TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15 B

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-R400BS1806

Report Type: Original Report	**Product Name:** D-RTK 2 High-Precision GNSS Mobile Station
Report Number:	RDG180316002-00A
Report Date:	2018-06-23
Reviewed By:	Jerry Zhang EMC Manager
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

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan). This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA* or any agency of the Federal Government. * This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*".

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

EUT Name:		D-RTK 2 High-Precision GNSS Mobile Station
EUT Model:		R400BS
FCC ID:		SS3-R400BS1806
Rated Input Voltage:		DC7.6V from battery or DC17.4V from adapter
Nominal Adapter Information	**Model:**	A14-057N1A
	Input:	100-240V~50/60Hz,1.8A
	Output:	DC17.4V-3.3A
External Dimension:		168mm(L)* 168mm(W)* 1708 mm(H) with Fixing Pole
Serial Number:		180316002
EUT Received Date:		2018.03.16
The Highest Operation Frequency:		5846.5MHz

Objective

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

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 B Class B.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS and Part 15E NII submissions with FCC ID: SS3-R400BS1806.
Part of system submissions with FCC ID: SS3-GL300N1801.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

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

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~26.5GHz: 5.23 dB
Temperature	±1℃
Humidity	±5%
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 test site has been approved by the FCC 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 test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in typical fashion (as normally used by a typical user) as below:

Test mode: Operation
In this typical use mode, the device was transmitting data via wifi and LAN port.

EUT Exercise Software

No EUT software was used for testing.

Equipment Modifications

No modification was made to the EUT tested.

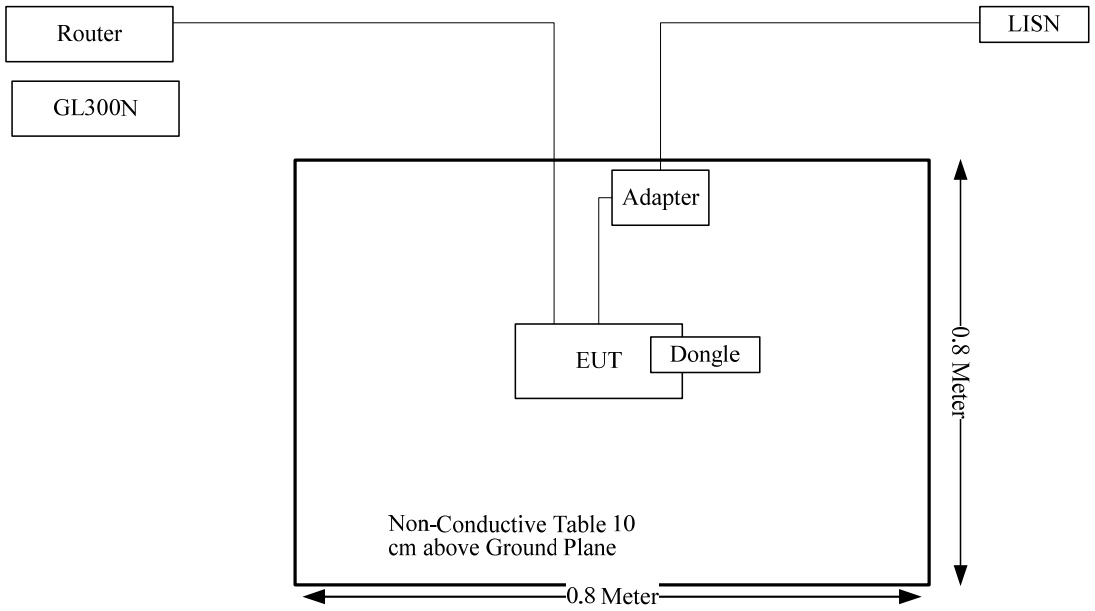
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Tenda	Router	V1200	/
HUAWEI	USB Wireless Dongle	E8372h	/
DJI	Remote Controller	GL300N	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
LAN Cable	Yes	No	1.0	EUT	RJ45 Cable
RJ45 Cable	Yes	No	10.0	LAN Cable	Router
Adapter DC Cable	Yes	No	1.0	Adapter	EUT

Configuration of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2017-09-05	2018-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2017-12-08	2018-12-08
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
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	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2017-06-27	2018-06-27
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27

* 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).

Environmental Conditions

Temperature:	26.6~ 27.8 °C
Relative Humidity:	40~54 %
ATM Pressure:	101.3~101.5 kPa
Tester:	Vern Shen, Blake Yang,
Test Date:	2018.06.15-2018.06.18

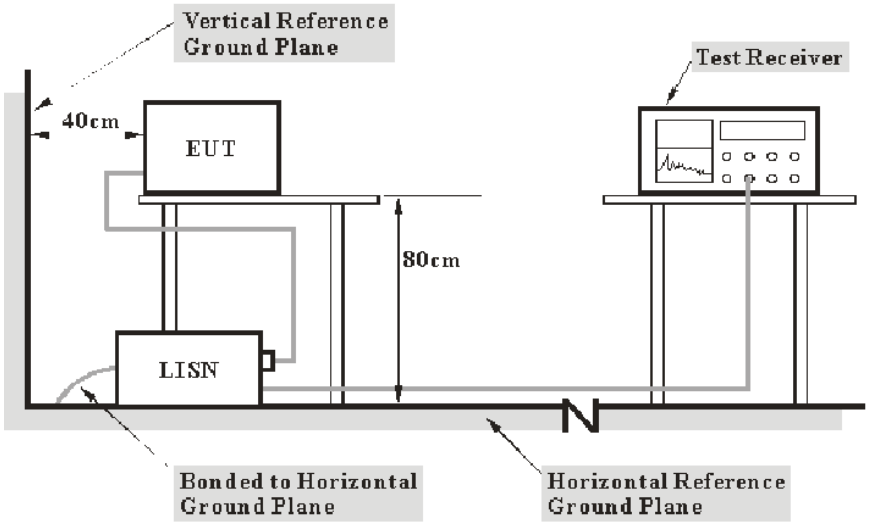
SUMARY OF TEST RESULTS

FCC Part 15B

Clause	Description of Test	Test Result
§15.107	Conducted emissions	Compliance
§15.109	Radiated emissions	Compliance

FCC Part 15B §15.107 – CONDUCTED EMISSIONS

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result (QuasiPeak or Average) = Meter Reading + Corr.

Note:
Corr. = Cable loss + Factor of coupling device

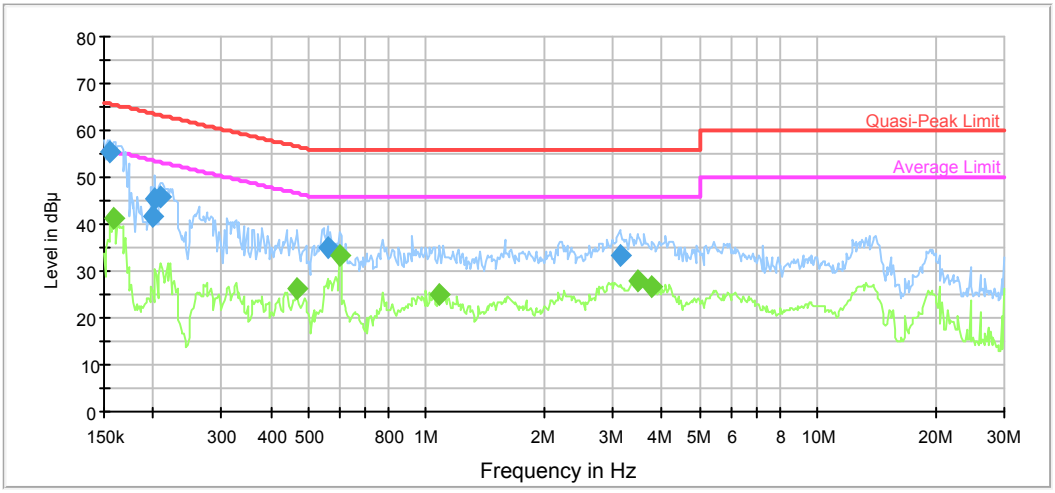
The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Result

Test Data

Please refer to following table and plots:

Model Number:	R400BS
Port:	L
Test Mode:	Operation
Power Source:	AC 120V/60Hz



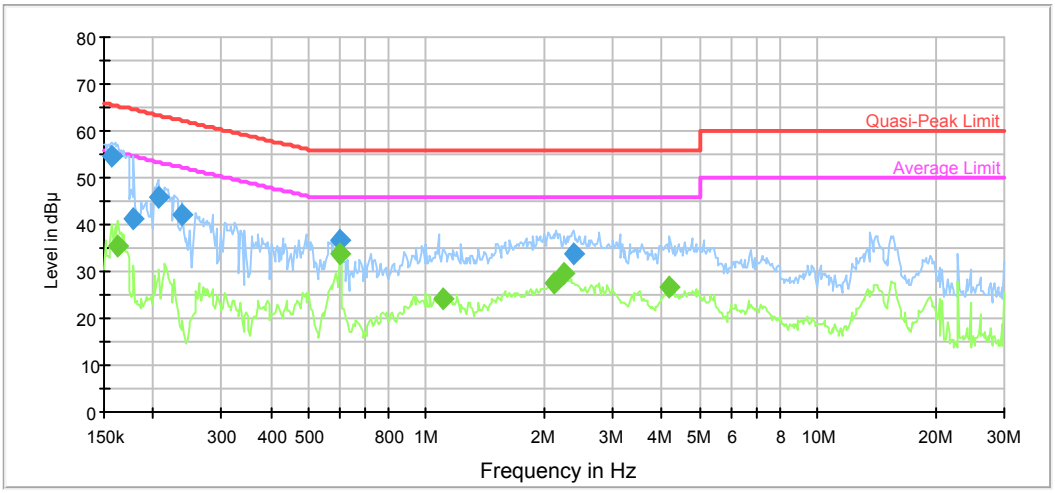
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156097	55.6	9.000	L1	11.1	10.1	65.7
0.199835	41.8	9.000	L1	10.6	21.8	63.6
0.203045	45.5	9.000	L1	10.6	18.0	63.5
0.209621	45.6	9.000	L1	10.6	17.6	63.2
0.558572	35.1	9.000	L1	9.9	20.9	56.0
3.122873	33.4	9.000	L1	9.8	22.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158604	41.3	9.000	L1	11.1	14.2	55.5
0.465037	26.1	9.000	L1	9.9	20.5	46.6
0.600101	33.2	9.000	L1	9.8	12.8	46.0
1.073601	25.1	9.000	L1	9.8	20.9	46.0
3.491417	28.0	9.000	L1	9.8	18.0	46.0
3.781003	26.7	9.000	L1	9.8	19.3	46.0

Model Number: R400BS
Port: N
Test Mode: Operation
Power Source: AC 120V/60Hz



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.157346	54.6	9.000	N	11.1	11.0	65.6
0.178741	41.2	9.000	N	10.8	23.3	64.5
0.206306	45.8	9.000	N	10.6	17.6	63.4
0.238124	42.2	9.000	N	10.4	20.0	62.2
0.600101	36.6	9.000	N	9.8	19.4	56.0
2.381750	33.9	9.000	N	9.8	22.1	56.0

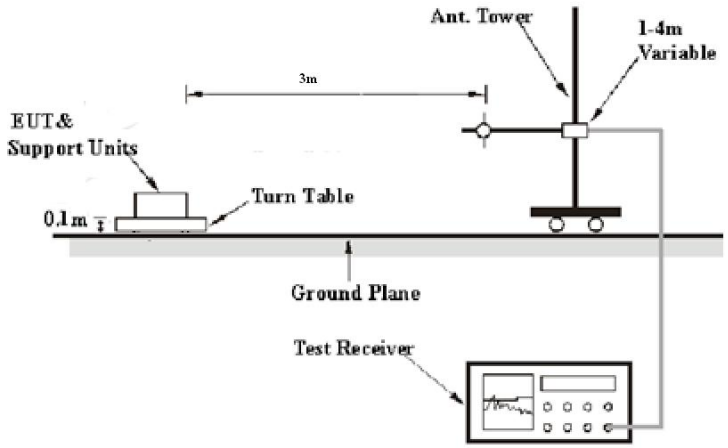
Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162441	35.4	9.000	N	11.0	19.9	55.3
0.600101	33.6	9.000	N	9.8	12.4	46.0
1.099574	24.2	9.000	N	9.8	21.8	46.0
2.113432	27.7	9.000	N	9.8	18.3	46.0
2.252540	29.5	9.000	N	9.8	16.5	46.0
4.193667	26.5	9.000	N	9.8	19.5	46.0

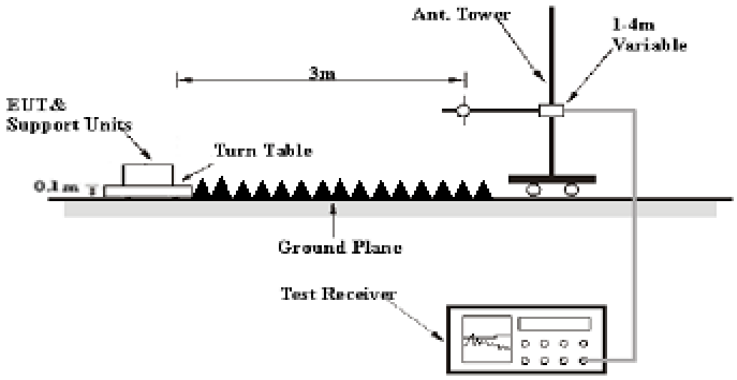
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

EUT Setup

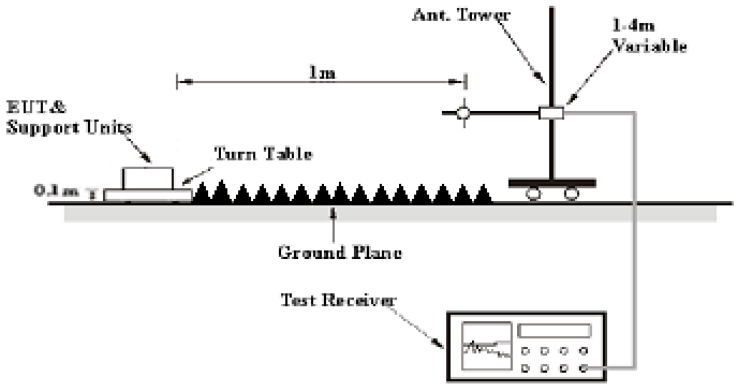
Below 1 GHz:



1-26.5 GHz:



26.5-40 GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site, above 1GHz tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	10Hz	/	AVG

Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:
Corrected = Antenna Factor + Cable Loss - Amplifier Gain
or
Corrected = Antenna Factor + Cable Loss + Insertion loss of attenuator - Amplifier Gain

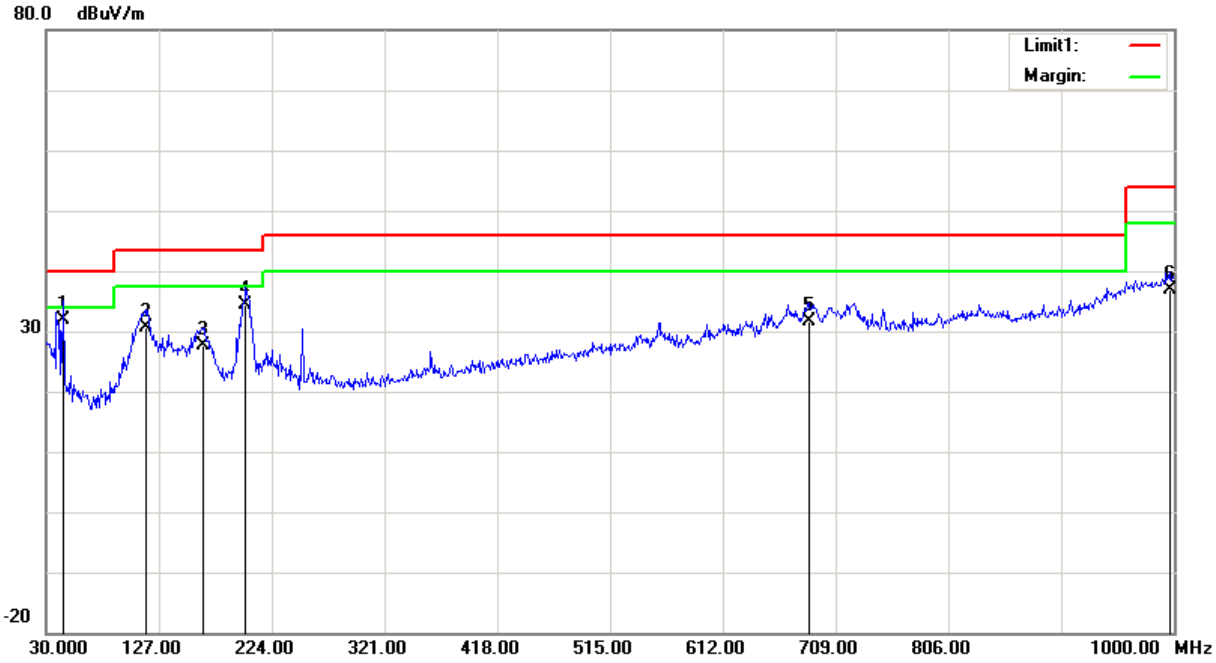
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Result

Test Data

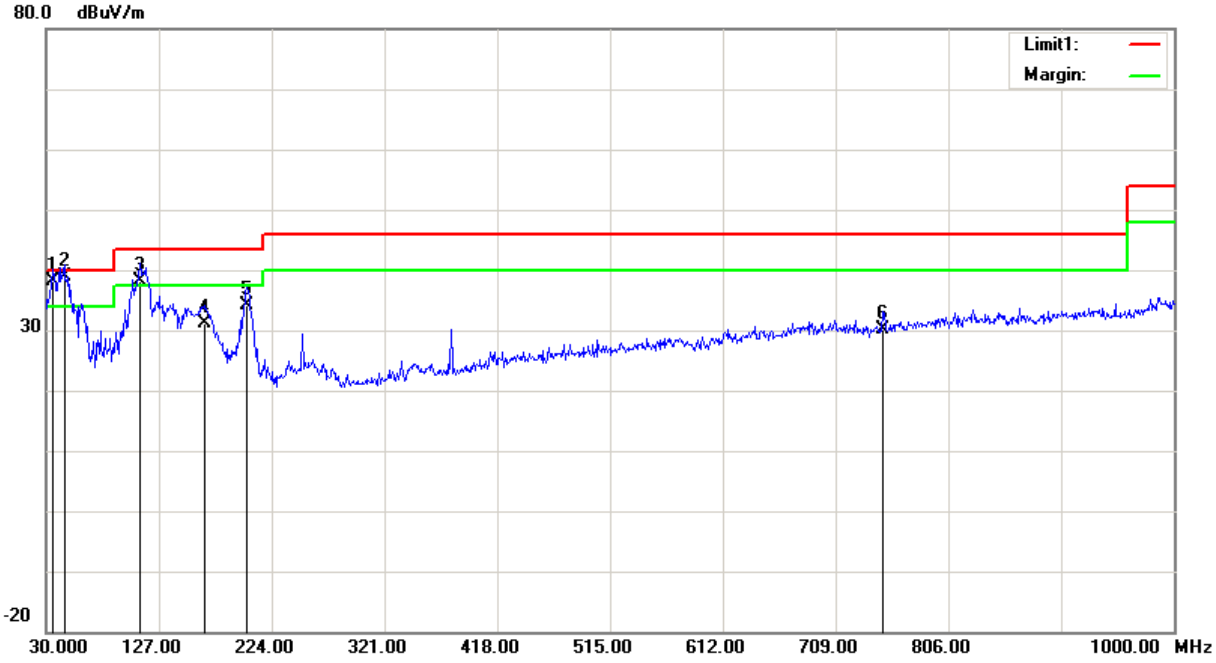
Please refer to following table and plots:

Condition:	**FCC Class B 3M Radiation**	**Polarization:**	**Horizontal**
EUT:	D-RTK 2 High-Precision GNSS Mobile Station	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	3m
Test Mode:	Operation		
Note:			



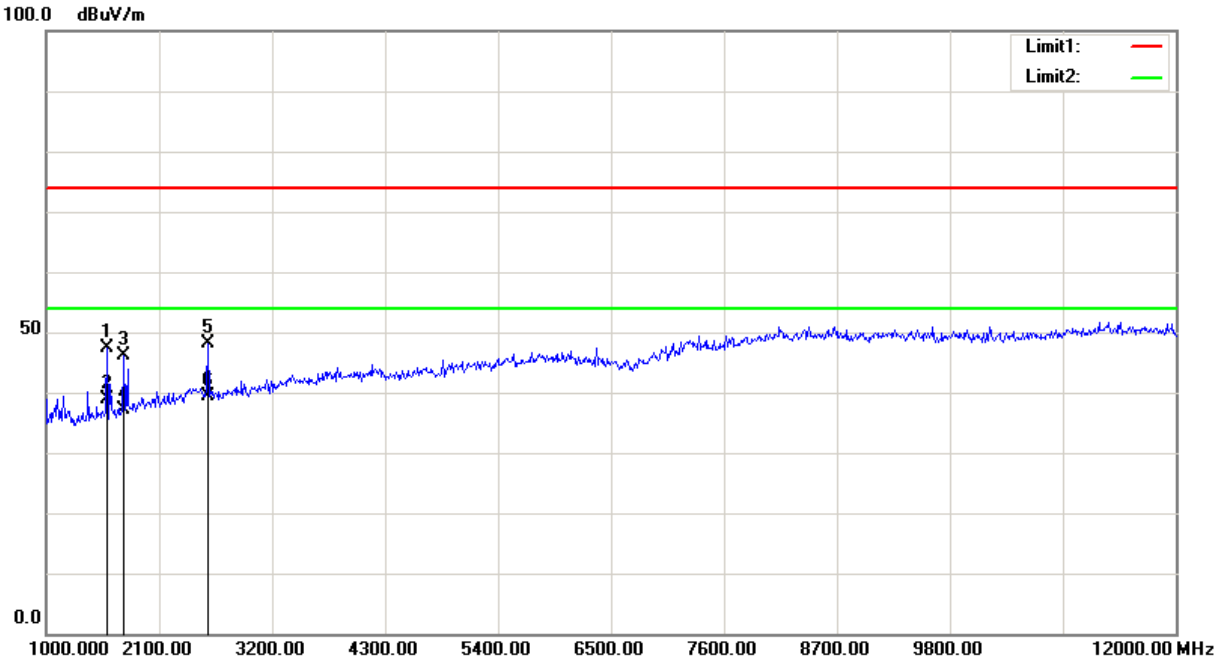
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	44.5500	40.95	QP	-8.95	32.00	40.00	8.00
2	115.3600	35.99	QP	-5.39	30.60	43.50	12.90
3	164.8300	34.06	QP	-6.36	27.70	43.50	15.80
4	201.6900	40.41	QP	-6.01	34.40	43.50	9.10
5	685.7200	28.85	QP	2.75	31.60	46.00	14.40
6	996.1200	7.29	QP	29.51	36.80	54.00	17.20

Condition:	**FCC Class B 3M Radiation**	**Polarization:**	**Vertical**
EUT:	D-RTK 2 High-Precision GNSS Mobile Station	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	3m
Test Mode:	Operation		
Note:			



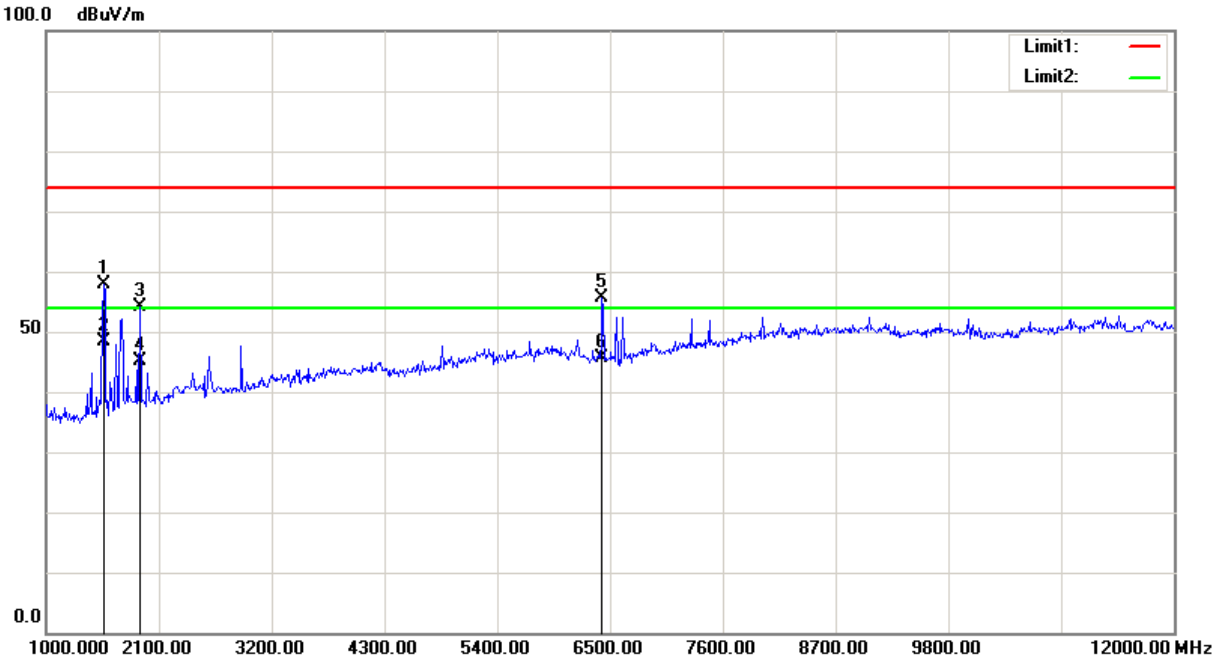
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	35.8200	40.73	QP	-2.63	38.10	40.00	1.90
2	45.5200	48.24	QP	-9.44	38.80	40.00	1.20
3	110.5100	44.46	QP	-6.36	38.10	43.50	5.40
4	166.7700	37.58	QP	-6.48	31.10	43.50	12.40
5	202.6600	40.24	QP	-6.14	34.10	43.50	9.40
6	749.7400	26.61	QP	3.59	30.20	46.00	15.80

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Horizontal**
EUT:	D-RTK 2 High-Precision GNSS Mobile Station	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	3m
Test Mode:	Operation		
Note:			



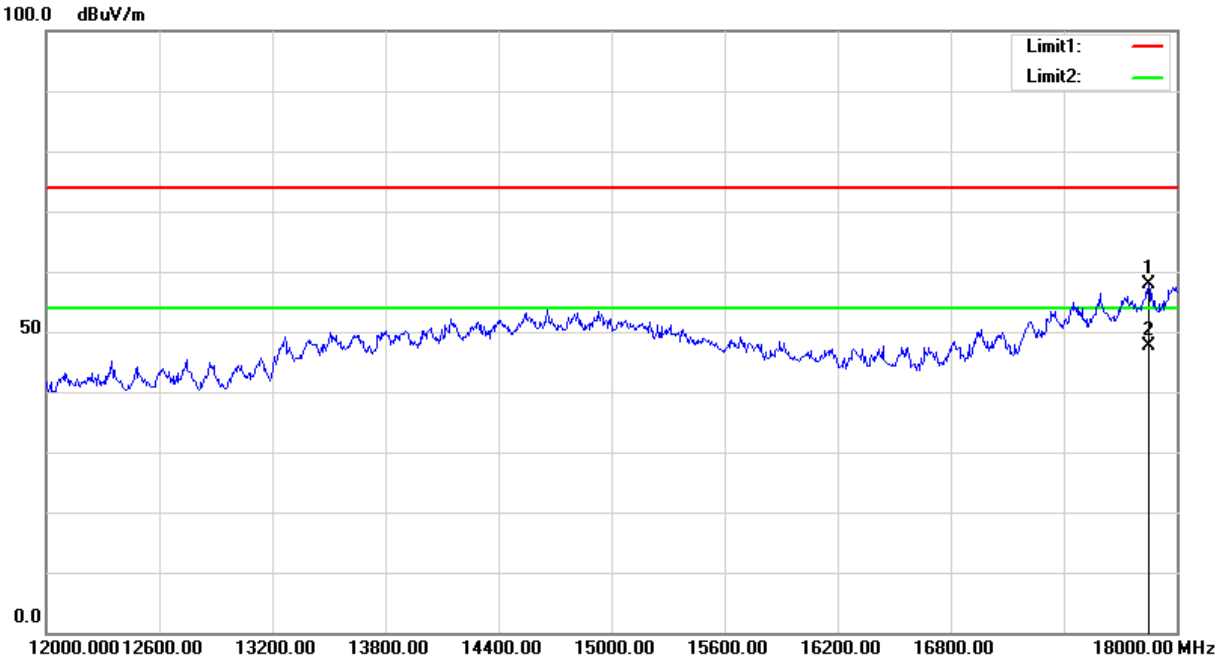
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	1594.000	56.03	peak	-8.74	47.29	74.00	26.71
2	1594.000	47.52	AVG	-8.74	38.78	54.00	15.22
3	1759.000	54.27	peak	-8.06	46.21	74.00	27.79
4	1759.000	45.31	AVG	-8.06	37.25	54.00	16.75
5	2573.000	54.09	peak	-5.95	48.14	74.00	25.86
6	2573.000	45.25	AVG	-5.95	39.30	54.00	14.70

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Vertical**
EUT:	D-RTK 2 High-Precision GNSS Mobile Station	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	3m
Test Mode:	Operation		
Note:			



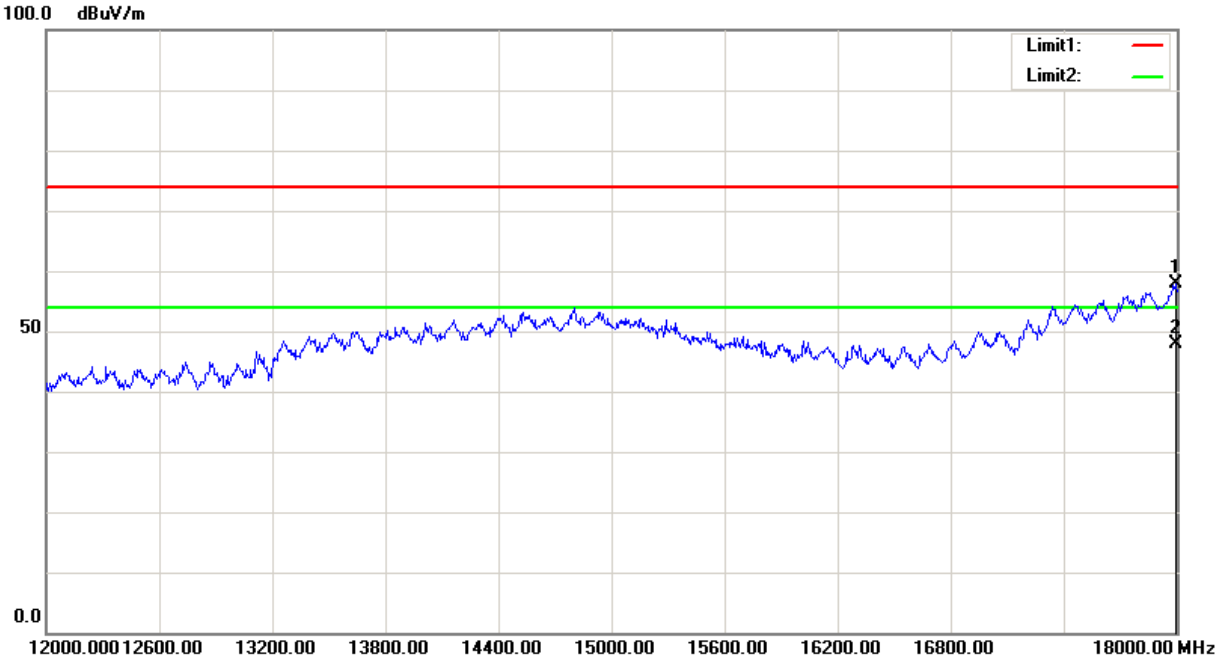
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	1566.500	66.67	peak	-8.86	57.81	74.00	16.19
2	1566.500	57.16	AVG	-8.86	48.30	54.00	5.70
3	1913.000	61.57	peak	-7.50	54.07	74.00	19.93
4	1913.000	52.63	AVG	-7.50	45.13	54.00	8.87
5	6428.500	53.95	peak	1.72	55.67	74.00	18.33
6	6428.500	43.85	AVG	1.72	45.57	54.00	8.43

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Horizontal**
EUT:	D-RTK 2 High-Precision GNSS Mobile Station	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	3m
Test Mode:	Operation		
Note:			



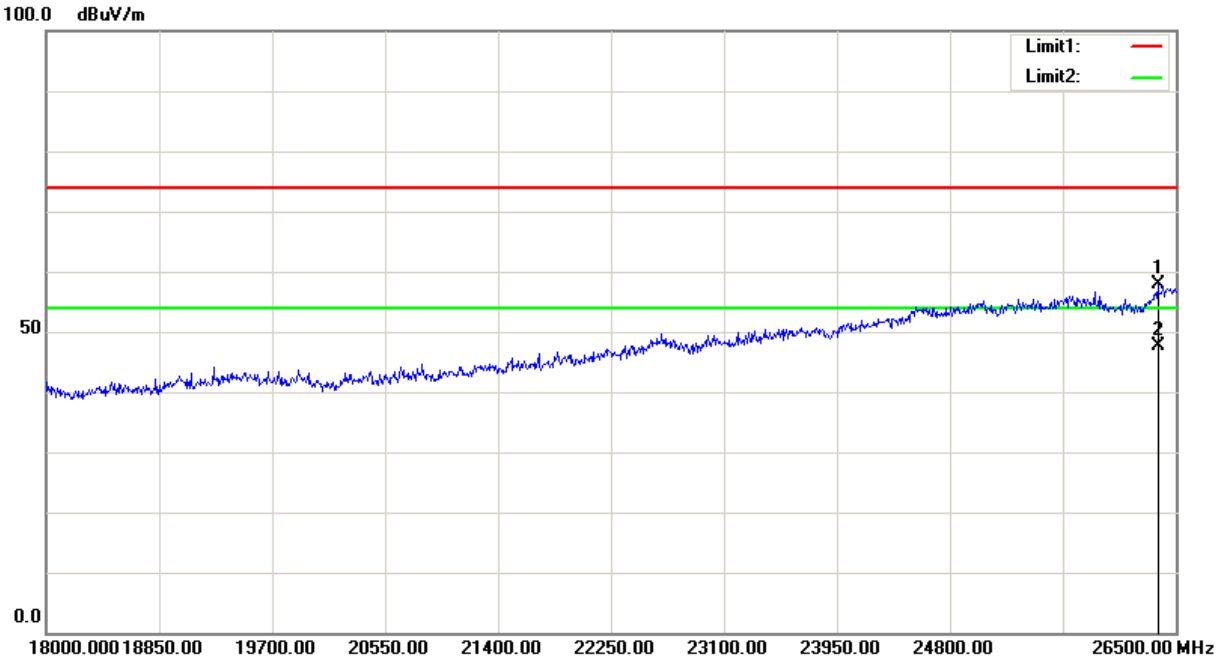
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	17853.000	41.77	peak	16.09	57.86	74.00	16.14
2	17853.000	31.52	AVG	16.09	47.61	54.00	6.39

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Vertical**
EUT:	D-RTK 2 High Precision Positioning Syste	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	3m
Test Mode:	Operation		
Note:			



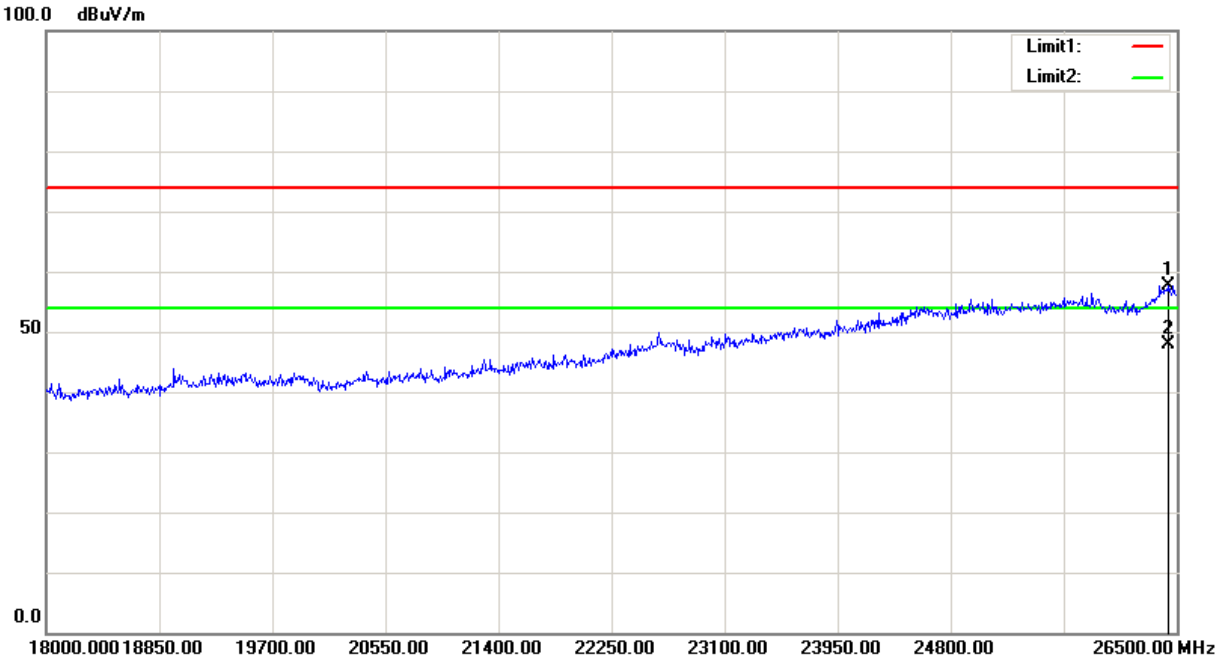
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	17994.000	40.88	peak	17.10	57.98	74.00	16.02
2	17994.000	30.67	AVG	17.10	47.77	54.00	6.23

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Horizontal**
EUT:	**D-RTK 2 High-Precision GNSS Mobile Station**	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	**3m**
Test Mode:	Operation		
Note:			



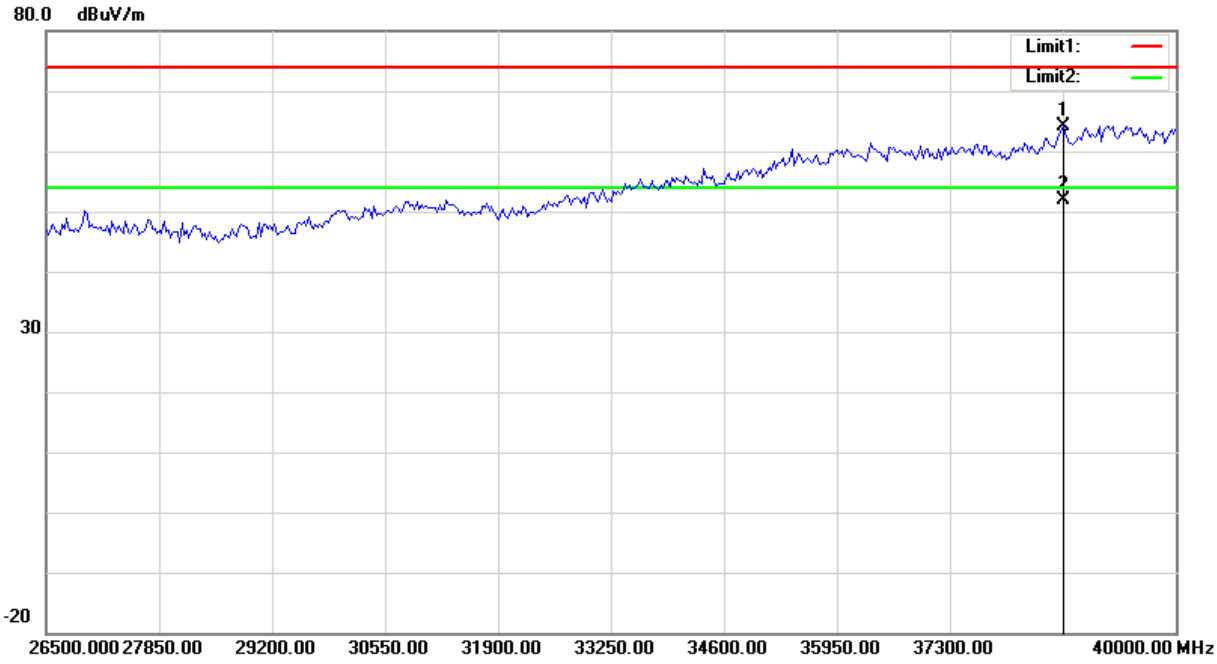
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	26368.250	36.71	peak	21.27	57.98	74.00	16.02
2	26368.250	26.31	AVG	21.27	47.58	54.00	6.42

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Vertical**
EUT:	**D-RTK 2 High-Precision GNSS Mobile Station**	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	**3m**
Test Mode:	**Transmitting**		
Note:			



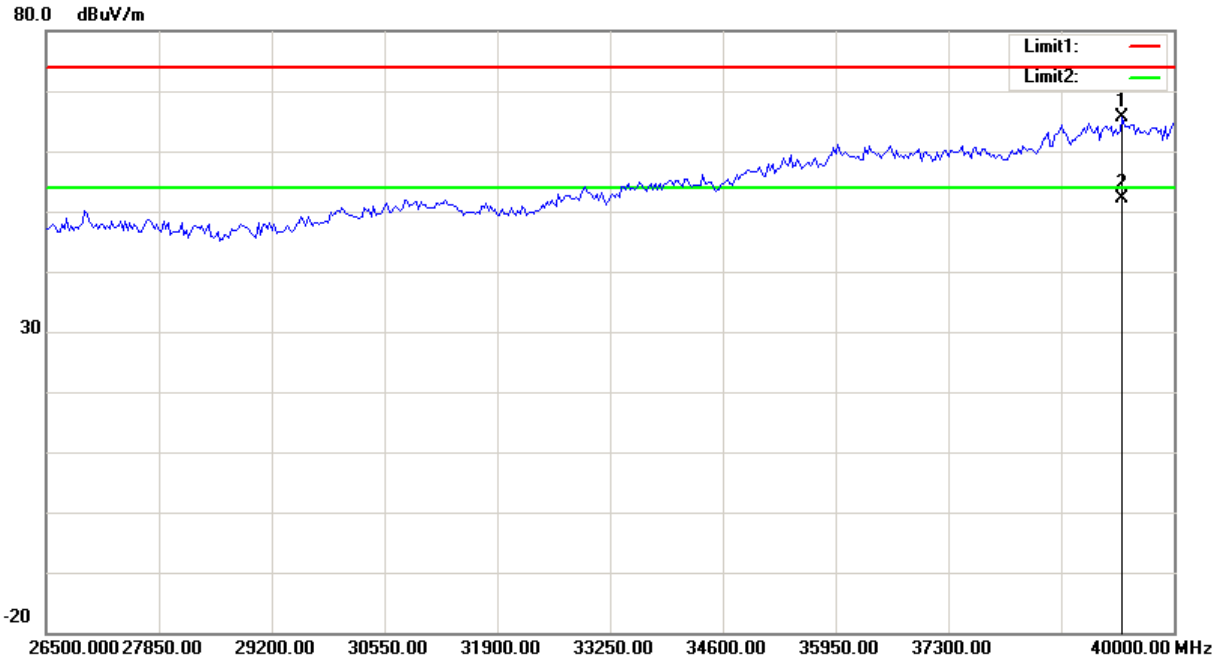
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	26432.000	36.14	peak	21.54	57.68	74.00	16.32
2	26432.000	26.23	AVG	21.54	47.77	54.00	6.23

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Horizontal**
EUT:	**D-RTK 2 High-Precision GNSS Mobile Station**	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	**1m**
Test Mode:	Operation		
Note:			



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	38650.000	48.03	peak	16.22	64.25	74.00	9.75
2	38650.000	35.68	AVG	16.22	51.90	54.00	2.10

Condition:	**FCC Part 15 Class B**	**Polarization:**	**Vertical**
EUT:	**D-RTK 2 High-Precision GNSS Mobile Station**	**Power:**	**AC 120V/60Hz**
Model:	**R400BS**	**Distance:**	**1m**
Test Mode:	Operation		
Note:			



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	39379.000	49.64	peak	16.02	65.66	74.00	8.34
2	39379.000	36.16	AVG	16.02	52.18	54.00	1.82

******END OF REPORT******