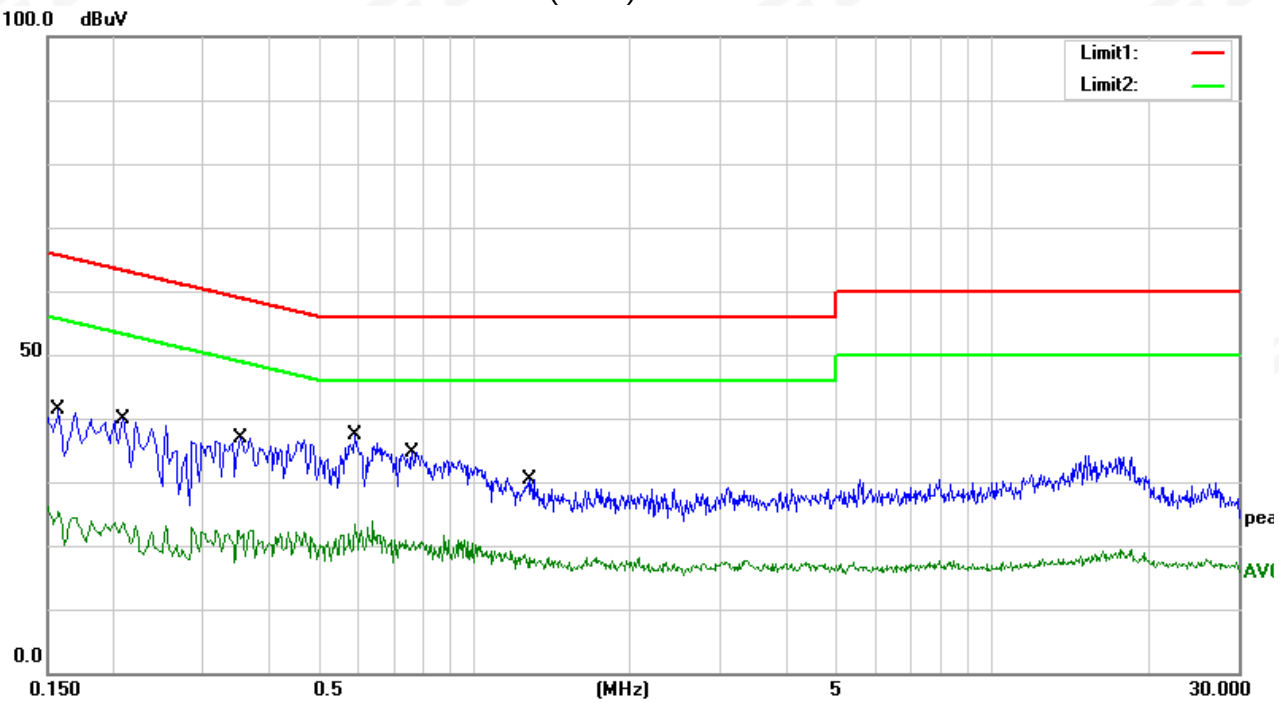
Temperature:	25.1℃	Relative Humidity:	59%
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	TX		

No.	Frequency (MHz)	Reading (dBuV)	Correct Fac-tor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1580	21.26	20.04	41.30	65.57	-24.27	QP
2	0.1580	6.12	20.04	26.16	55.57	-29.41	AVG
3	0.2100	19.85	20.10	39.95	63.21	-23.26	QP
4	0.2100	3.50	20.10	23.60	53.21	-29.61	AVG
5	0.3540	17.07	19.90	36.97	58.87	-21.90	QP
6	0.3540	2.56	19.90	22.46	48.87	-26.41	AVG
7	0.5900	17.28	19.98	37.26	56.00	-18.74	QP
8	0.5900	3.84	19.98	23.82	46.00	-22.18	AVG
9	0.7620	14.80	19.90	34.70	56.00	-21.30	QP
10	0.7620	1.63	19.90	21.53	46.00	-24.47	AVG
11	1.2820	10.73	19.68	30.41	56.00	-25.59	QP
12	1.2820	-0.55	19.68	19.13	46.00	-26.87	AVG

Remark:
1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result =Reading + Factor)–Limit
3. Factor=LISN factor+Cable loss+Limiter (10dB)



5.22 RADIATED SPURIOUS EMISSION

RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a) limit in the table and according to ANSI C63.10-2013 below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (Frequency Range 9kHz-1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 3 MHz

Receiver Parameter	**Setting**
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

TEST PROCEDURE

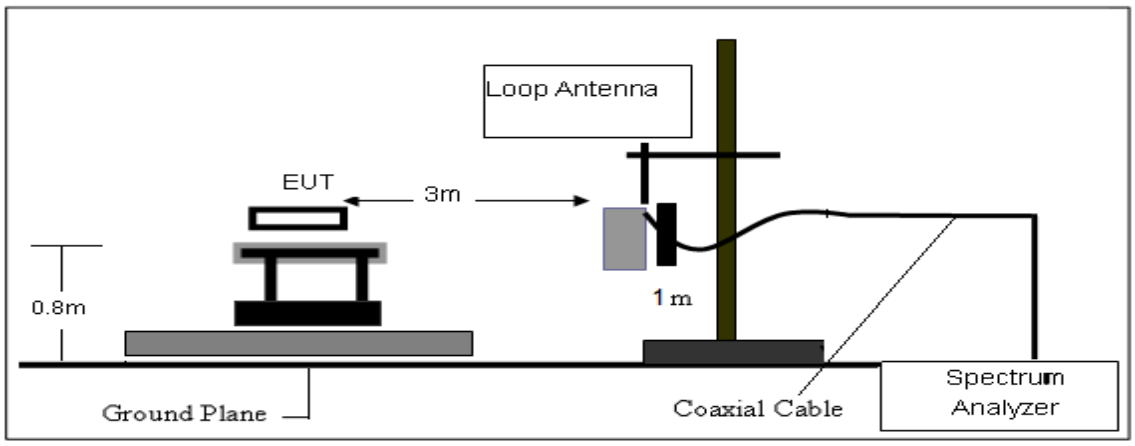
a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
b. The EUT was placed on the top of a rotating table 0.8 meters(above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarizations of the Antenna 1re set to make the measurement
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

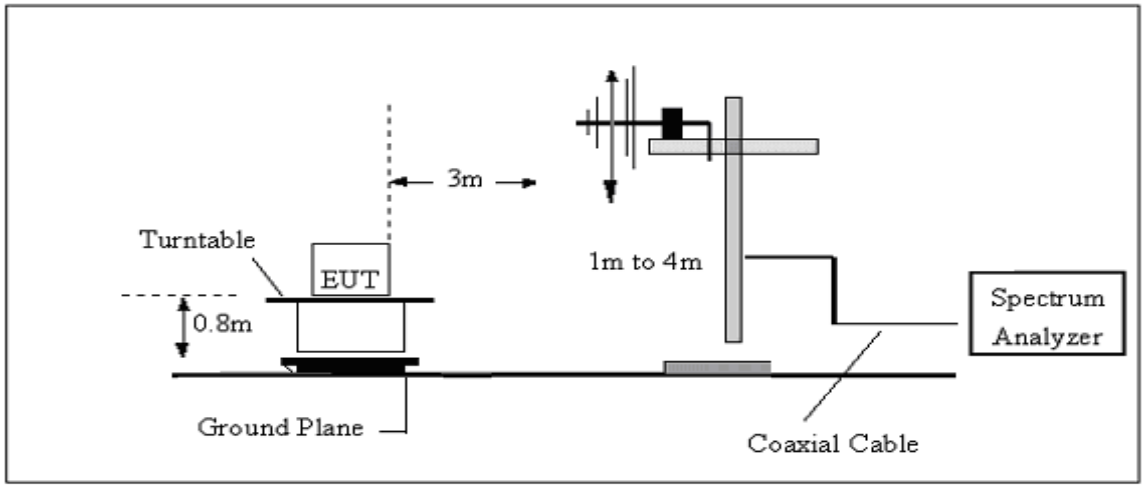
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

TEST SETUP

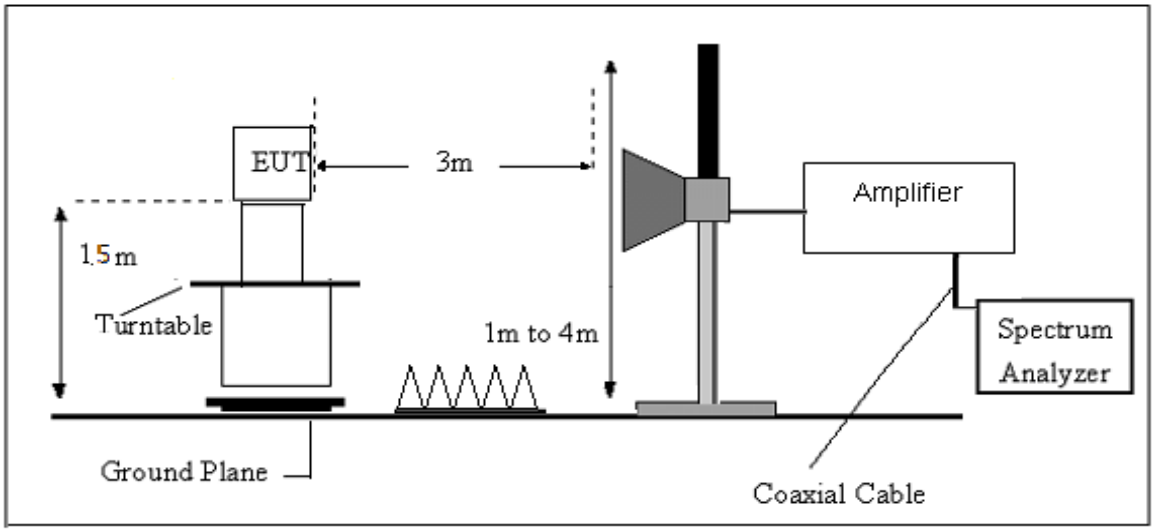
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

Margin=PL-PK L or AL- AV L; Margin only shown the worst case.

Where

PR = Peak Reading

AR = Average Reading

PL = Peak Level

AL = Average Level

AF = Antenna Factor

PK L = Peak Limit

AV L = AV Limit

For example

Frequency	PR	AR	AF	PL	AL	PK L	AV L	Margin
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
2178	40.23	30.31	9.83	50.06	40.14	74.00	54.00	-13.86

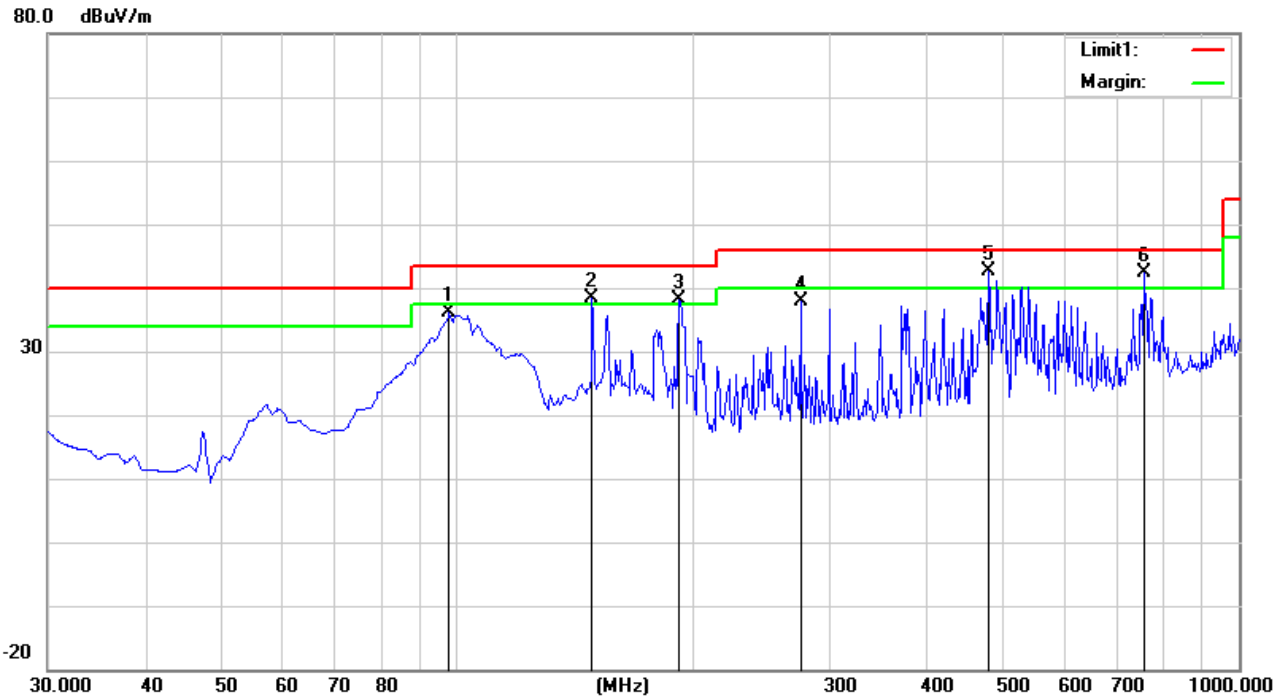
Factor=AF+CL-AG

101, Building B, Zhuoke Science Park, No. 190 Chongqing Road, Zhancheng Shequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755 3688 6288 Fax: +86-755 3688 6277 Http://www.stsapp.com E-mail:sts@stsapp.com

TEST RESULTS(30MHz – 1GHz)

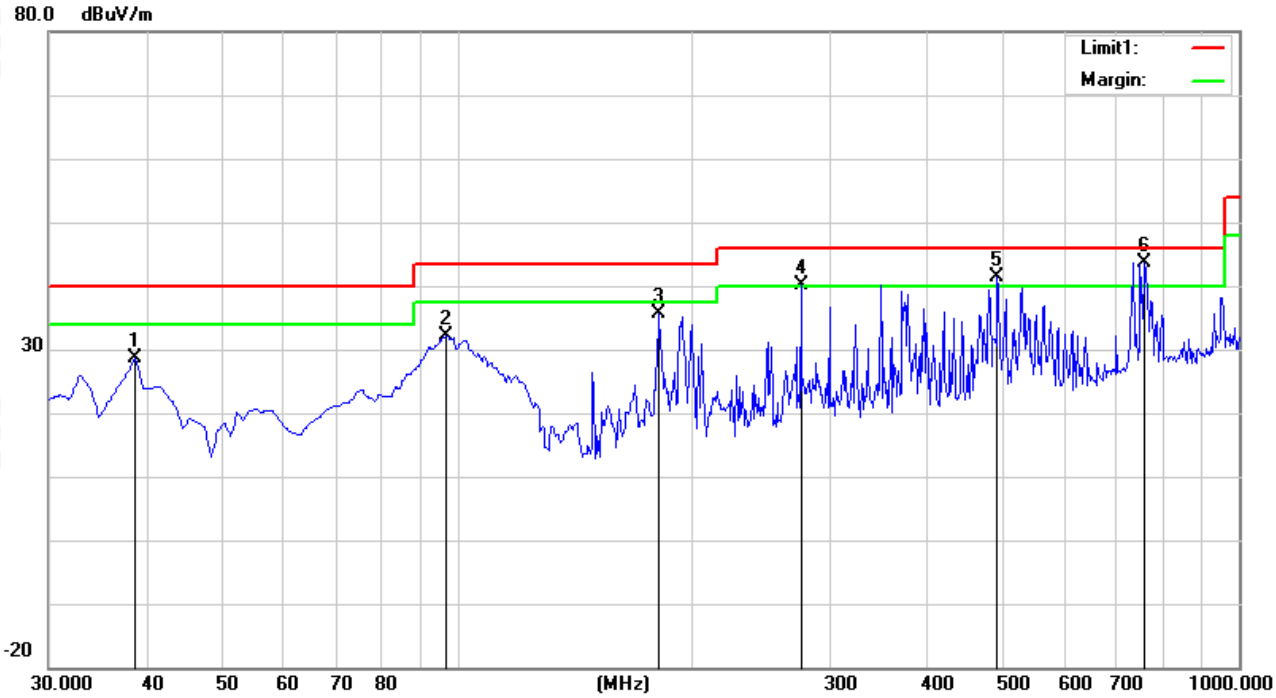
Temperature:	23.4℃	Relative Humidity:	60%
Test Voltage:	DC 5V from Adapter	Phase:	Horizontal
Test Mode:	TX Mode		

Ant A



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	97.9000	56.58	-20.46	36.12	43.50	-7.38	peak
2	149.3100	56.91	-18.49	38.42	43.50	-5.08	peak
3	192.9600	59.31	-21.08	38.23	43.50	-5.27	peak
4	275.4100	53.30	-15.46	37.84	46.00	-8.16	peak
5	480.0800	51.36	-8.65	42.71	46.00	-3.29	peak
6	757.5000	44.47	-2.17	42.30	46.00	-3.70	peak

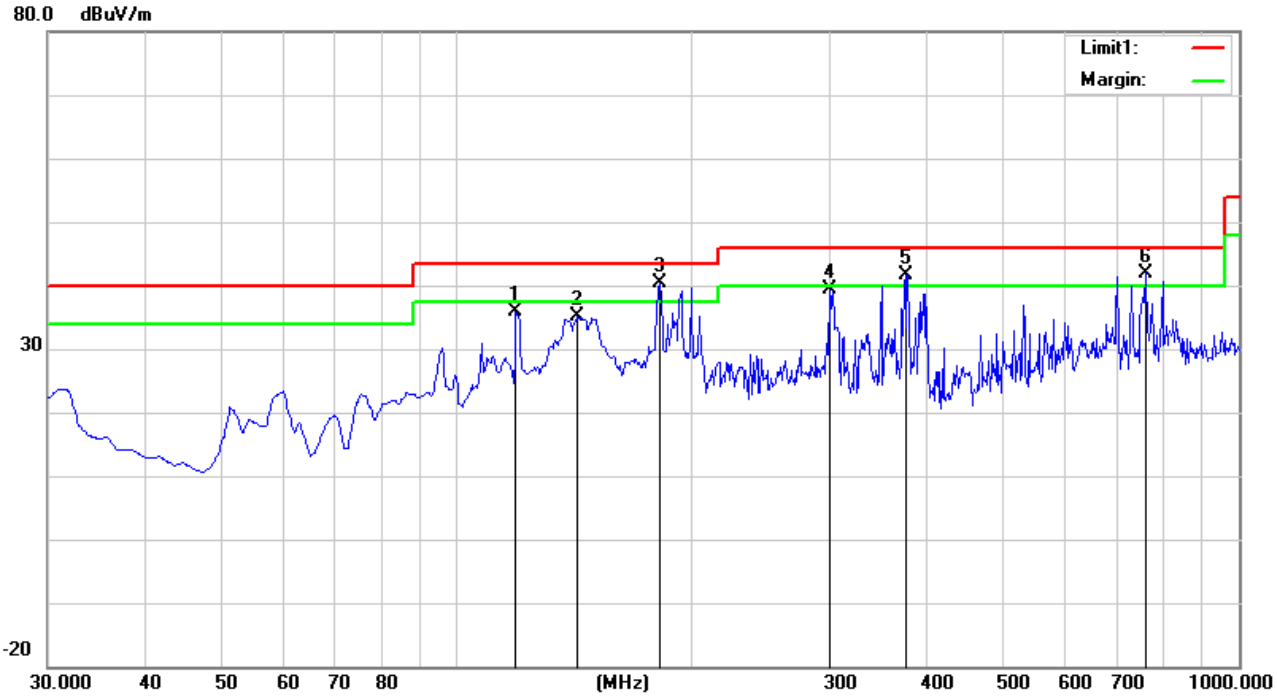
Temperature:	23.4℃	Relative Humidity:	60%
Test Voltage:	DC 5V from Adapter	Phase:	Vertical
Test Mode:	TX Mode		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.7300	46.03	-17.36	28.67	40.00	-11.33	peak
2	96.9300	52.74	-20.57	32.17	43.50	-11.33	peak
3	181.3200	55.69	-20.11	35.58	43.50	-7.92	peak
4	275.4100	55.70	-15.46	40.24	46.00	-5.76	peak
5	491.7200	49.66	-8.18	41.48	46.00	-4.52	peak
6	758.4700	45.91	-2.17	43.74	46.00	-2.26	peak

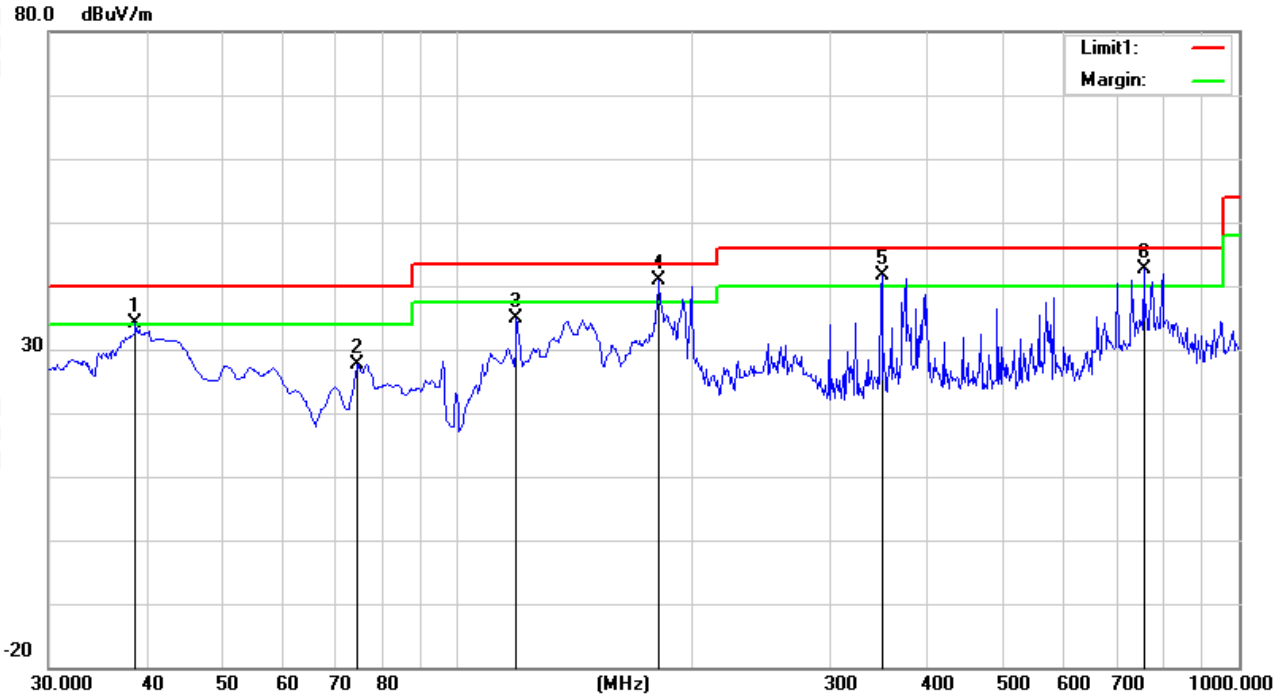
Temperature:	23.4℃	Relative Humidity:	60%
Test Voltage:	DC 5V from Adapter	Phase:	Vertical
Test Mode:	TX Mode		

Ant B



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	119.2400	54.17	-18.38	35.79	43.50	-7.71	peak
2	142.5200	53.29	-18.18	35.11	43.50	-8.39	peak
3	182.2900	60.48	-20.19	40.29	43.50	-3.21	peak
4	299.6600	54.13	-14.82	39.31	46.00	-6.69	peak
5	375.3200	53.93	-12.37	41.56	46.00	-4.44	peak
6	761.3800	44.19	-2.19	42.00	46.00	-4.00	peak

Temperature:	23.4℃	Relative Humidity:	60%
Test Voltage:	DC 5V from Adapter	Phase:	Vertical
Test Mode:	TX Mode		



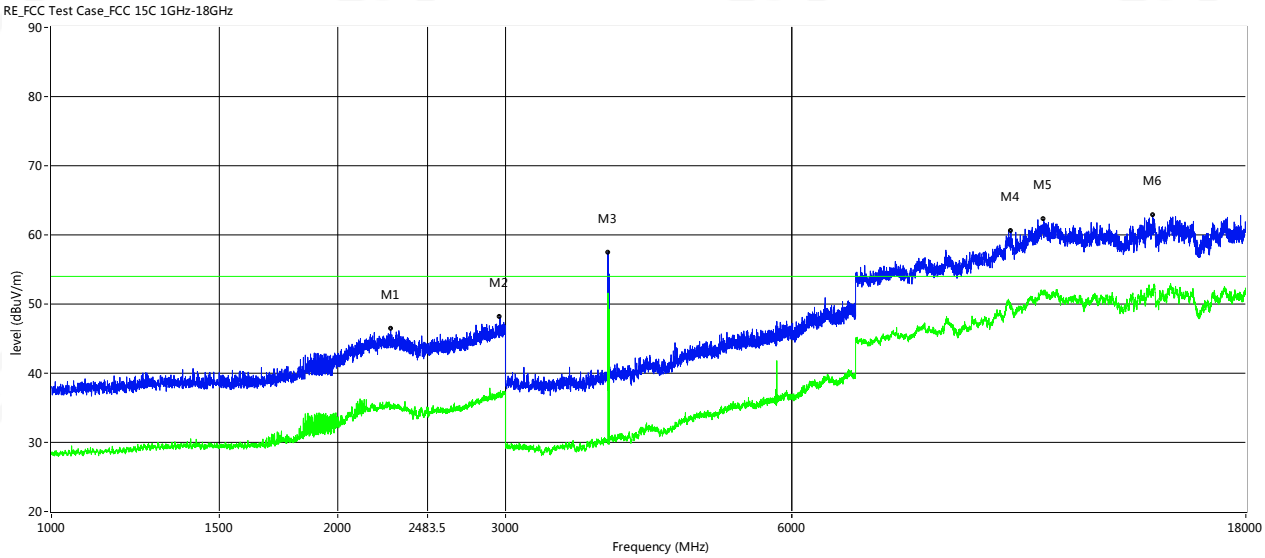
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.7518	51.44	-17.37	34.07	40.00	-5.93	peak
2	74.6200	51.62	-23.99	27.63	40.00	-12.37	peak
3	119.2400	53.33	-18.38	34.95	43.50	-8.55	peak
4	181.3200	60.92	-20.11	40.81	43.50	-2.69	peak
5	350.1000	54.74	-13.06	41.68	46.00	-4.32	peak
6	757.5000	44.82	-2.17	42.65	46.00	-3.35	peak

TEST RESULTS(Above 1GHz)

Ant A

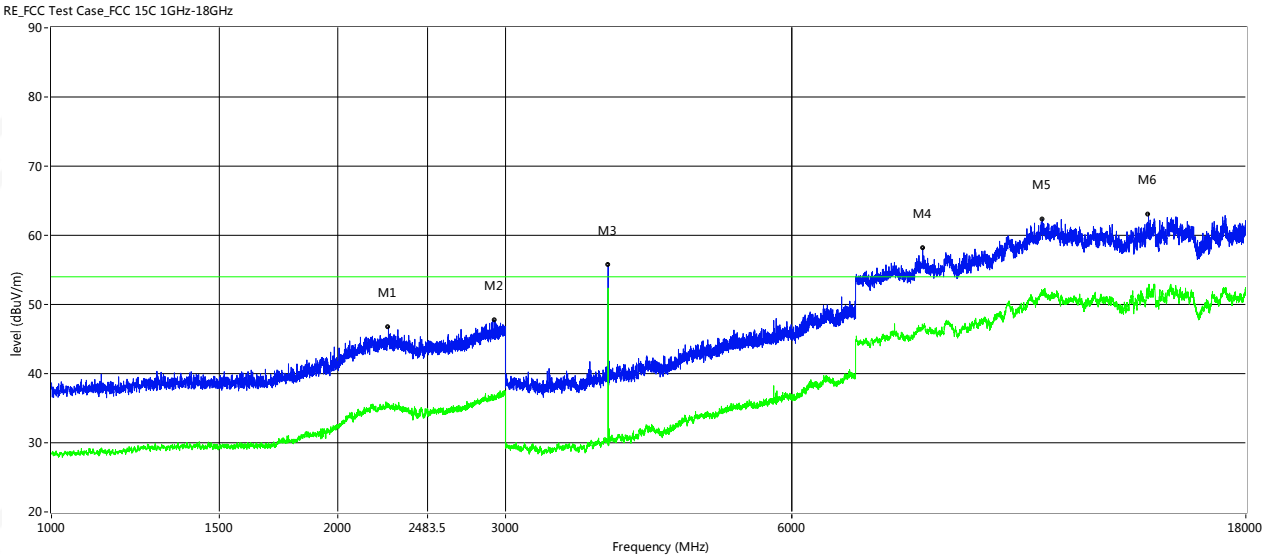
Low

Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2272.500	46.37	34.89	4.61	74.0	54.0	-19.11	38.70	100	Horizontal	Pass
2960.500	48.19	37.15	5.94	74.0	54.0	-16.85	213.80	100	Horizontal	Pass
3845.000	57.49	51.60	-10.94	74.0	54.0	-2.40	310.80	100	Horizontal	Pass
10195.500	60.62	49.58	7.11	74.0	54.0	-4.42	123.30	100	Horizontal	Pass
11039.750	62.26	51.79	10.01	74.0	54.0	-2.21	295.40	100	Horizontal	Pass
14364.500	62.86	51.26	11.21	74.0	54.0	-2.74	124.60	100	Horizontal	Pass

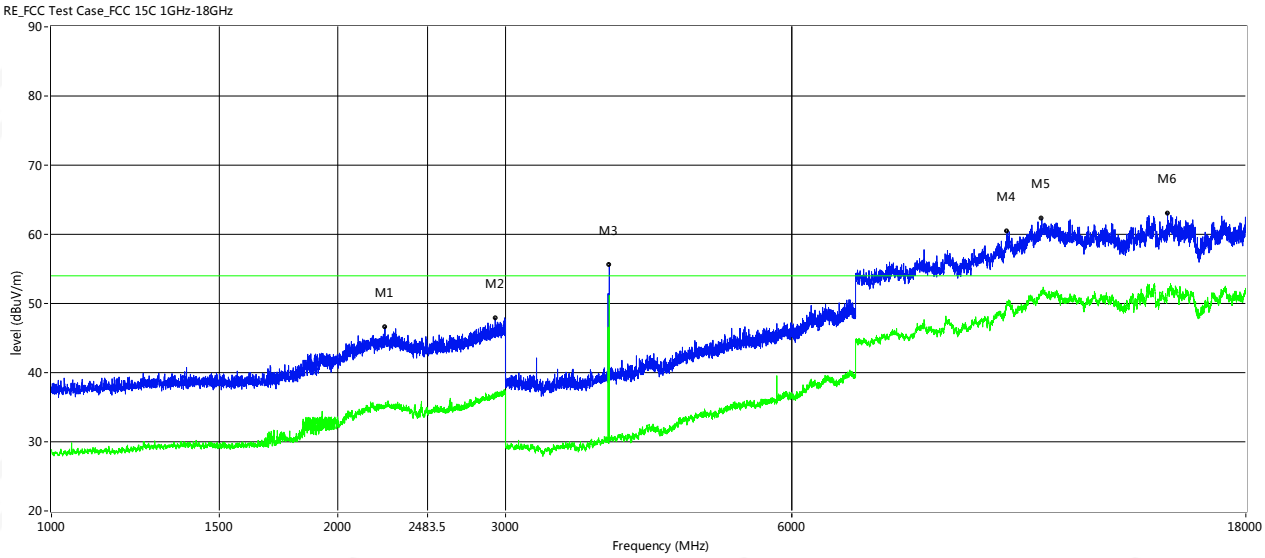
Vertical



Frequency (MHz)	Peak Level (dBuV /m)	Average Level (dBuV /m)	Factor (dB)	PK Limit (dBuV /m)	AV Limit (dBuV /m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2260.500	46.76	35.09	4.63	74.0	54.0	-18.91	128.90	100	Vertical	Pass
2923.500	47.72	36.42	5.74	74.0	54.0	-17.58	286.40	100	Vertical	Pass
3847.000	55.67	51.28	-10.93	74.0	54.0	-2.72	1.20	100	Vertical	Pass
8234.750	58.10	46.83	4.21	74.0	54.0	-7.17	110.70	100	Vertical	Pass
11004.000	62.32	51.93	10.20	74.0	54.0	-2.07	264.40	100	Vertical	Pass
14224.250	63.03	51.88	11.41	74.0	54.0	-2.12	210.70	100	Vertical	Pass

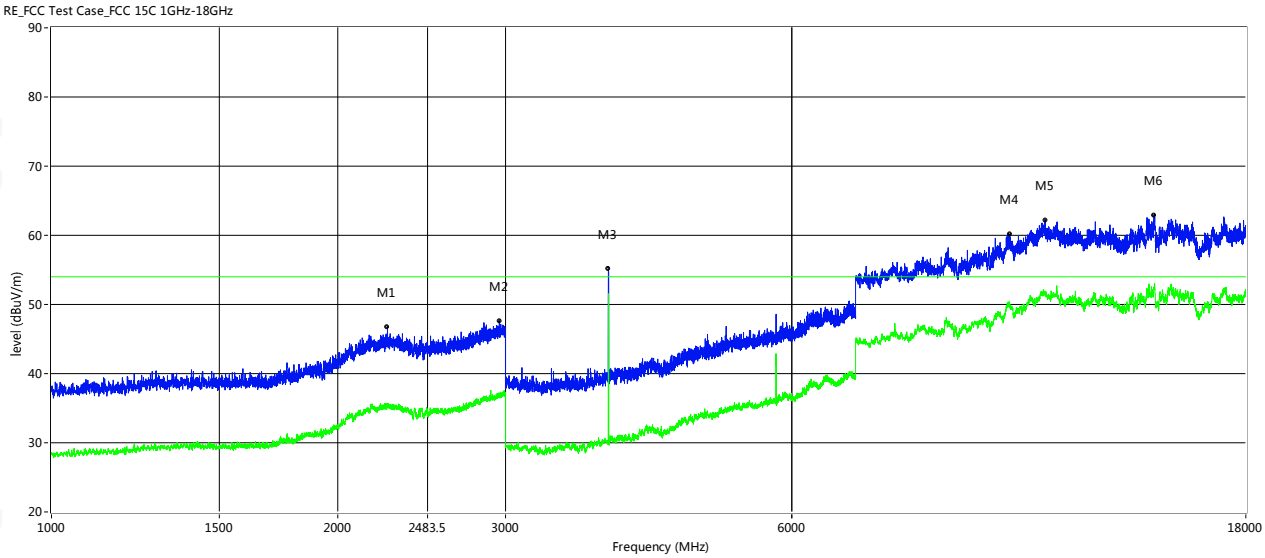
Mid

Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2241.000	46.60	34.89	4.54	74.0	54.0	-19.11	61.60	100	Horizontal	Pass
2926.500	47.81	36.74	5.76	74.0	54.0	-17.26	0.60	100	Horizontal	Pass
3857.000	55.60	51.17	-10.89	74.0	54.0	-2.83	334.80	100	Horizontal	Pass
10102.000	60.41	49.95	7.18	74.0	54.0	-4.05	190.40	100	Horizontal	Pass
10984.750	62.24	51.91	10.10	74.0	54.0	-2.09	87.00	100	Horizontal	Pass
14892.500	63.00	51.07	9.90	74.0	54.0	-2.93	73.70	100	Horizontal	Pass

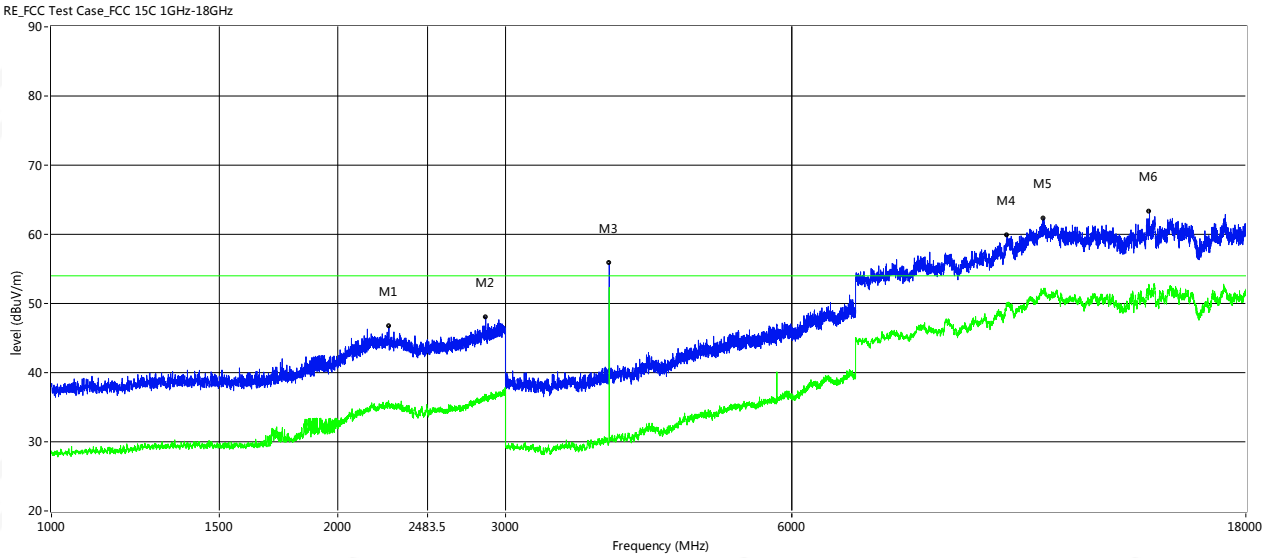
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2255.000	46.74	35.48	4.63	74.0	54.0	-18.52	117.50	100	Vertical	Pass
2955.500	47.64	36.88	5.92	74.0	54.0	-17.12	142.80	100	Vertical	Pass
3849.000	55.08	50.70	-10.92	74.0	54.0	-3.30	355.50	100	Vertical	Pass
10168.001	60.16	50.02	7.13	74.0	54.0	-3.98	312.30	100	Vertical	Pass
11078.250	62.18	51.31	9.80	74.0	54.0	-2.69	215.30	100	Vertical	Pass
14414.000	62.90	51.57	11.26	74.0	54.0	-2.43	234.80	100	Vertical	Pass

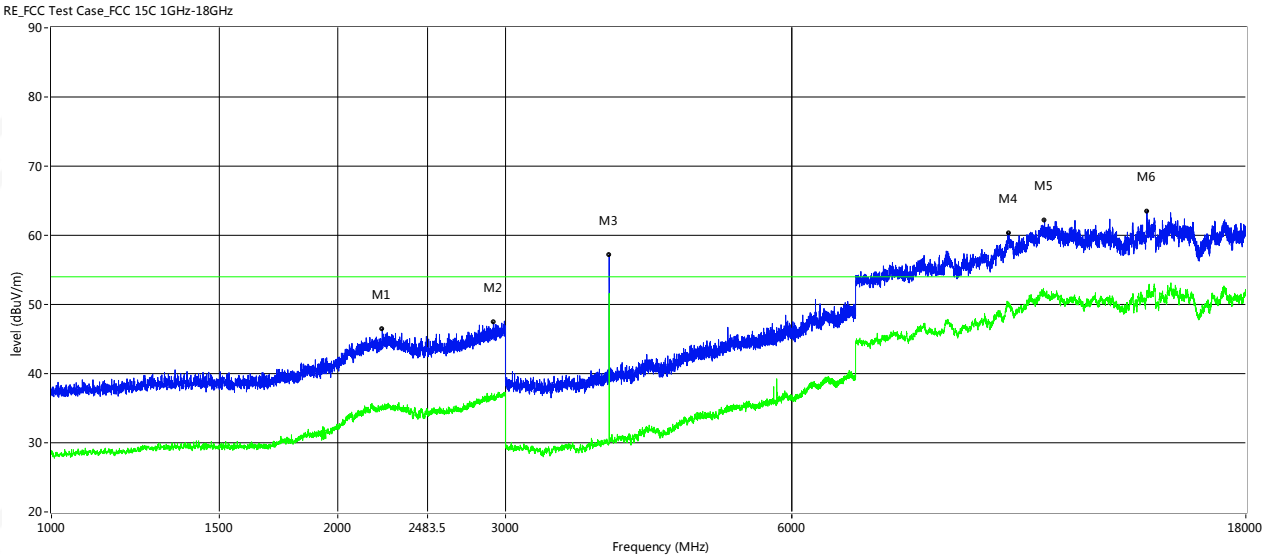
High

Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2262.500	46.66	35.08	4.62	74.0	54.0	-18.92	118.30	100	Horizontal	Pass
2860.000	48.07	36.48	5.61	74.0	54.0	-17.52	0.30	100	Horizontal	Pass
3856.000	55.85	51.45	-10.90	74.0	54.0	-2.55	210.50	100	Horizontal	Pass
10099.250	59.92	49.80	7.16	74.0	54.0	-4.20	105.10	100	Horizontal	Pass
11042.500	62.27	51.58	9.99	74.0	54.0	-2.42	340.80	100	Horizontal	Pass
14257.250	63.22	51.97	11.16	74.0	54.0	-2.03	270.00	100	Horizontal	Pass

Vertical

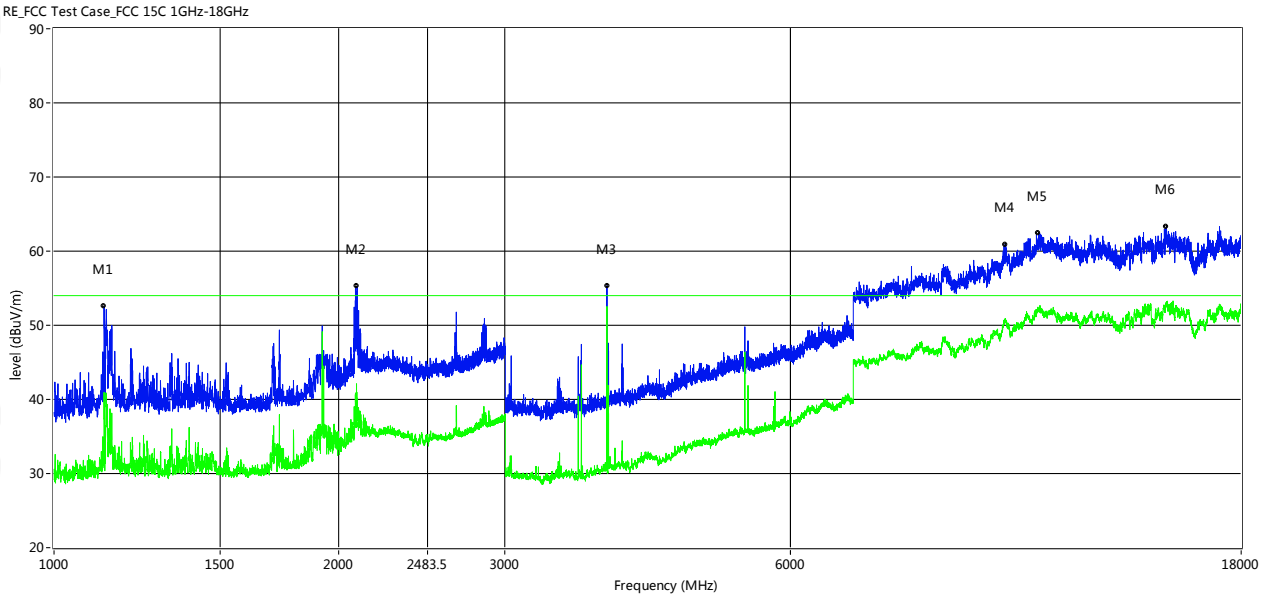


Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2226.500	46.47	34.94	4.39	74.0	54.0	-19.06	99.90	100	Vertical	Pass
2913.500	47.39	36.48	5.69	74.0	54.0	-17.52	19.90	100	Vertical	Pass
3856.000	57.21	51.60	-10.90	74.0	54.0	-2.40	1.50	100	Vertical	Pass
10146.000	60.32	50.15	7.15	74.0	54.0	-3.85	63.10	100	Vertical	Pass
11059.000	62.20	51.81	9.90	74.0	54.0	-2.19	225.30	100	Vertical	Pass
14169.250	63.45	51.95	11.09	74.0	54.0	-2.05	4.80	100	Vertical	Pass

Ant B

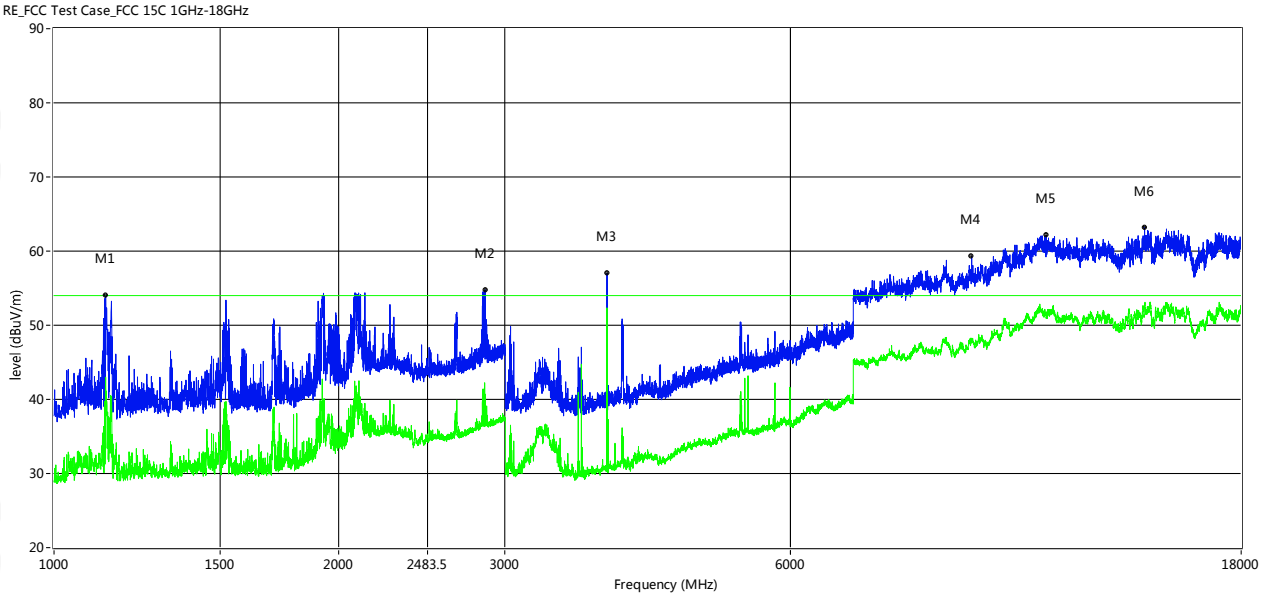
Low

Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1129.500	52.53	40.96	-1.42	74.0	54.0	-13.04	349.90	100	Horizontal	Pass
2091.500	55.24	40.17	3.63	74.0	54.0	-13.83	175.80	100	Horizontal	Pass
3843.000	55.35	51.54	-10.95	74.0	54.0	-2.46	7.60	100	Horizontal	Pass
10132.250	60.92	50.91	7.16	74.0	54.0	-3.09	255.10	100	Horizontal	Pass
10990.250	62.48	51.98	10.14	74.0	54.0	-2.02	358.40	100	Horizontal	Pass
15008.000	63.28	52.90	10.39	74.0	54.0	-1.10	158.30	100	Horizontal	Pass

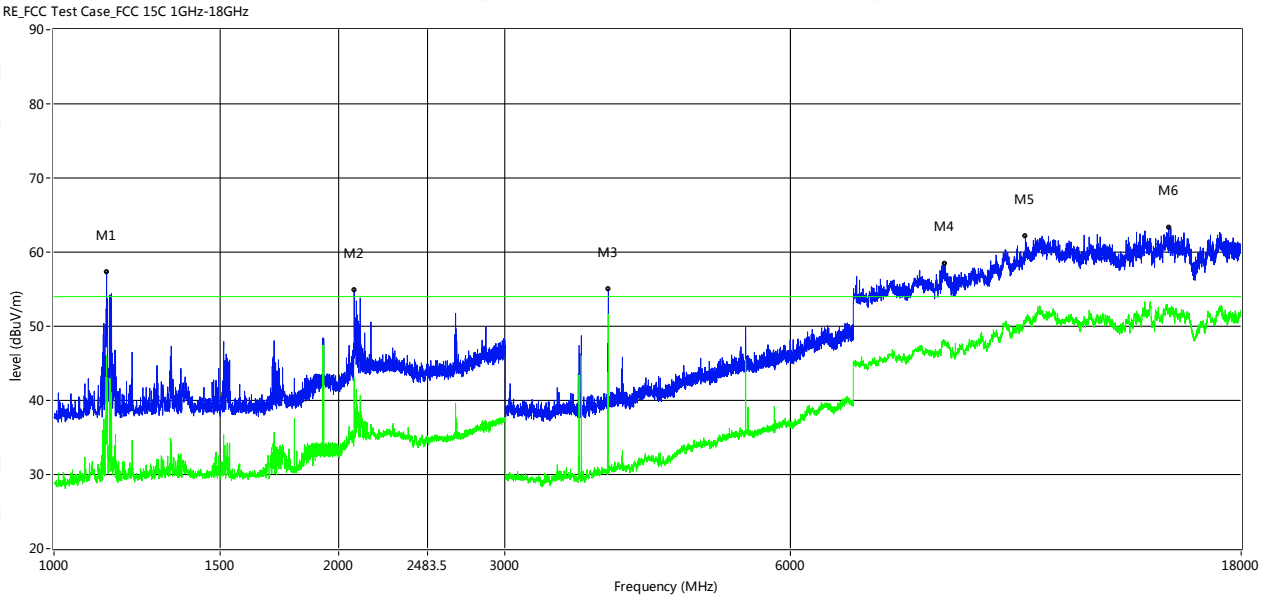
Vertical



Frequency (MHz)	Peak Level (dBuV /m)	Average Level (dBuV /m)	Factor (dB)	PK Limit (dBuV /m)	AV Limit (dBuV /m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1134.000	54.07	42.99	-1.42	74.0	54.0	-11.01	292.00	100	Vertical	Pass
2858.500	54.79	40.61	5.61	74.0	54.0	-13.39	282.00	100	Vertical	Pass
3844.000	57.01	51.43	-10.94	74.0	54.0	-2.57	103.30	100	Vertical	Pass
9340.250	59.29	48.09	5.23	74.0	54.0	-5.91	74.70	100	Vertical	Pass
11199.250	62.12	51.09	9.60	74.0	54.0	-2.91	355.90	100	Vertical	Pass
14227.000	63.18	52.41	11.39	74.0	54.0	-1.59	15.20	100	Vertical	Pass

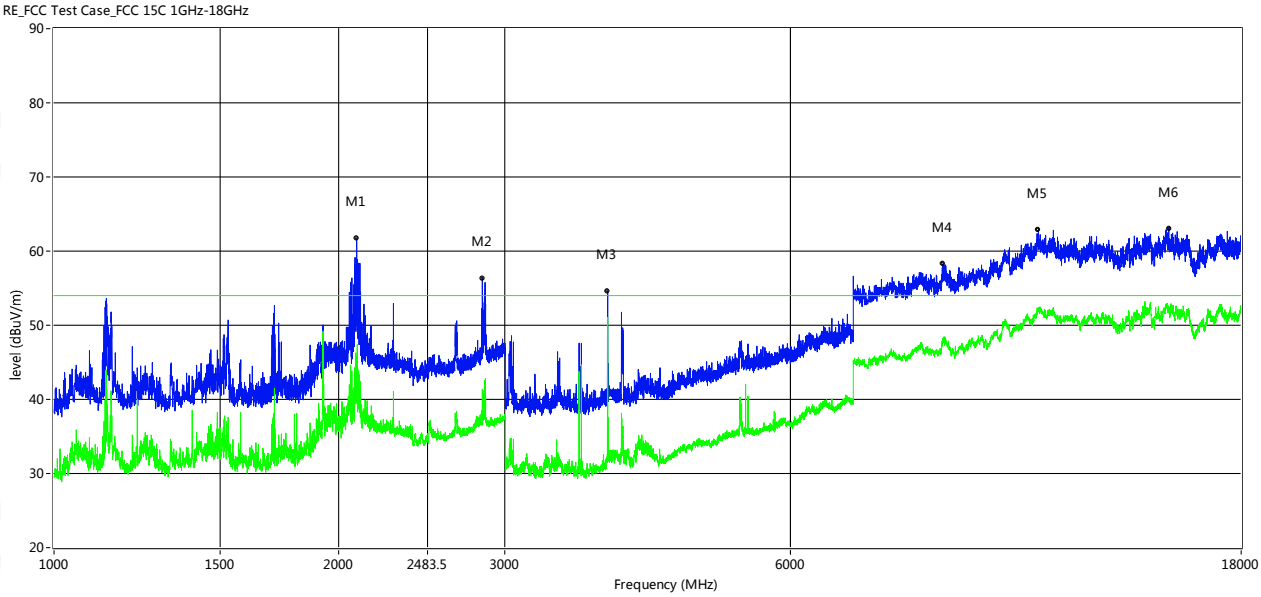
Mid

Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1136.500	57.30	46.07	-1.41	74.0	54.0	-7.93	245.40	100	Horizontal	Pass
2077.000	54.88	43.04	3.35	74.0	54.0	-10.96	290.00	100	Horizontal	Pass
3856.000	54.95	51.61	-10.90	74.0	54.0	-2.39	0.00	100	Horizontal	Pass
8751.750	58.38	47.66	5.00	74.0	54.0	-6.34	117.10	100	Horizontal	Pass
10646.500	62.13	50.80	8.22	74.0	54.0	-3.20	98.90	100	Horizontal	Pass
15093.250	63.33	52.15	10.31	74.0	54.0	-1.85	20.10	100	Horizontal	Pass

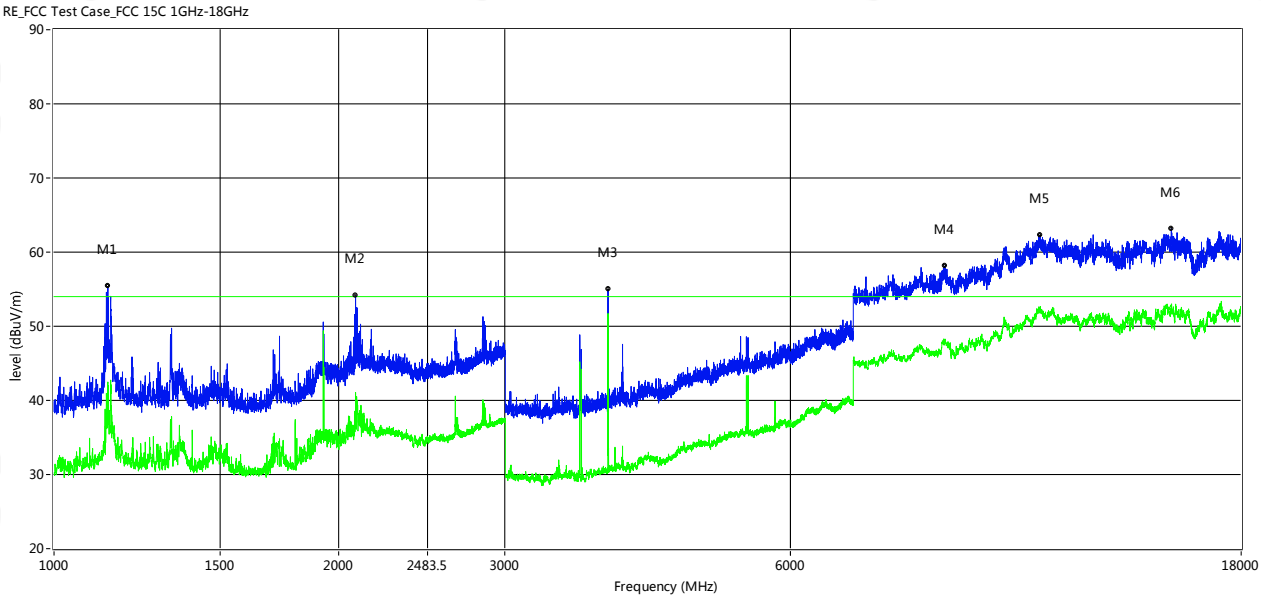
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2089.500	61.66	45.16	3.59	74.0	54.0	-8.84	305.70	100	Vertical	Pass
2837.500	56.32	41.34	5.52	74.0	54.0	-12.66	262.10	100	Vertical	Pass
3850.000	54.57	51.06	-10.92	74.0	54.0	-2.94	309.00	100	Vertical	Pass
8705.000	58.24	47.63	5.14	74.0	54.0	-6.37	342.50	100	Vertical	Pass
10987.500	62.87	52.39	10.12	74.0	54.0	-1.61	5.40	100	Vertical	Pass
15090.500	63.05	52.45	10.31	74.0	54.0	-1.55	351.20	100	Vertical	Pass

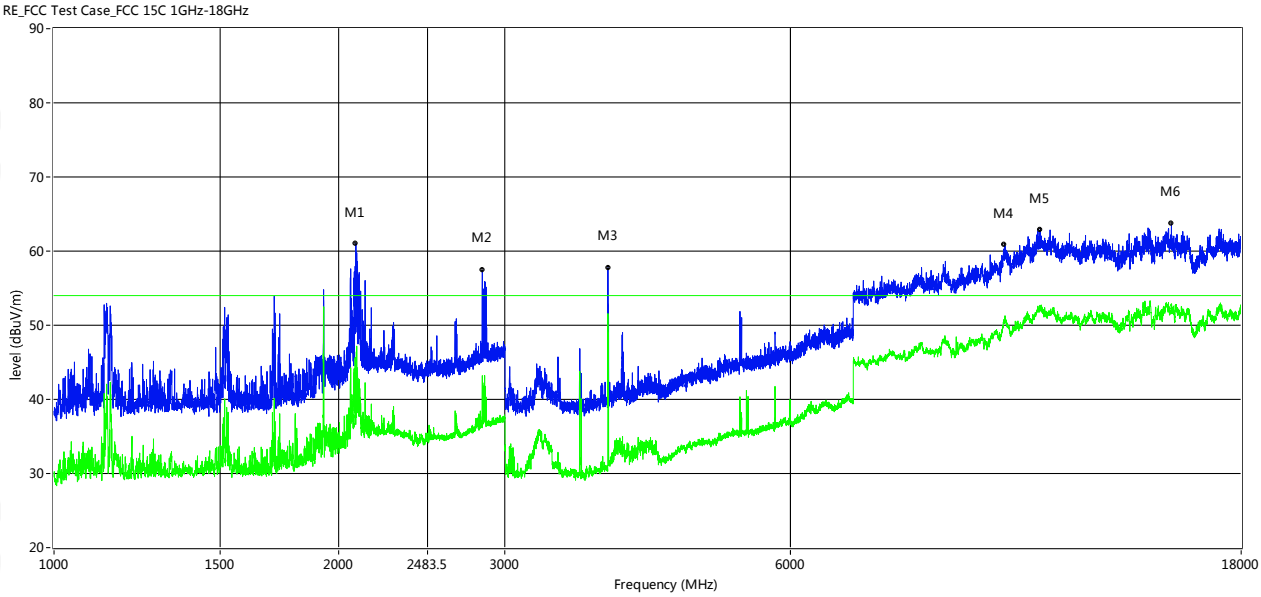
High

Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1140.000	55.37	42.49	-1.40	74.0	54.0	-11.51	323.50	100	Horizontal	Pass
2084.000	54.11	41.07	3.48	74.0	54.0	-12.93	284.80	100	Horizontal	Pass
3852.000	54.95	50.03	-10.91	74.0	54.0	-3.97	360.00	100	Horizontal	Pass
8749.000	58.13	48.00	5.01	74.0	54.0	-6.00	353.20	100	Horizontal	Pass
11026.000	62.30	52.41	10.08	74.0	54.0	-1.59	309.40	100	Horizontal	Pass
15184.000	63.16	52.88	10.92	74.0	54.0	-1.12	175.80	100	Horizontal	Pass

Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
2085.500	61.03	44.90	3.51	74.0	54.0	-9.10	291.10	100	Vertical	Pass
2837.000	57.43	43.21	5.52	74.0	54.0	-10.79	256.90	100	Vertical	Pass
3852.000	57.75	51.57	-10.91	74.0	54.0	-2.43	111.10	100	Vertical	Pass
10115.750	60.90	50.39	7.17	74.0	54.0	-3.61	360.00	100	Vertical	Pass
11031.500	62.87	52.38	10.05	74.0	54.0	-1.62	281.10	100	Vertical	Pass
15189.500	63.66	52.58	10.96	74.0	54.0	-1.42	129.80	100	Vertical	Pass

APENDIX BPHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※ END OF THE REPORT ※※※※※

101, Building B, Zhuoke Science Park, No. 190 Chongqing Road, Zhancheng Shequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755 3688 6288 Fax: +86-755 3688 6277 Http://www.stsapp.com E-mail:sts@stsapp.com