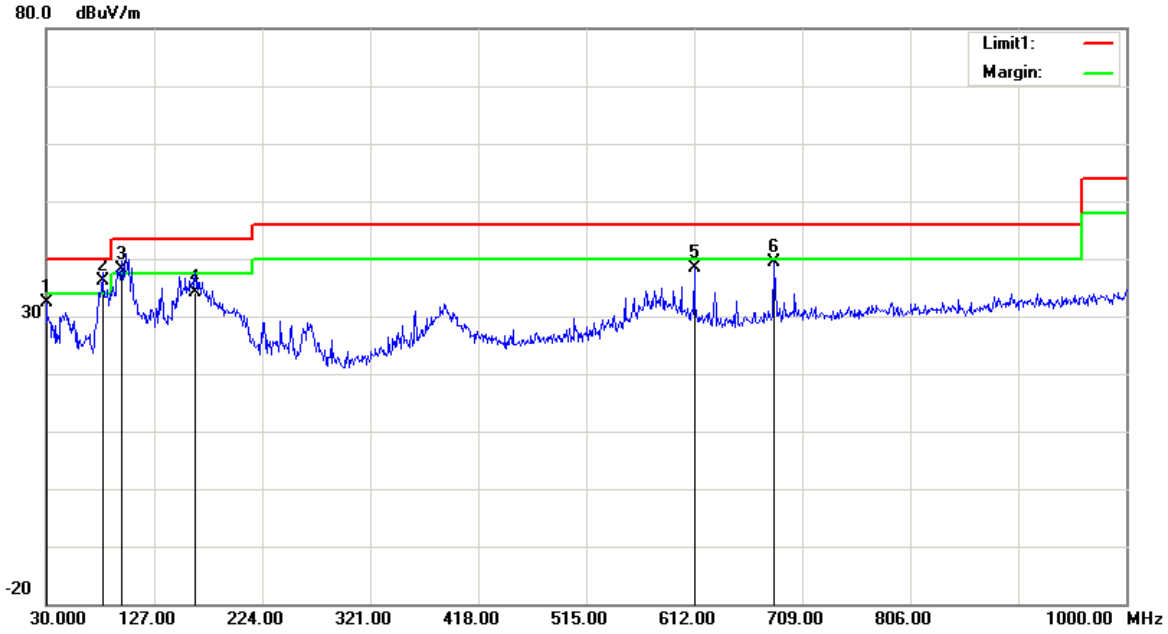
1) 30MHz-1GHz (*1.4MHz mode chain 1 middle channel was the worst)*:

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
44.5500	39.20	peak	-8.96	30.24	40.00	9.76
105.6600	43.60	QP	-7.32	36.28	43.50	7.22
114.3900	43.36	QP	-5.37	37.99	43.50	5.51
322.9400	40.35	peak	-3.38	36.97	46.00	9.03
377.2600	40.78	peak	-2.65	38.13	46.00	7.87
515.9700	38.02	peak	-0.13	37.89	46.00	8.11

Vertical:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.0000	30.56	peak	1.72	32.28	40.00	7.72
80.4400	47.30	QP	-11.24	36.06	40.00	3.94
97.9000	47.56	QP	-9.51	38.05	43.50	5.45
163.8600	40.32	QP	-6.16	34.16	43.50	9.34
612.0000	37.23	peak	1.18	38.41	46.00	7.59
683.7800	36.81	peak	2.67	39.48	46.00	6.52

2) 1-25GHz:

1.4MHz mode (Chain 1 was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2403.5 MHz									
2403.50	82.69	PK	H	28.11	1.80	0.00	112.60	N/A	N/A
2403.50	77.11	AV	H	28.11	1.80	0.00	107.02	N/A	N/A
2403.50	92.44	PK	V	28.11	1.80	0.00	122.35	N/A	N/A
2403.50	86.16	AV	V	28.11	1.80	0.00	116.07	N/A	N/A
2390.00	25.94	PK	V	28.08	1.80	0.00	55.82	74.00	18.18
2390.00	14.05	AV	V	28.08	1.80	0.00	43.93	54.00	10.07
4807.00	45.43	PK	V	32.91	3.17	37.20	44.31	74.00	29.69
4807.00	32.72	AV	V	32.91	3.17	37.20	31.60	54.00	22.40
7210.50	44.01	PK	V	35.75	4.81	37.24	47.33	74.00	26.67
7210.50	31.80	AV	V	35.75	4.81	37.24	35.12	54.00	18.88
Middle Channel: 2441.5 MHz									
2441.50	83.20	PK	H	28.18	1.82	0.00	113.20	N/A	N/A
2441.50	77.49	AV	H	28.18	1.82	0.00	107.49	N/A	N/A
2441.50	93.10	PK	V	28.18	1.82	0.00	123.10	N/A	N/A
2441.50	87.74	AV	V	28.18	1.82	0.00	117.74	N/A	N/A
4883.00	46.49	PK	V	33.07	3.28	37.21	45.63	74.00	28.37
4883.00	33.81	AV	V	33.07	3.28	37.21	32.95	54.00	21.05
7324.50	44.68	PK	V	36.04	4.62	37.38	47.96	74.00	26.04
7324.50	31.69	AV	V	36.04	4.62	37.38	34.97	54.00	19.03
High Channel: 2477.5 MHz									
2477.50	81.99	PK	H	28.26	1.84	0.00	112.09	N/A	N/A
2477.50	76.18	AV	H	28.26	1.84	0.00	106.28	N/A	N/A
2477.50	90.45	PK	V	28.26	1.84	0.00	120.55	N/A	N/A
2477.50	84.00	AV	V	28.26	1.84	0.00	114.10	N/A	N/A
2483.50	34.51	PK	V	28.27	1.84	0.00	64.62	74.00	9.38
2483.50	17.34	AV	V	28.27	1.84	0.00	47.45	54.00	6.55
4955.00	46.15	PK	V	33.21	3.23	37.24	45.35	74.00	28.65
4955.00	33.49	AV	V	33.21	3.23	37.24	32.69	54.00	21.31
7432.50	43.16	PK	V	36.32	4.43	37.51	46.40	74.00	27.60
7432.50	31.05	AV	V	36.32	4.43	37.51	34.29	54.00	19.71

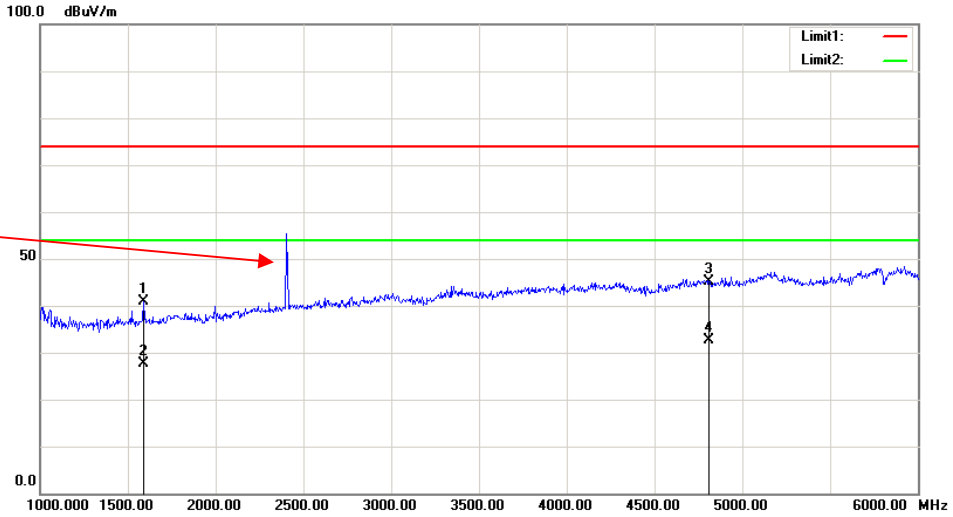
10MHz mode (Chain 1 was the worst):

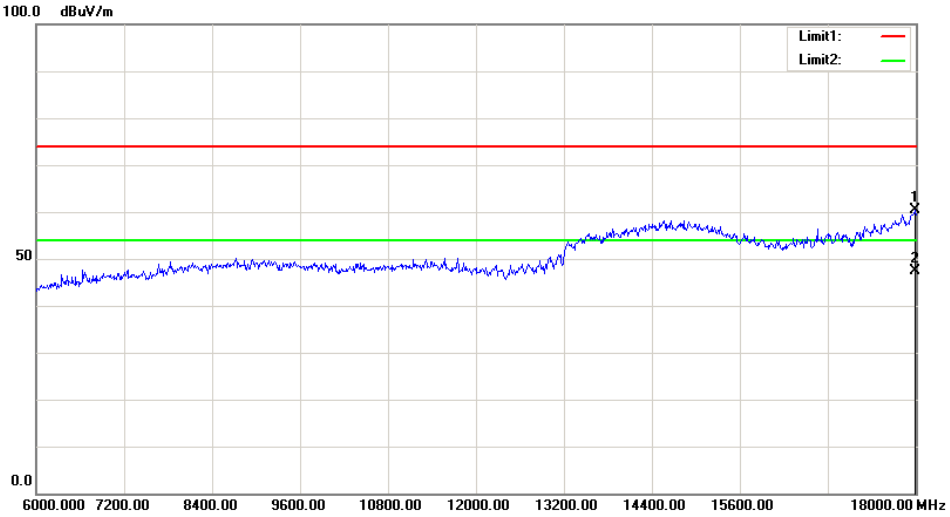
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2405.5 MHz									
2405.50	69.46	PK	H	28.11	1.80	0.00	99.37	N/A	N/A
2405.50	58.41	AV	H	28.11	1.80	0.00	88.32	N/A	N/A
2405.50	79.74	PK	V	28.11	1.80	0.00	109.65	N/A	N/A
2405.50	68.12	AV	V	28.11	1.80	0.00	98.03	N/A	N/A
2390.00	35.33	PK	V	28.08	1.80	0.00	65.21	74.00	8.79
2390.00	14.33	AV	V	28.08	1.80	0.00	44.21	54.00	9.79
4811.00	45.69	PK	V	32.92	3.18	37.20	44.59	74.00	29.41
4811.00	32.79	AV	V	32.92	3.18	37.20	31.69	54.00	22.31
7216.50	44.29	PK	V	35.76	4.80	37.24	47.61	74.00	26.39
7216.50	31.48	AV	V	35.76	4.80	37.24	34.80	54.00	19.20
2409.5 MHz									
2409.50	75.19	PK	H	28.12	1.80	0.00	105.11	N/A	N/A
2409.50	64.04	AV	H	28.12	1.80	0.00	93.96	N/A	N/A
2409.50	82.34	PK	V	28.12	1.80	0.00	112.26	N/A	N/A
2409.50	70.91	AV	V	28.12	1.80	0.00	100.83	N/A	N/A
2390.00	32.77	PK	V	28.08	1.80	0.00	62.65	74.00	11.35
2390.00	14.66	AV	V	28.08	1.80	0.00	44.54	54.00	9.46
4819.00	45.94	PK	V	32.94	3.19	37.20	44.87	74.00	29.13
4819.00	33.25	AV	V	32.94	3.19	37.20	32.18	54.00	21.82
7228.50	44.16	PK	V	35.79	4.78	37.26	47.47	74.00	26.53
7228.50	31.27	AV	V	35.79	4.78	37.26	34.58	54.00	19.42
2441.5 MHz									
2441.50	79.86	PK	H	28.18	1.82	0.00	109.86	N/A	N/A
2441.50	68.31	AV	H	28.18	1.82	0.00	98.31	N/A	N/A
2441.50	87.12	PK	V	28.18	1.82	0.00	117.12	N/A	N/A
2441.50	75.88	AV	V	28.18	1.82	0.00	105.88	N/A	N/A
4883.00	46.16	PK	V	33.07	3.28	37.21	45.30	74.00	28.70
4883.00	33.15	AV	V	33.07	3.28	37.21	32.29	54.00	21.71
7324.50	43.69	PK	V	36.04	4.62	37.38	46.97	74.00	27.03
7324.50	30.74	AV	V	36.04	4.62	37.38	34.02	54.00	19.98
2466.5 MHz									
2466.50	74.64	PK	H	28.23	1.83	0.00	104.70	N/A	N/A
2466.50	63.86	AV	H	28.23	1.83	0.00	93.92	N/A	N/A
2466.50	80.96	PK	V	28.23	1.83	0.00	111.02	N/A	N/A
2466.50	67.54	AV	V	28.23	1.83	0.00	97.60	N/A	N/A
4933.00	45.62	PK	V	33.17	3.26	37.23	44.82	74.00	29.18
4933.00	32.76	AV	V	33.17	3.26	37.23	31.96	54.00	22.04
7399.50	44.54	PK	V	36.24	4.48	37.47	47.79	74.00	26.21
7399.50	31.59	AV	V	36.24	4.48	37.47	34.84	54.00	19.16
2469.5 MHz									
2469.50	71.26	PK	H	28.24	1.83	0.00	101.33	N/A	N/A
2469.50	59.39	AV	H	28.24	1.83	0.00	89.46	N/A	N/A
2469.50	77.46	PK	V	28.24	1.83	0.00	107.53	N/A	N/A
2469.50	67.32	AV	V	28.24	1.83	0.00	97.39	N/A	N/A
4939.00	45.61	PK	V	33.18	3.25	37.23	44.81	74.00	29.19
4939.00	32.69	AV	V	33.18	3.25	37.23	31.89	54.00	22.11
7408.50	43.59	PK	V	36.26	4.47	37.48	46.84	74.00	27.16
7408.50	31.15	AV	V	36.26	4.47	37.48	34.40	54.00	19.60

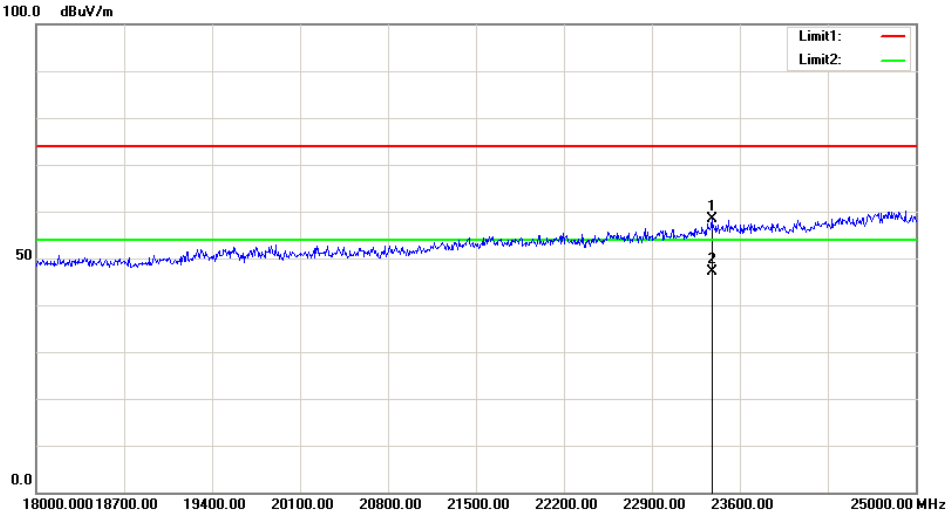
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)					
2470.5 MHz									
2470.50	67.49	PK	H	28.24	1.84	0.00	97.57	N/A	N/A
2470.50	56.26	AV	H	28.24	1.84	0.00	86.34	N/A	N/A
2470.50	74.43	PK	V	28.24	1.84	0.00	104.51	N/A	N/A
2470.50	63.29	AV	V	28.24	1.84	0.00	93.37	N/A	N/A
4941.00	45.26	PK	V	33.18	3.25	37.23	44.46	74.00	29.54
4941.00	32.67	AV	V	33.18	3.25	37.23	31.87	54.00	22.13
7411.50	44.06	PK	V	36.27	4.46	37.49	47.30	74.00	26.70
7411.50	31.29	AV	V	36.27	4.46	37.49	34.53	54.00	19.47
2471.5 MHz									
2471.50	67.70	PK	H	28.24	1.84	0.00	97.78	N/A	N/A
2471.50	56.81	AV	H	28.24	1.84	0.00	86.89	N/A	N/A
2471.50	74.04	PK	V	28.24	1.84	0.00	104.12	N/A	N/A
2471.50	62.49	AV	V	28.24	1.84	0.00	92.57	N/A	N/A
4943.00	45.26	PK	V	33.19	3.25	37.24	44.46	74.00	29.54
4943.00	32.19	AV	V	33.19	3.25	37.24	31.39	54.00	22.61
7414.50	43.90	PK	V	36.28	4.46	37.49	47.15	74.00	26.85
7414.50	31.86	AV	V	36.28	4.46	37.49	35.11	54.00	18.89
2473.5 MHz									
2473.50	63.90	PK	H	28.25	1.84	0.00	93.99	N/A	N/A
2473.50	52.11	AV	H	28.25	1.84	0.00	82.20	N/A	N/A
2473.50	70.86	PK	V	28.25	1.84	0.00	100.95	N/A	N/A
2473.50	58.49	AV	V	28.25	1.84	0.00	88.58	N/A	N/A
2483.50	26.92	PK	V	28.27	1.84	0.00	57.03	74.00	16.97
2483.50	14.95	AV	V	28.27	1.84	0.00	45.06	54.00	8.94
4947.00	45.60	PK	V	33.19	3.24	37.24	44.79	74.00	29.21
4947.00	32.65	AV	V	33.19	3.24	37.24	31.84	54.00	22.16
7420.50	43.79	PK	V	36.29	4.45	37.50	47.03	74.00	26.97
7420.50	30.46	AV	V	36.29	4.45	37.50	33.70	54.00	20.30
2476.5 MHz									
2476.50	61.29	PK	H	28.25	1.84	0.00	91.38	N/A	N/A
2476.50	50.13	AV	H	28.25	1.84	0.00	80.22	N/A	N/A
2476.50	68.05	PK	V	28.25	1.84	0.00	98.14	N/A	N/A
2476.50	57.05	AV	V	28.25	1.84	0.00	87.14	N/A	N/A
2483.50	25.76	PK	V	28.27	1.84	0.00	55.87	74.00	18.13
2483.50	15.08	AV	V	28.27	1.84	0.00	45.19	54.00	8.81
4953.00	45.16	PK	V	33.21	3.24	37.24	44.37	74.00	29.63
4953.00	32.42	AV	V	33.21	3.24	37.24	31.63	54.00	22.37
7429.50	44.08	PK	V	36.32	4.43	37.51	47.32	74.00	26.68
7429.50	31.19	AV	V	36.32	4.43	37.51	34.43	54.00	19.57
2477.5 MHz									
2477.50	43.66	PK	H	28.26	1.84	0.00	73.76	N/A	N/A
2477.50	33.06	AV	H	28.26	1.84	0.00	63.16	N/A	N/A
2477.50	52.43	PK	V	28.26	1.84	0.00	82.53	N/A	N/A
2477.50	41.65	AV	V	28.26	1.84	0.00	71.75	N/A	N/A
2483.50	26.58	PK	V	28.27	1.84	0.00	56.69	74.00	17.31
2483.50	15.49	AV	V	28.27	1.84	0.00	45.60	54.00	8.40
4955.00	44.26	PK	V	33.21	3.23	37.24	43.46	74.00	30.54
4955.00	31.59	AV	V	33.21	3.23	37.24	30.79	54.00	23.21
7432.50	44.16	PK	V	36.32	4.43	37.51	47.40	74.00	26.60
7432.50	31.65	AV	V	36.32	4.43	37.51	34.89	54.00	19.11

Worst plots (*1.4MHz mode chain 1 middle channel was the worst***)**
Horizontal

Fundamental Test with Band Rejection Filter

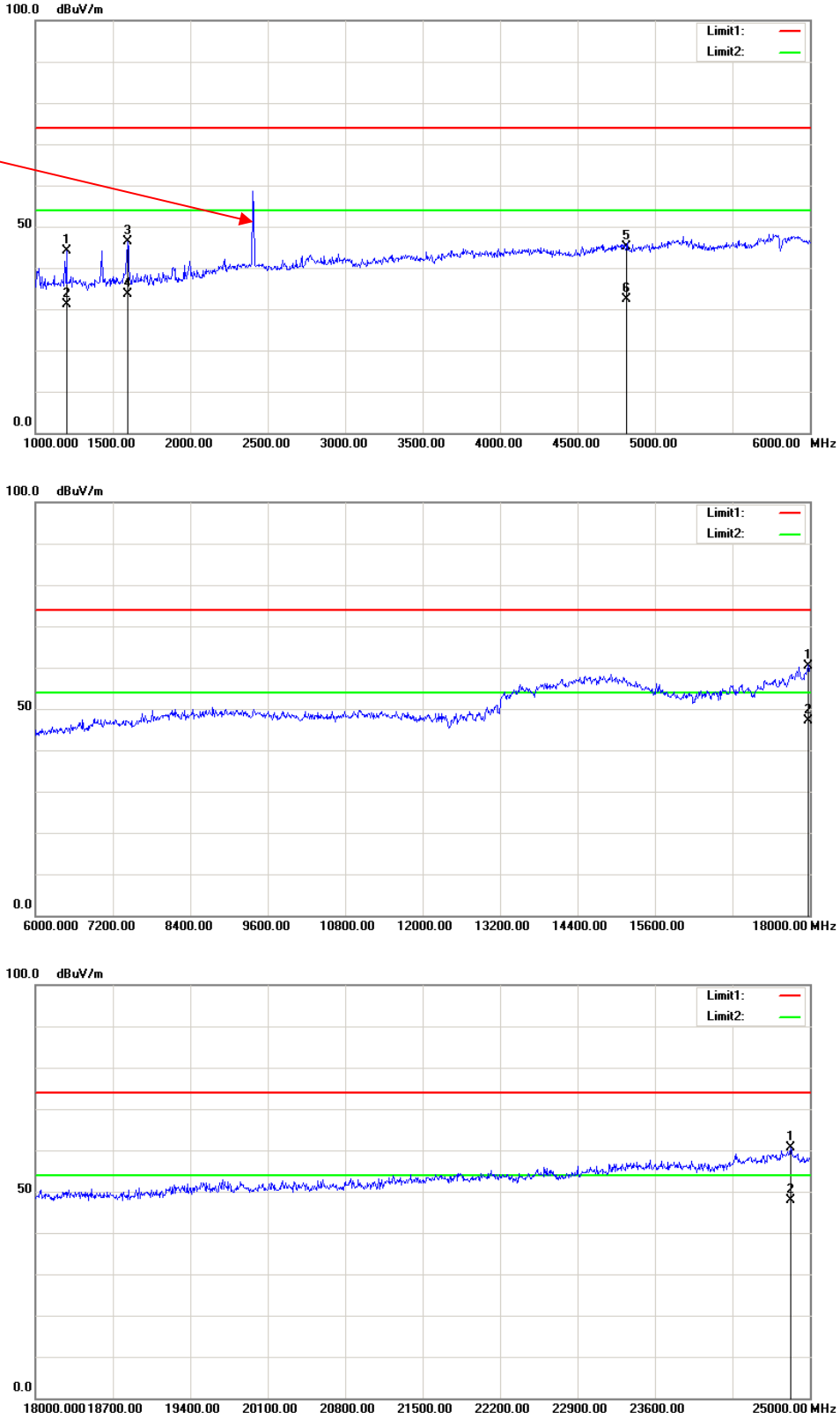






Vertical

Fundamental Test with Band Rejection Filter



FCC §15.247(a) (2)–6 dB EMISSION BANDWIDTH

Applicable Standard

According to FCC §15.247(a) (2)

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

6dB bandwidth test:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2019-01-09	2020-01-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	2019-05-06	2020-05-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	28.4~28.6 °C
Relative Humidity:	51~55 %
ATM Pressure:	100.4~100.7 kPa

** The testing was performed by Corrie He on from 2019.05.21-2019.05.22.*

Test Mode: Transmitting

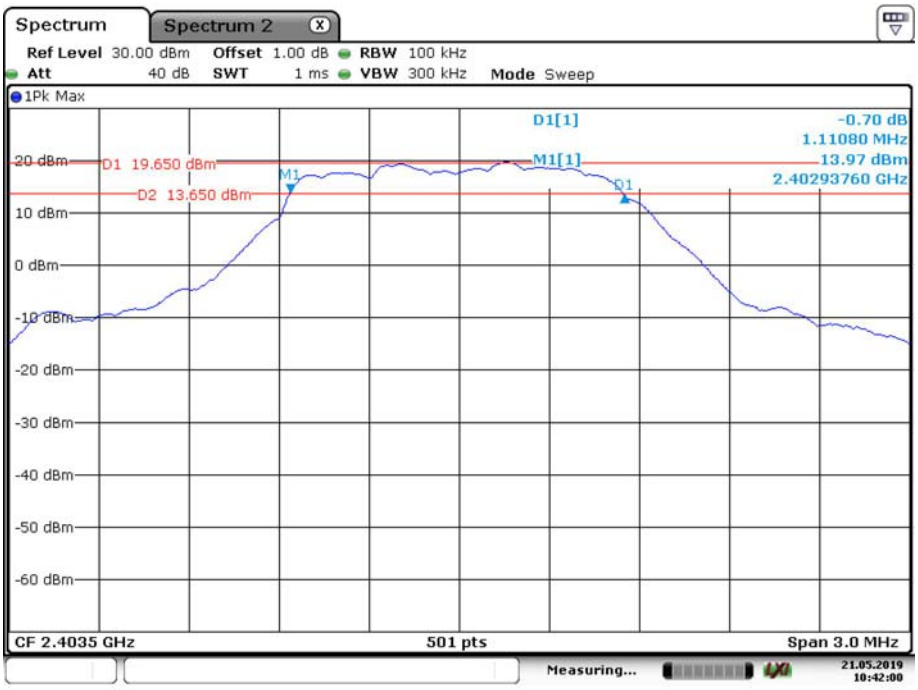
Test Result: Compliance. Please refer to the following table and plots

Test only performed at chain 0

Test mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
1.4MHz	Low	2403.5	1.111	≥0.5
	Middle	2441.5	1.103	≥0.5
	High	2477.5	1.108	≥0.5
10MHz	Low	2405.5	9.030	≥0.5
	Middle	2441.5	9.030	≥0.5
	High	2477.5	9.030	≥0.5

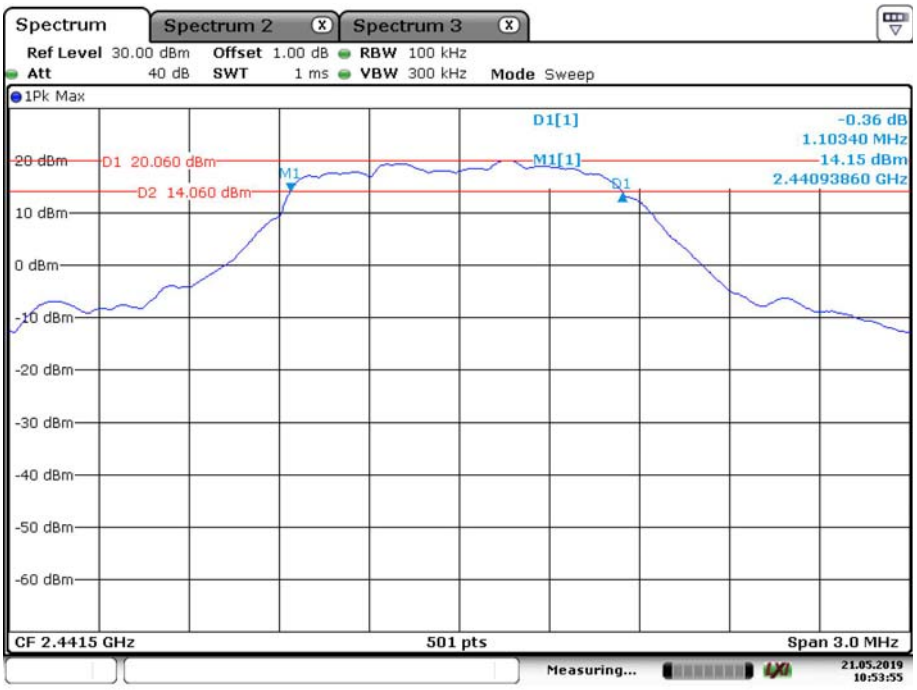
6dB bandwidth:

1.4M Low Channel



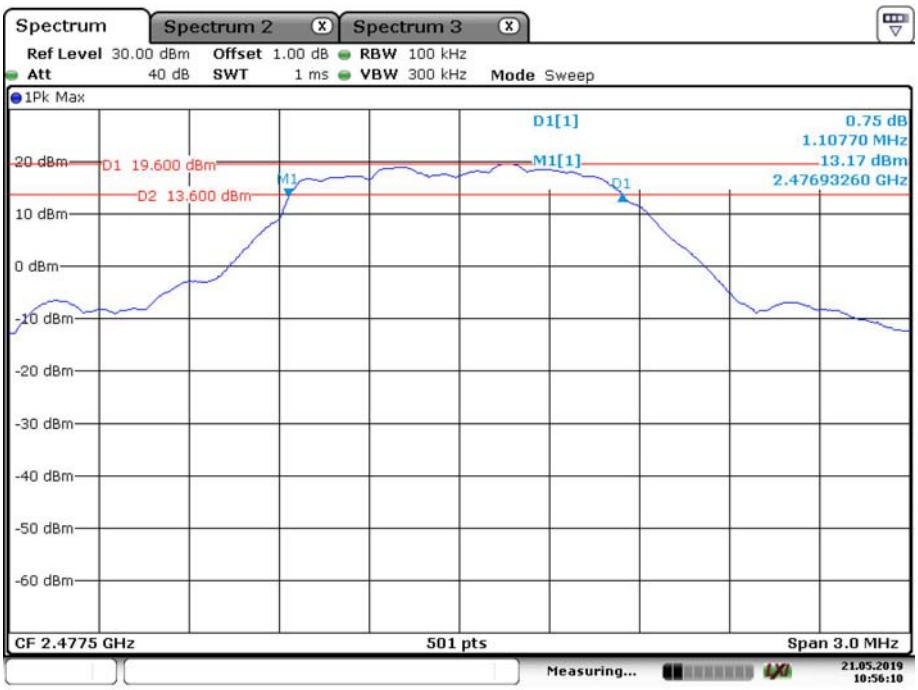
Date: 21.MAY.2019 10:42:00

1.4M Middle Channel



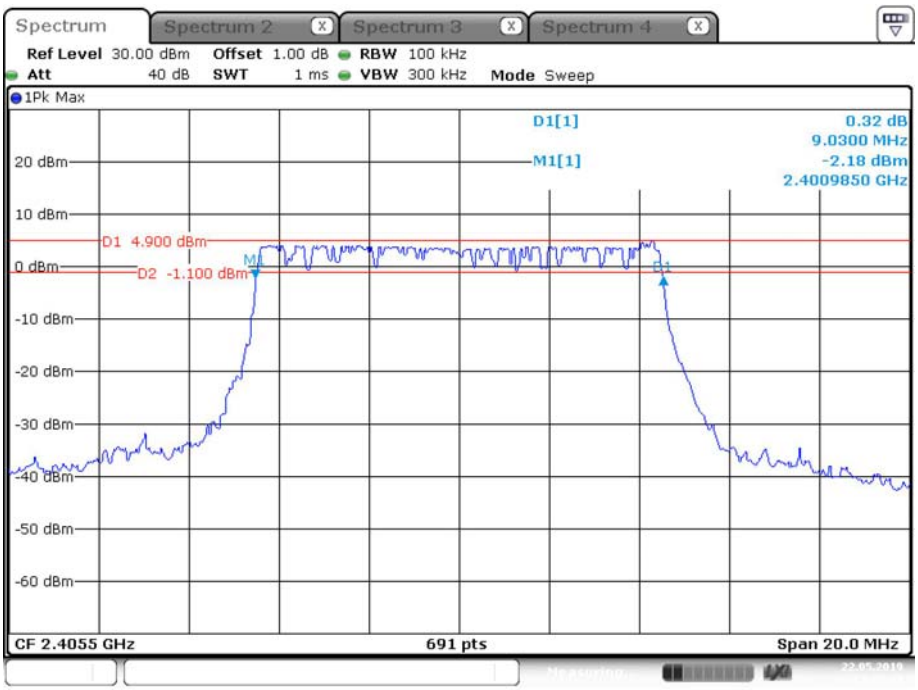
Date: 21.MAY.2019 10:53:55

1.4M High Channel



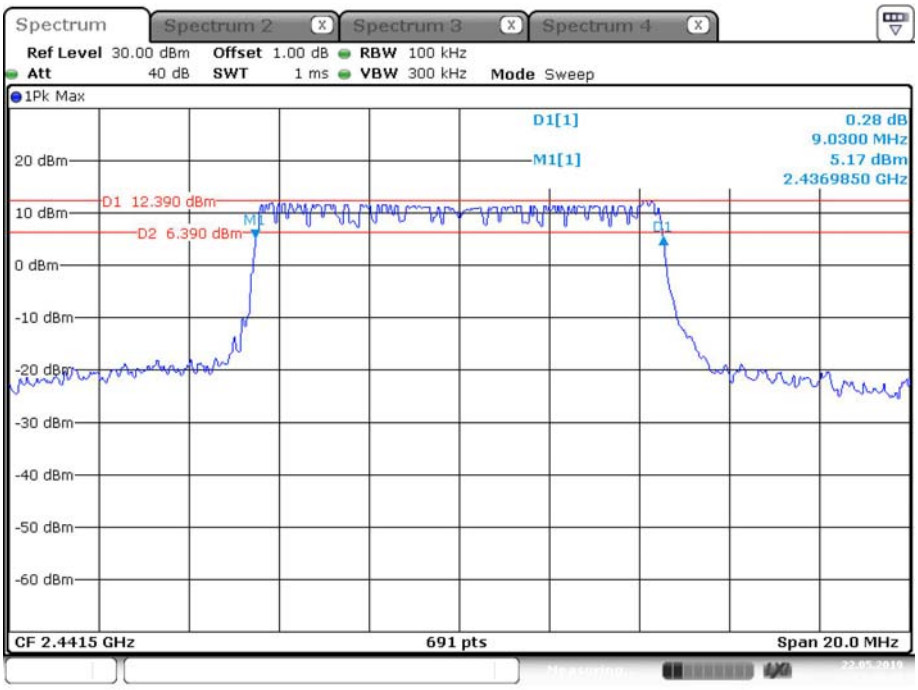
Date: 21.MAY.2019 10:56:10

10M Low Channel



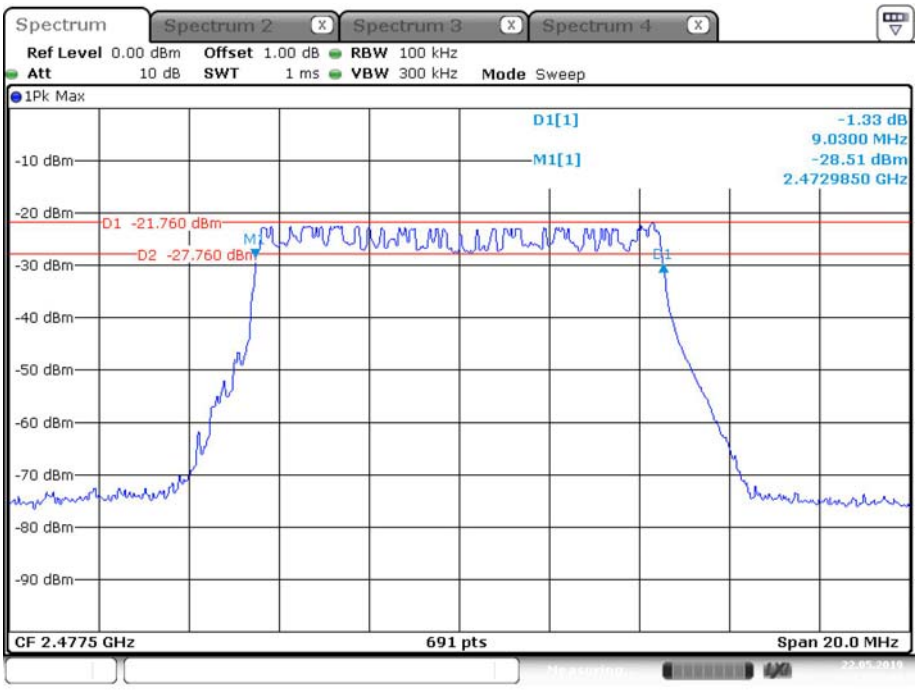
Date: 22.MAY.2019 13:12:06

10M Middle Channel



Date: 22.MAY.2019 13:14:12

10M High Channel



Date: 22.MAY.2019 13:53:06

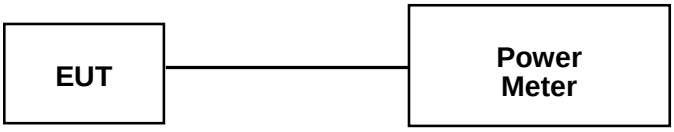
FCC §15.247(b) (3) - MAXIMUM PEAK CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
3. Add a correction factor to the display.
4. Set the power Meter to test Peak output power, record the result as peak power.
5. Set the power meter to test average output power, record the result as average power.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2018-12-10	2019-12-10
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	2019-05-06	2020-05-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	28.4~28.6 °C
Relative Humidity:	51~55 %
ATM Pressure:	100.4~100.7 kPa

** The testing was performed by Corrie He on from 2019.05.21-2019.05.22.*

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table.

Mode	Frequency (MHz)	Peak Conducted Output Power (dBm)		Limit (dBm)
		Chain 0	Chain 1	
1.4MHz	2403.5	27.08	26.26	30
	2441.5	26.98	27.02	
	2477.5	26.35	27.56	
10MHz	2405.5	22.36	23.97	
	2409.5	25.27	25.60	
	2441.5	26.76	27.15	
	2455.5	26.60	27.35	
	2466.5	25.08	24.41	
	2469.5	22.75	21.81	
	2470.5	19.95	19.19	
	2471.5	17.41	17.58	
	2473.5	13.96	14.31	
	2476.5	11.96	12.06	
	2477.5	-4.27	-3.52	

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

According to FCC§15.247(d):In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2019-01-09	2020-01-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	2019-05-06	2020-05-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

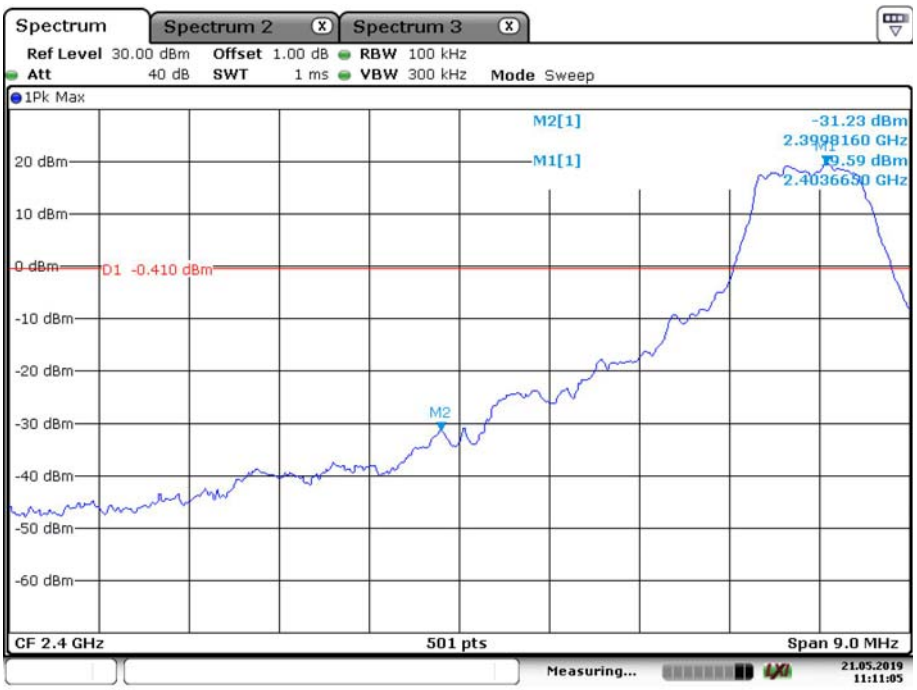
Environmental Conditions

Temperature:	28.4~28.6 °C
Relative Humidity:	51~55 %
ATM Pressure:	100.4~100.7 kPa

** The testing was performed by Corrie He on from 2019.05.21-2019.05.22.*

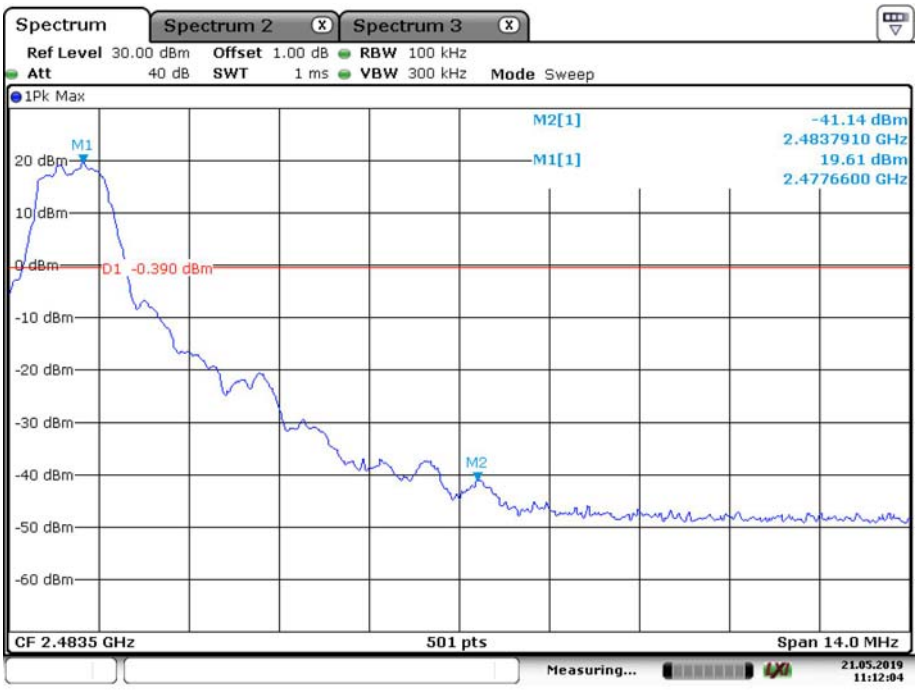
Test mode: Transmitting
Test Result: Compliance. Please refer to following plots.

Chain 0, 1.4MHz: Band Edge, Left Side



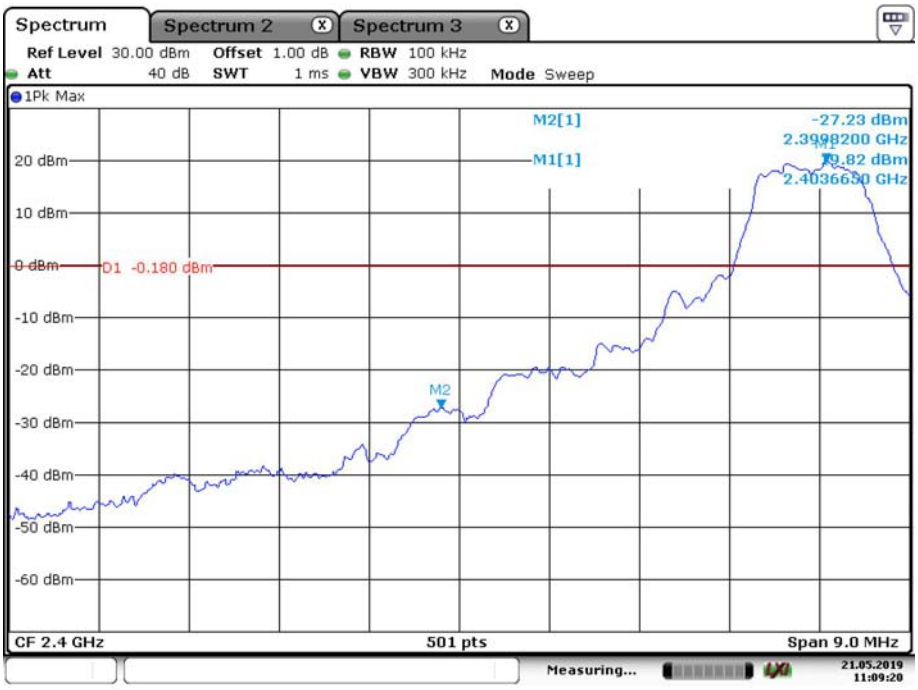
Date: 21.MAY.2019 11:11:05

Chain 0, 1.4MHz: Band Edge, Right Side



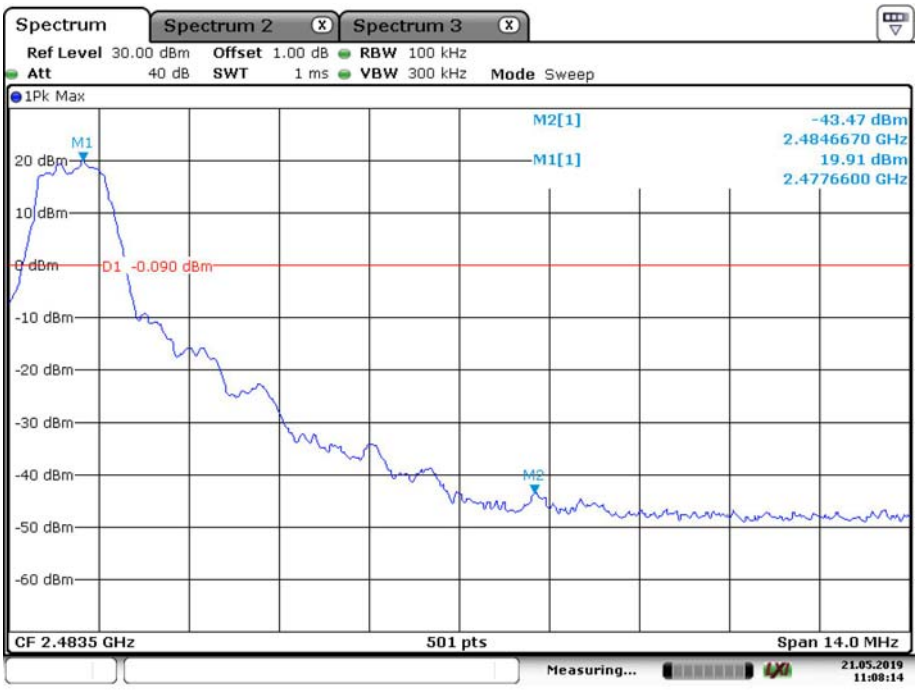
Date: 21.MAY.2019 11:12:04

Chain 1, 1.4MHz: Band Edge, Left Side



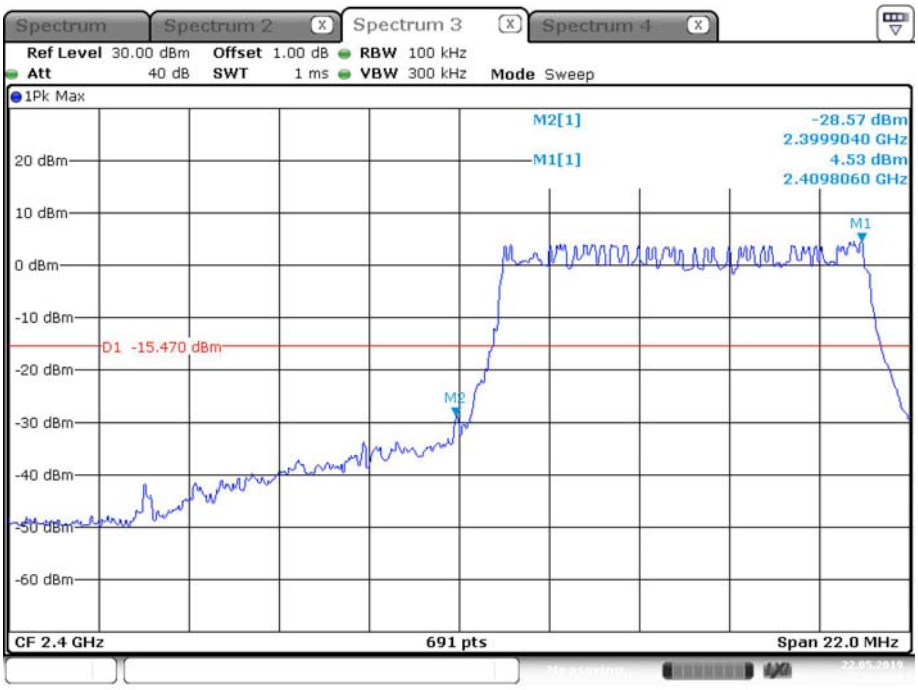
Date: 21.MAY.2019 11:09:21

Chain 1, 1.4MHz : Band Edge, Right Side



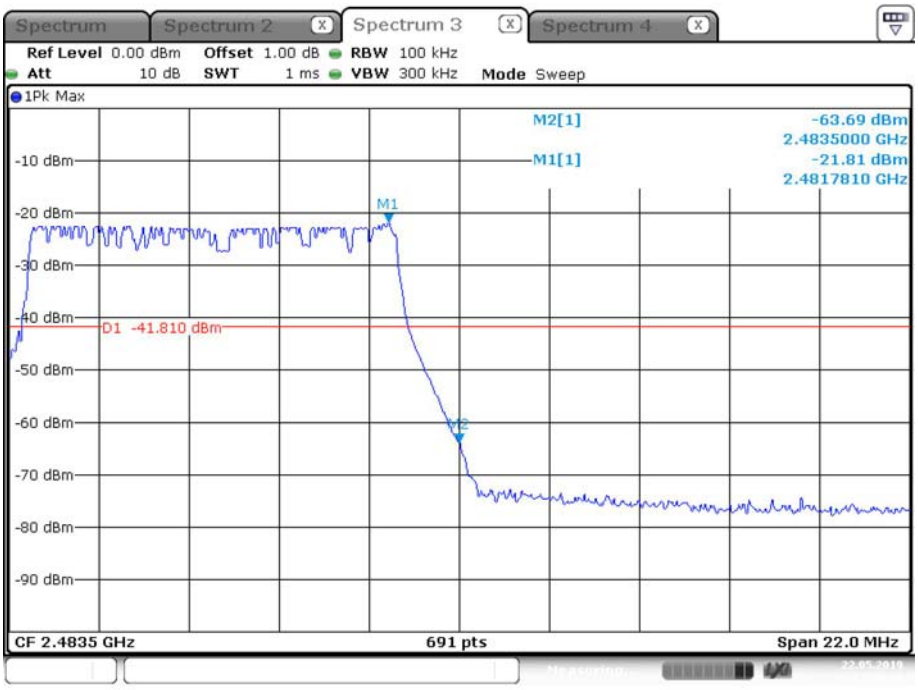
Date: 21.MAY.2019 11:08:14

Chain 0, 10M: Band Edge, Left Side



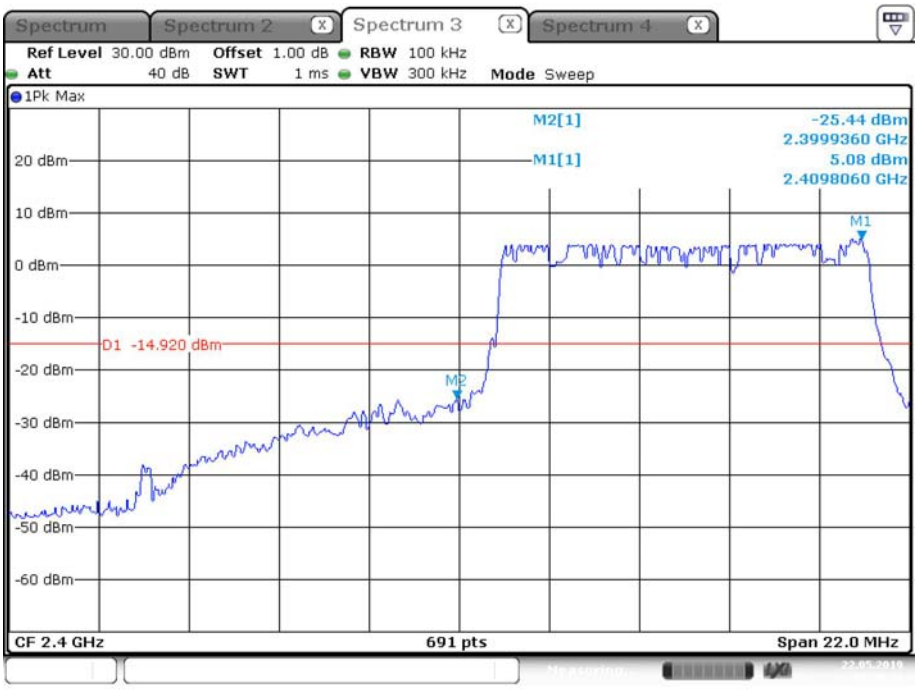
Date: 22.MAY.2019 13:23:49

Chain 0, 10M: Band Edge, Right Side



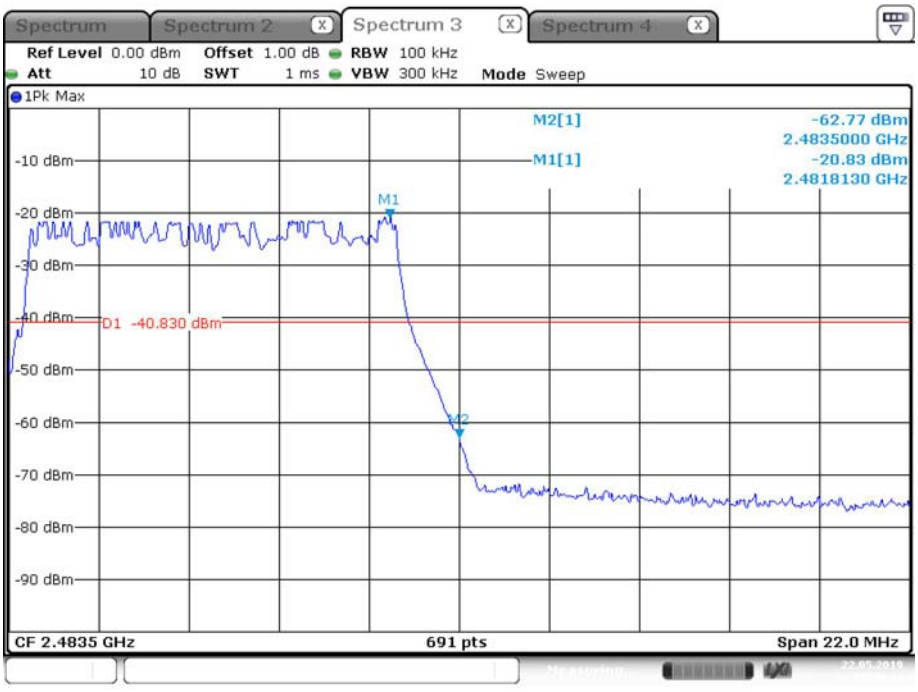
Date: 22.MAY.2019 13:54:35

Chain 1, 10M: Band Edge, Left Side



Date: 22.MAY.2019 14:00:38

Chain 1, 10M: Band Edge, Right Side



Date: 22.MAY.2019 14:08:33

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

According to FCC§15.247(e):For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the RBW = 3 kHz, VBW = 10 kHz, Set the span to 1.5 times the DTS bandwidth.
4. Use the peak marker function to determine the maximum amplitude level.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2019-01-09	2020-01-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	2019-05-06	2020-05-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	28.4~28.6 °C
Relative Humidity:	51~55 %
ATM Pressure:	100.4~100.7 kPa

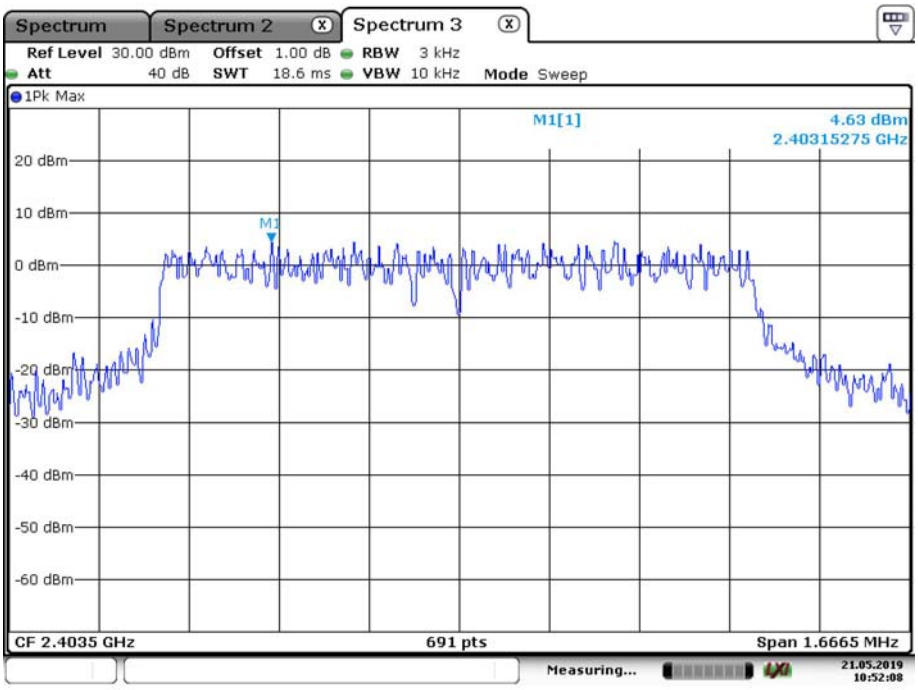
** The testing was performed by Corrie He on from 2019.05.21-2019.05.22.*

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table and plots

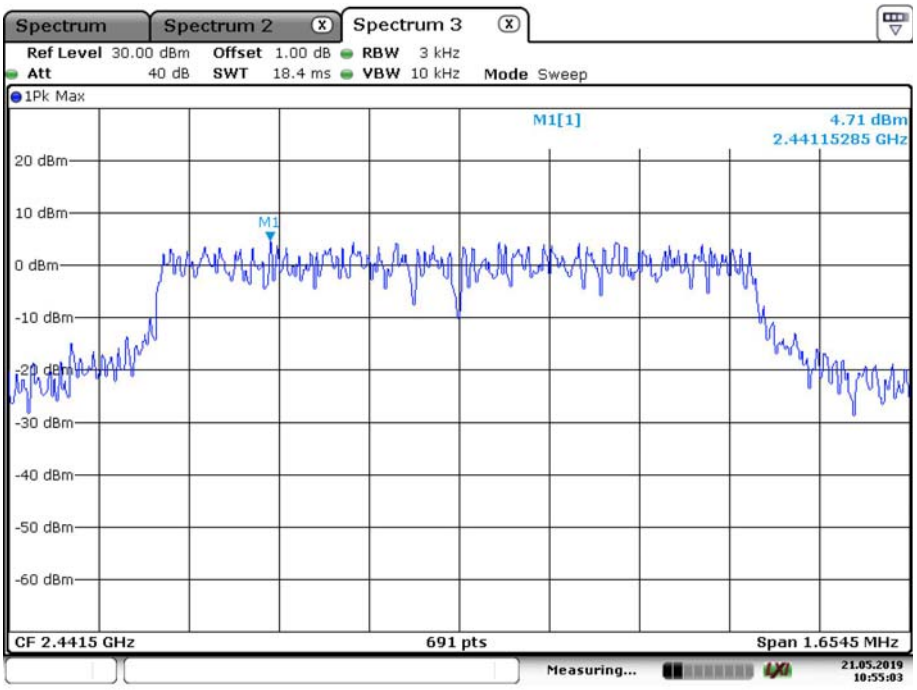
Test mode	Channel	Frequency (MHz)	Reading (dBm/3kHz)		Limit (dBm/3kHz)
			Chain 0	Chain 1	
1.4MHz	Low	2403.5	4.63	4.74	≤8
	Middle	2441.5	4.71	5.11	≤8
	High	2477.5	4.39	4.66	≤8
10MHz	Low	2405.5	-13.58	-13.65	≤8
	Middle	2441.5	-5.84	-6.07	≤8
	High	2477.5	-40.34	-39.62	≤8

Power Spectral Density, Chain 0, 1.4M Low Channel



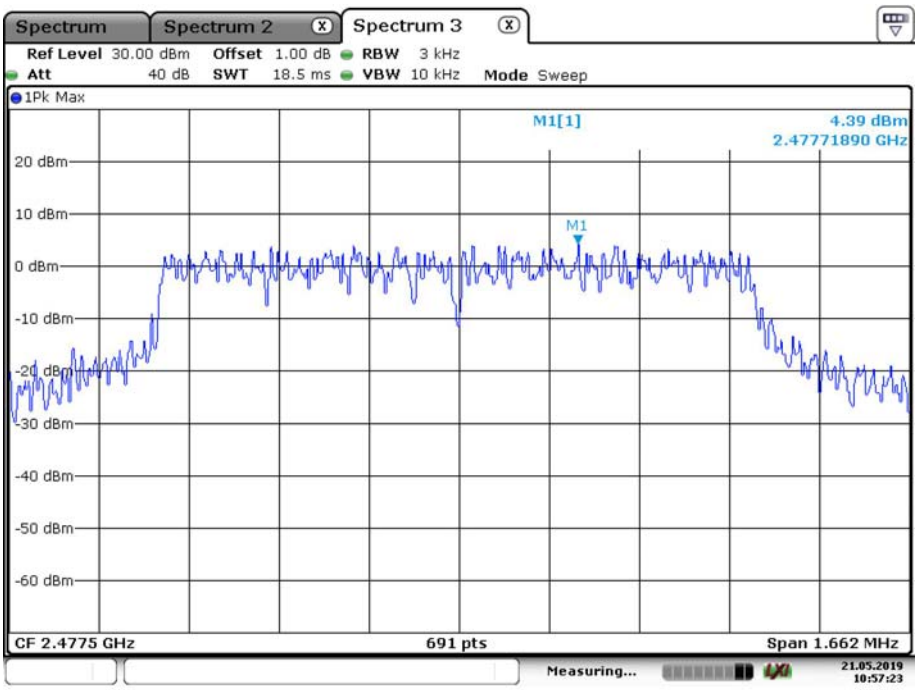
Date: 21.MAY.2019 10:52:09

Power Spectral Density, Chain 0, 1.4M Middle Channel



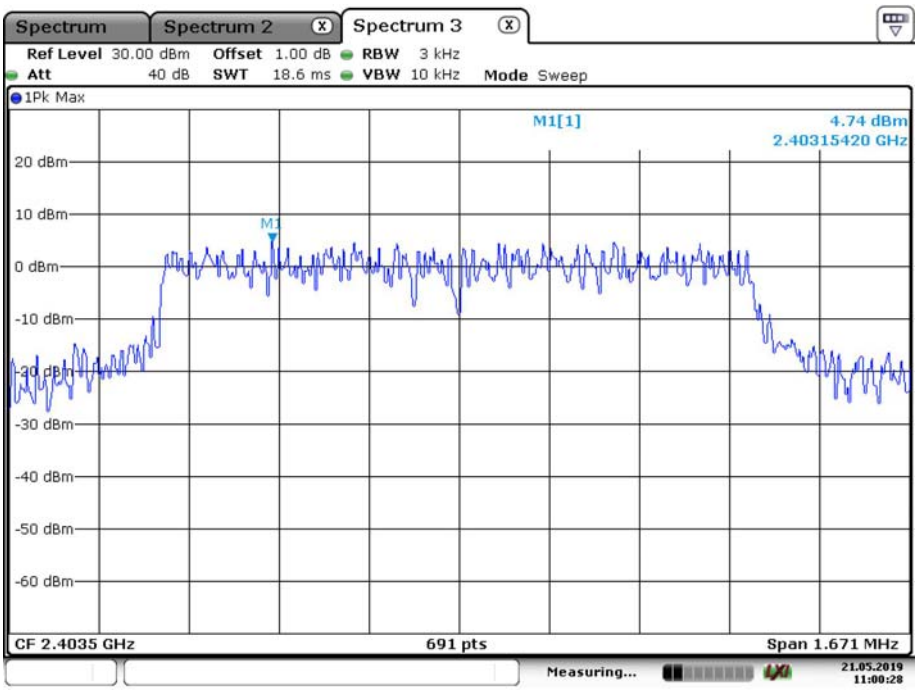
Date: 21.MAY.2019 10:55:03

Power Spectral Density, Chain 0, 1.4M High Channel



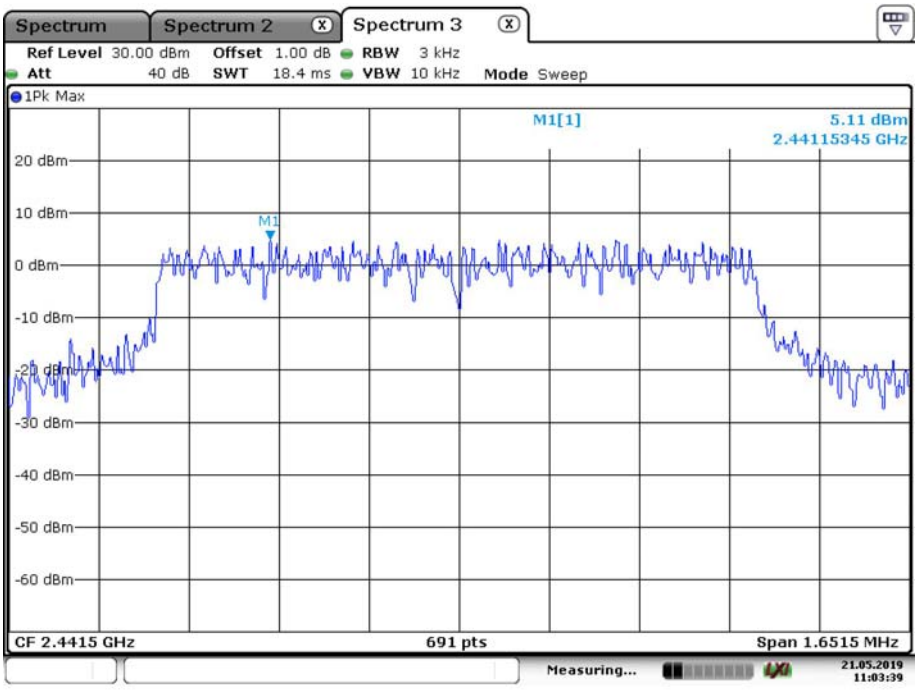
Date: 21.MAY.2019 10:57:23

Power Spectral Density, Chain 1, 1.4M Low Channel



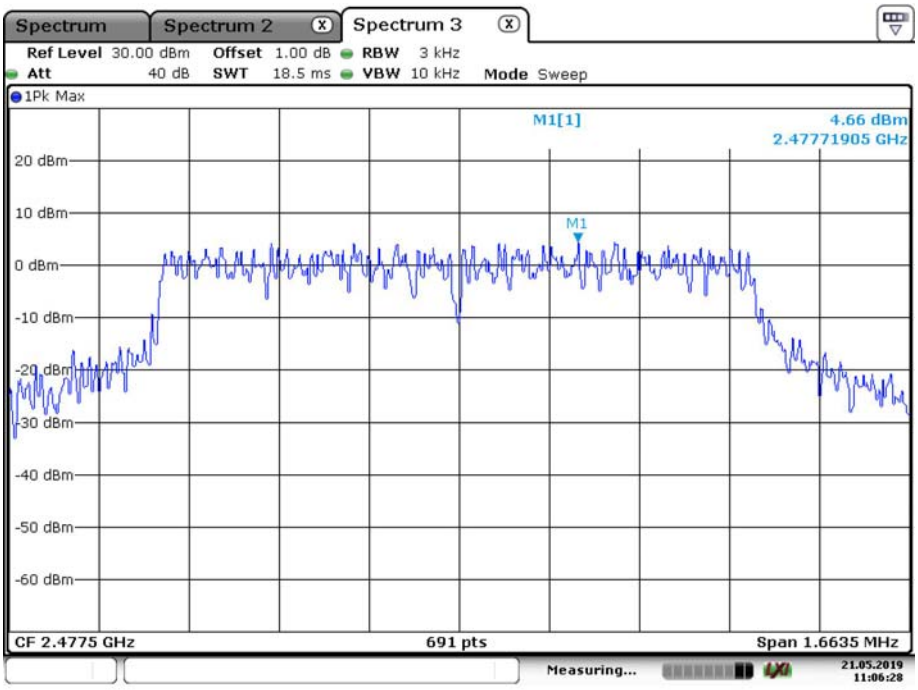
Date: 21.MAY.2019 11:00:29

Power Spectral Density, Chain 1, 1.4M Middle Channel



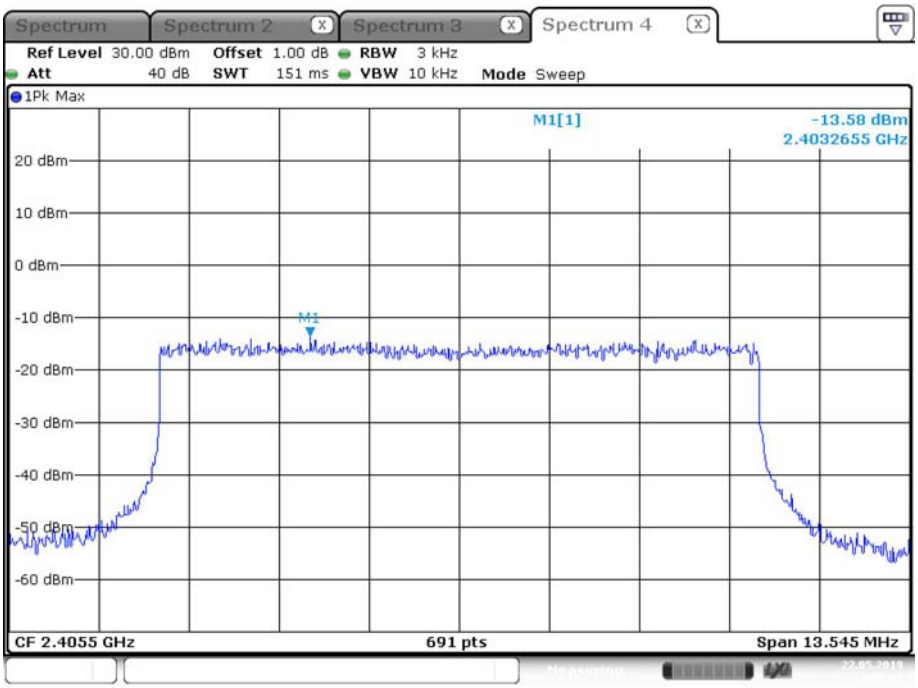
Date: 21.MAY.2019 11:03:40

Power Spectral Density, Chain 1, 1.4M High Channel



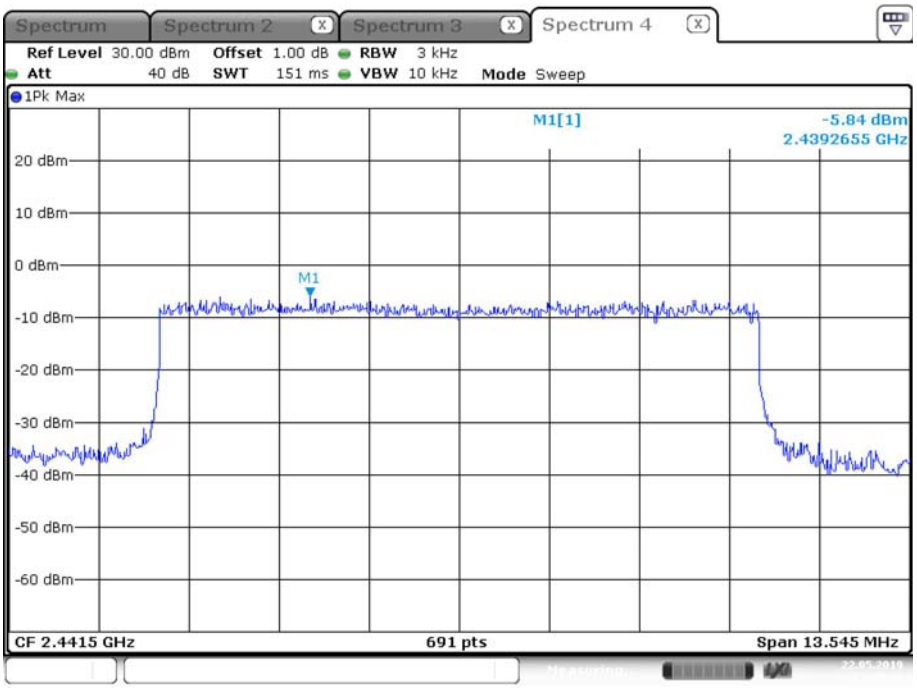
Date: 21.MAY.2019 11:06:29

Power Spectral Density, Chain 0, 10M Low Channel



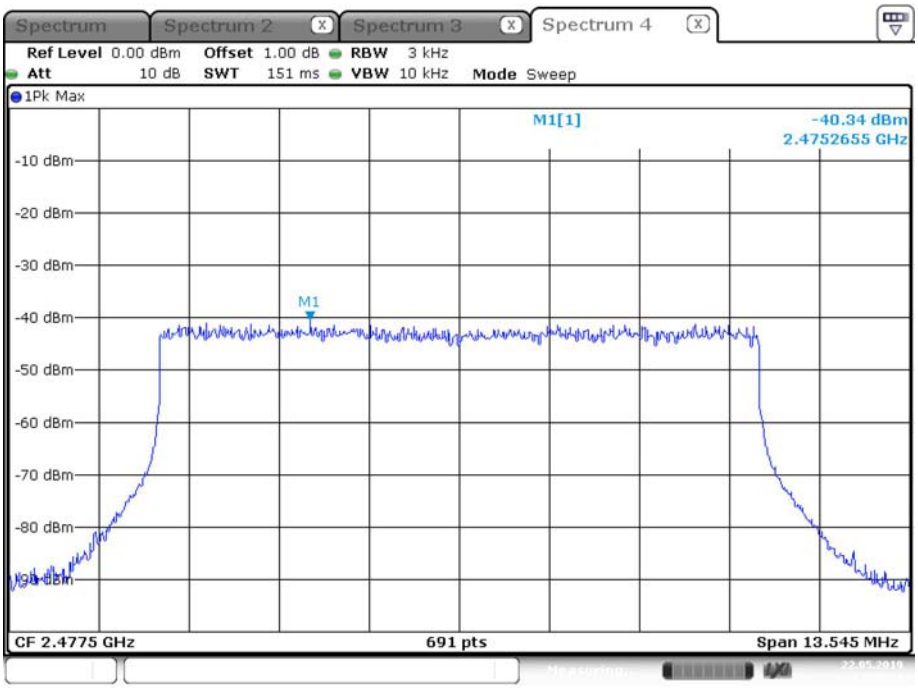
Date: 22.MAY.2019 13:29:02

Power Spectral Density, Chain 0, 10M Middle Channel



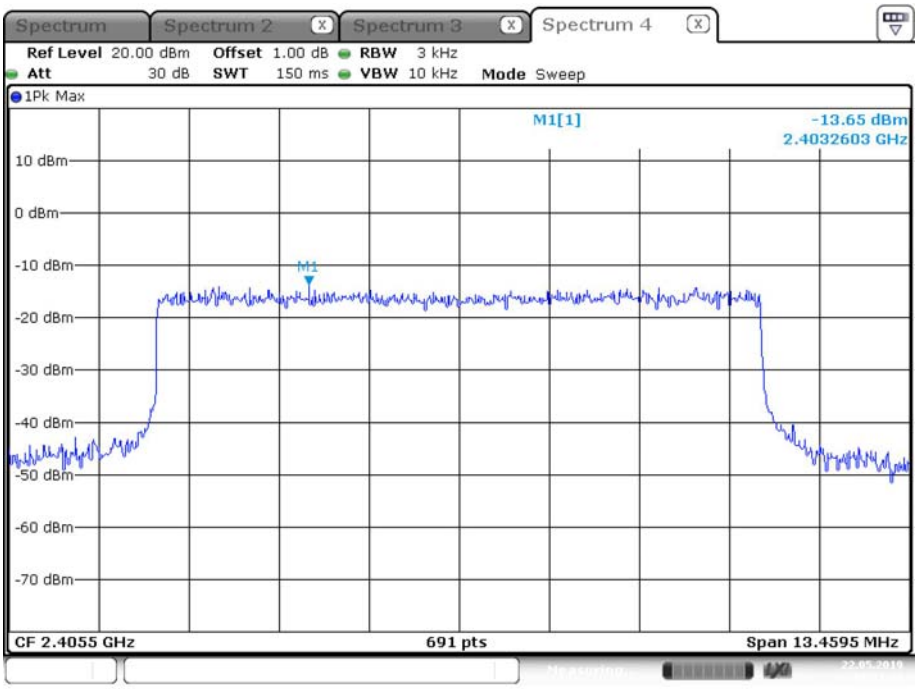
Date: 22.MAY.2019 13:28:28

Power Spectral Density, Chain 0, 10M High Channel



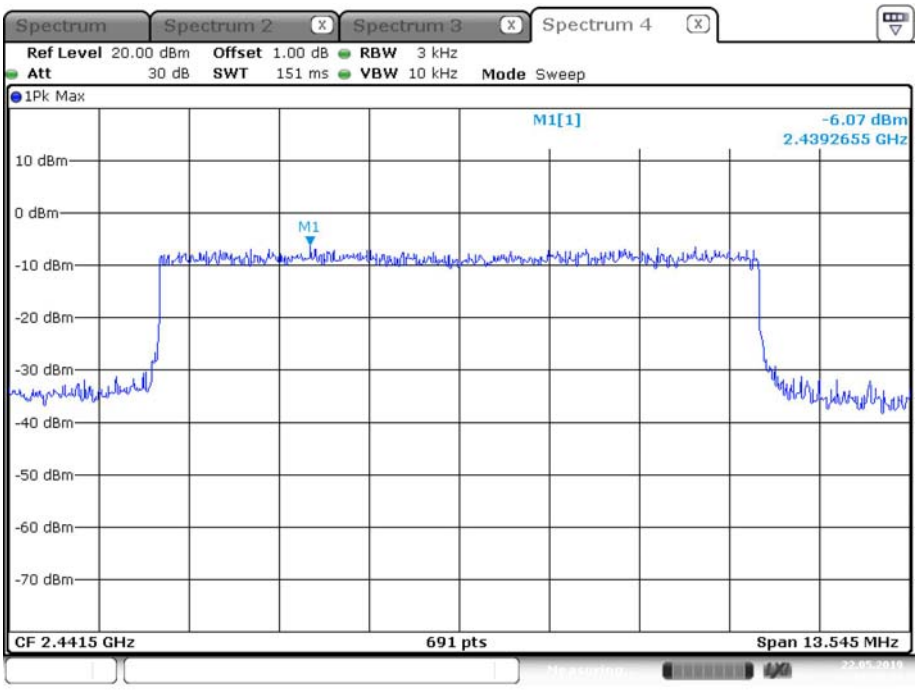
Date: 22.MAY.2019 13:55:24

Power Spectral Density, Chain 1, 10M Low Channel



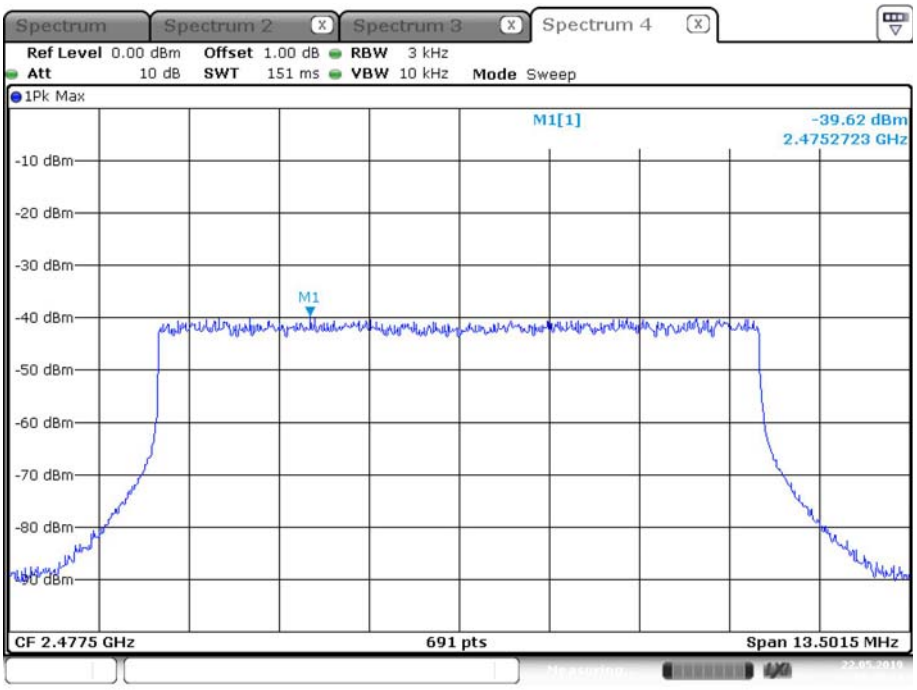
Date: 22.MAY.2019 14:01:43

Power Spectral Density, Chain 1, 10M Middle Channel



Date: 22.MAY.2019 14:09:29

Power Spectral Density, Chain 1, 10M High Channel



Date: 22.MAY.2019 14:10:13

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