FCC TEST REPORT

Report No.:	QBG-ESH-P20100483B-3
Product:	LITTLE MARCEL SPEAKER
Test Model:	13037, 14599
YR PO number:	40c7952g01, 4007952g01, 4137952g01; 40c7953g01, 4007953g01, 4137953g01
ANAIK Product ref:	PR-19-015066, PR-19-015066
ANAIK PO number:	VE20-093118, VE20-093122
Received:	Oct.22, 2020
ISSUED:	Nov.12, 2020
Applicant:	ANAIK
Address:	10 rue de la Censé
Issued By:	BUREAU VERITAS ADT (Shanghai) Corporation
Lab Location:	No. 829, Xinzhuan Road, Shanghai, P.R.China (201612)

ACCREDITED
Test Lab
Cert 2343.01

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1. TEST PROGRAM

PRODUCT: LITTLE MARCEL SPEAKER
TEST MODEL: 13037, 14599
APPLICANT: ANAIK
TESTED: Oct.23 to Nov.10, 2020
STANDARDS: 47 CFR FCC Part15, Subpart B, Class B
ANSI C63.4:2014

We, BUREAU VERITAS ADT (Shanghai) Corporation, declare that the equipment above has been tested and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

PREPARED BY : Yuan Zhang , **DATE:** Nov.12, 2020
Yuan ZHANG
Project Engineer

APPROVED BY : , **DATE:** Nov.12, 2020
Daniel Sun
EMC Lab Manager

2. Summary of Test Procedure and Test Results

EMISSION (47 CFR FCC Part15, Subpart B)		
Test Item	Normative References	Test Result
Conducted Emission	47 CFR FCC Part15, Subpart B 15.107	Meets the Class B requirements
Radiated Emission	47 CFR FCC Part15, Subpart B 15.109	Meets the Class B requirements

3. Test Configuration of Equipment under Test

3.1 Manufacturer information

Manufacturer : Bellatemps Limited

Address : No. 428, Jinxiu South Street, Jiangkou Town, Hanjiang District, Putian City, Fujian, China

3.2 Feature of Equipment under Test

Product Name:	LITTLE MARCEL SPEAKER
Test Model:	13037, 14599
Model Discrepancy:	--
EUT Power Rating:	Powered by USB 5Vdc or battery

Note:

1. Please refer to user manual.
2. All models are same as each other except model name. So all tests were performed on model 14599.

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3.3 Description of support units

NO.	PRODUCT	BRAND	MODEL NO.
1	--	--	--

3.4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

This listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement		Value
Conducted emissions		2.55 dB
Radiated emissions	30 MHz ~ 1GHz	3.22 dB
	Above 1GHz	2.89 dB

4 Test of Conducted Emission

4.1 Test Limit

TEST STANDARD:

CFR 47 FCC Part 15, Subpart B (Section: 15.107)

FREQUENCY (MHz)	Class A (dBµV)		Class B (dBµV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTES: 1.The lower limit shall apply at the transition frequencies.

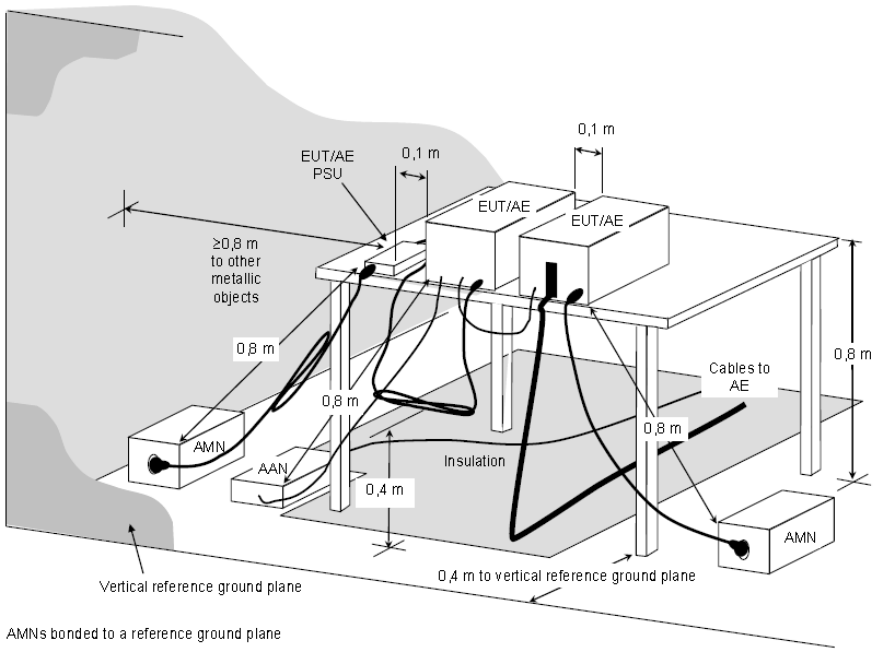
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2 Test Procedures

1. The EUT was placed on a desk 0.8 meter height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
2. Connect EUT to the power mains through a Artificial Mains Network (AMN).
3. All the support units are connecting to the other AMN.
4. The AMN provides 50 ohm coupling impedance for the measuring instrument.
5. The CISPR states that a 50 ohm, 50 micro-Henry AMN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched
8. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

4.3 Typical Test Setup



NOTE The 0,8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be ≥0,8 m.

Figure D.2 – Example measurement arrangement for table-top EUT (Conducted emission measurement – alternative 1)

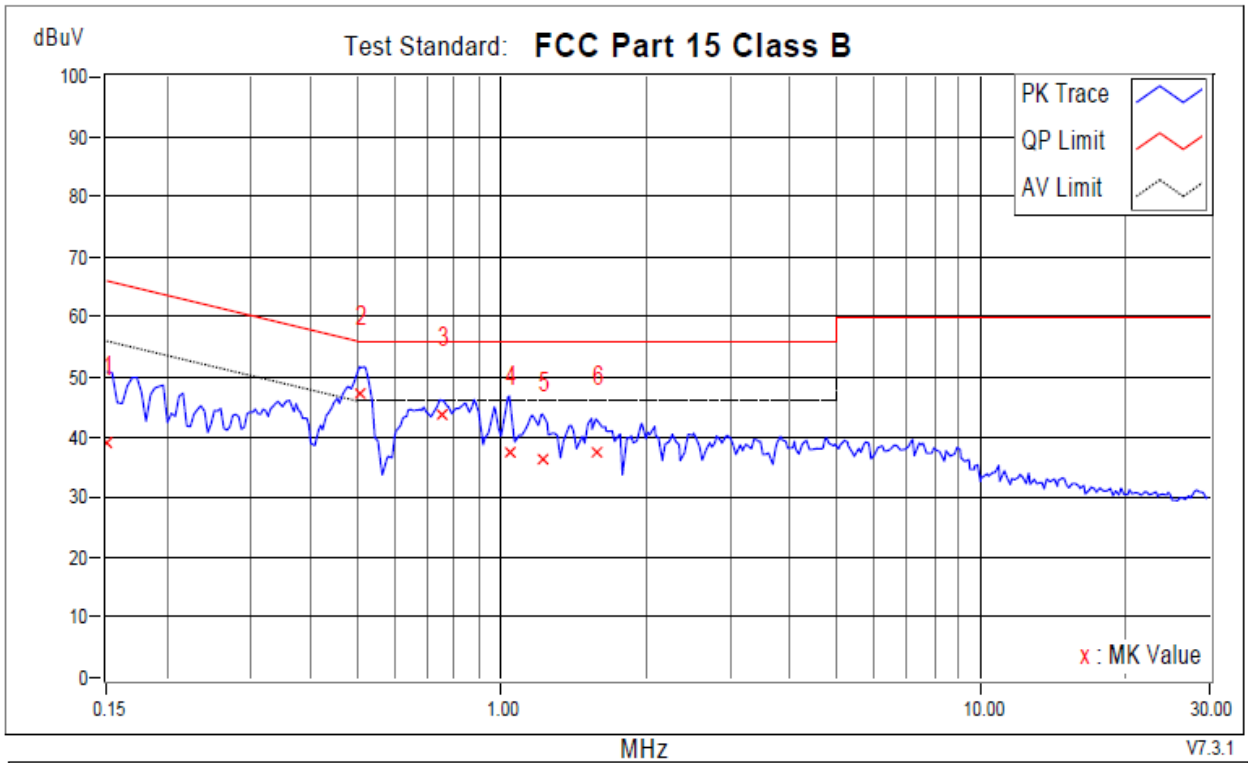
4.4 Measurement Equipment

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	E1R1001	Mar.11, 2021
LISN ROHDE & SCHWARZ	ENV216	E1L1011	Mar.11, 2021
Software ADT	ADT_Cond_V7.3.0	N/A	N/A

4.5 Test Result and Data

Conducted Emission Test Data

Phase : LINE

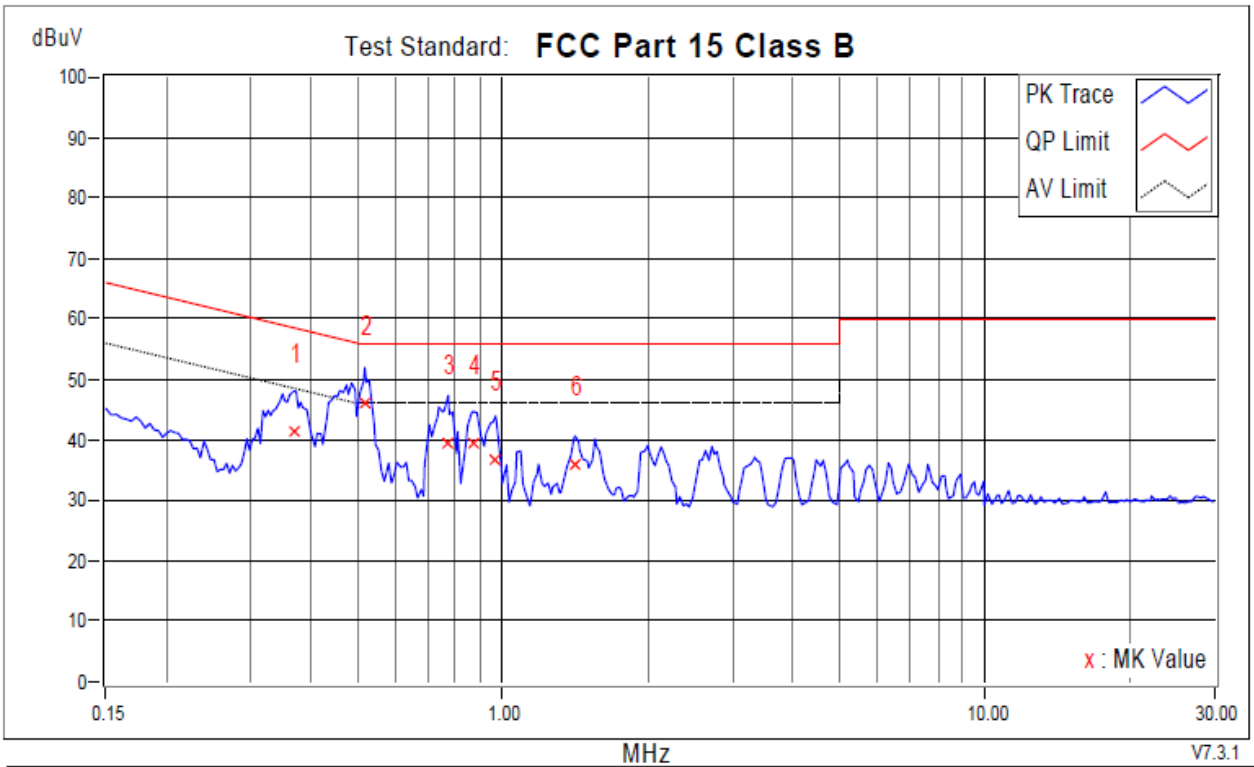


	Frequency	Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	
1	0.15000	9.86	29.15	16.01	39.01	25.87	66.00	56.00	-26.99	-30.13	
+2	0.50581	9.74	37.63	29.39	47.37	39.13	56.00	46.00	-8.63	-6.87	
3	0.75605	9.60	33.99	22.69	43.59	32.29	56.00	46.00	-12.41	-13.71	
4	1.03910	9.62	27.89	16.38	37.51	26.00	56.00	46.00	-18.49	-20.00	
5	1.21896	9.65	26.49	12.82	36.14	22.47	56.00	46.00	-19.86	-23.53	
6	1.57477	9.70	27.67	18.79	37.37	28.49	56.00	46.00	-18.63	-17.51	

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

Phase : NEUTRAL



No.	Frequency MHz	Corr. Factor dB	Reading dBuV QP	Reading dBuV AV	Emission dBuV QP	Emission dBuV AV	Limit dBuV QP	Limit dBuV AV	Margins dB QP	Margins dB AV	Notes
1	0.36896	9.88	31.61	19.19	41.49	29.07	58.52	48.52	-17.03	-19.45	
+2	0.51754	9.86	36.39	25.80	46.25	35.66	56.00	46.00	-9.75	-10.34	
3	0.77169	9.88	29.53	17.67	39.41	27.55	56.00	46.00	-16.59	-18.45	
4	0.86944	9.90	29.69	18.04	39.59	27.94	56.00	46.00	-16.41	-18.06	
5	0.96719	9.91	26.73	16.01	36.64	25.92	56.00	46.00	-19.36	-20.08	
6	1.41446	9.92	26.17	15.54	36.09	25.46	56.00	46.00	-19.91	-20.54	

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

4.6 Test Photographs

Please refer to the attached file (Test Setup Photo).

5 Test of Radiated Emission

5.1 Test Limit

TEST STANDARD:

CFR 47 FCC Part 15, Subpart B (Section: 15.109)

FOR FREQUENCY BELOW 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	μV/m	dBμV/m	μV/m	dBμV/m
30 – 88	90	39.1	100	40.0
88 – 216	150	43.5	150	43.5
216 – 960	210	46.4	200	46.0
960 – 1000	300	49.5	500	54.0

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBμV/m) (at 3m)		Class B (dBμV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

Note: 1.The lower limit shall apply at the transition frequencies.

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

3. All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.2 Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3/10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

5.3 Typical Test Setup

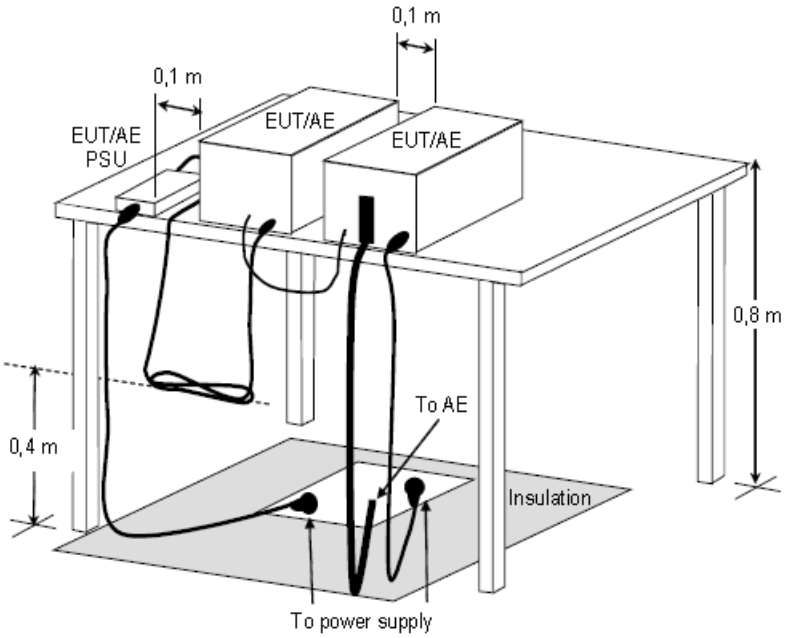


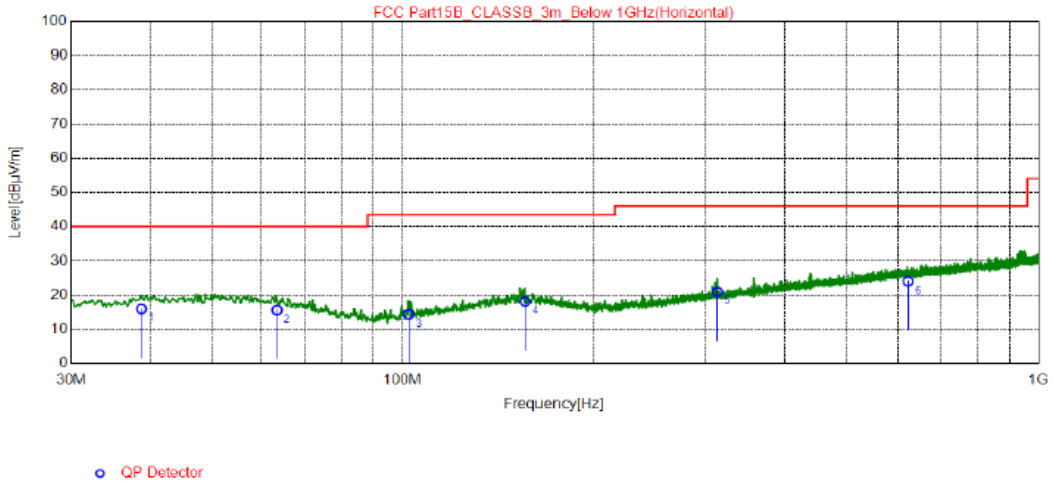
Figure D.8 – Example measurement arrangement for table-top EUT (Radiated emission measurement)

5.4 Measurement Equipment

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
EMI Test Spectrum ROHDE & SCHWARZ	ESR7	E1R1005	May.11, 2021
Spectrum Analyzer Keysight	N9030B	E1S1003	Aug.03, 2021
Broad-Band Antenna Schwarzbeck	VULB9168	E1A1012	Jul.27, 2021
Double Riaged Vroadband Horn Antenna Schwarzbeck	BBHA9120D	E1A1017	Jan.25, 2021
Preamplifier Agilent	8447D	E1A2001	Apr.19, 2021
Preamplifier Agilent	EMC051845SE	E1A2009	Jul.05, 2021

5.5 Test Result and Data (30MHz ~ 1GHz)

Position: Horizontal

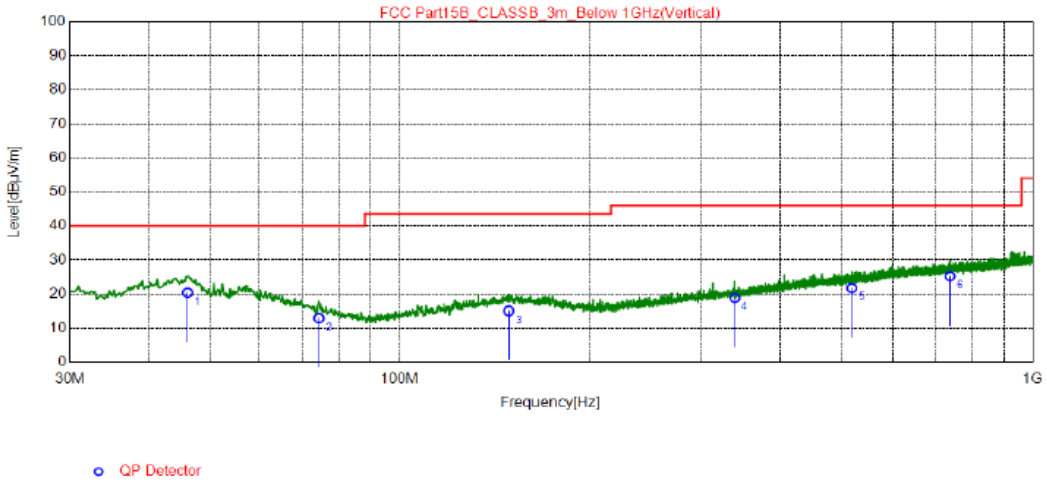


NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	38.73	26.55	-10.59	15.96	40.00	24.04	100	209	Horizontal
2	63.36	26.48	-10.87	15.61	40.00	24.39	100	24	Horizontal
3	102.1	29.04	-14.70	14.34	43.50	29.16	200	218	Horizontal
4	155.9	27.97	-9.87	18.10	43.50	25.40	100	246	Horizontal
5	313.4	29.21	-8.28	20.93	46.00	25.07	100	277	Horizontal
6	622.4	26.3	-2.27	24.03	46.00	21.97	100	42	Horizontal

REMARKS:

1. Q.P. is abbreviation of quasi-peak individually.
2. The emission levels of other frequencies were very low against the limit.
3. QP Margin value = QP Limit value – QP value.
4. Factor = Antenna Factor + Amplifier Factor + Cable loss.
5. QP value = Factor + Reading Value.

Position: Vertical



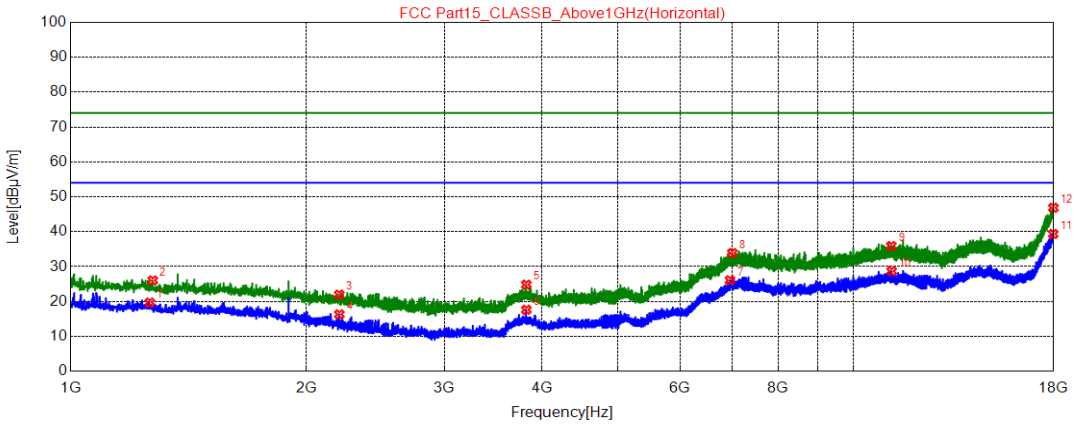
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	46.10	30.33	-9.99	20.34	40.00	19.66	100	286	Vertical
2	74.42	26.09	-13.06	13.03	40.00	26.97	100	3	Vertical
3	148.7	25.15	-10.08	15.07	43.50	28.43	100	290	Vertical
4	339.0	26.47	-7.64	18.83	46.00	27.17	100	125	Vertical
5	519.4	25.91	-4.21	21.70	46.00	24.30	100	72	Vertical
6	739.4	26	-0.84	25.16	46.00	20.84	100	75	Vertical

REMARKS:

1. Q.P. is abbreviation of quasi-peak individually.
2. The emission levels of other frequencies were very low against the limit.
3. QP Margin value = QP Limit value – QP value
4. Factor = Antenna Factor + Amplifier Factor + Cable loss
5. QP value = Factor + Reading Value.

5.6 Test Result and Data (1GHz ~ 18GHz)

Position: Horizontal

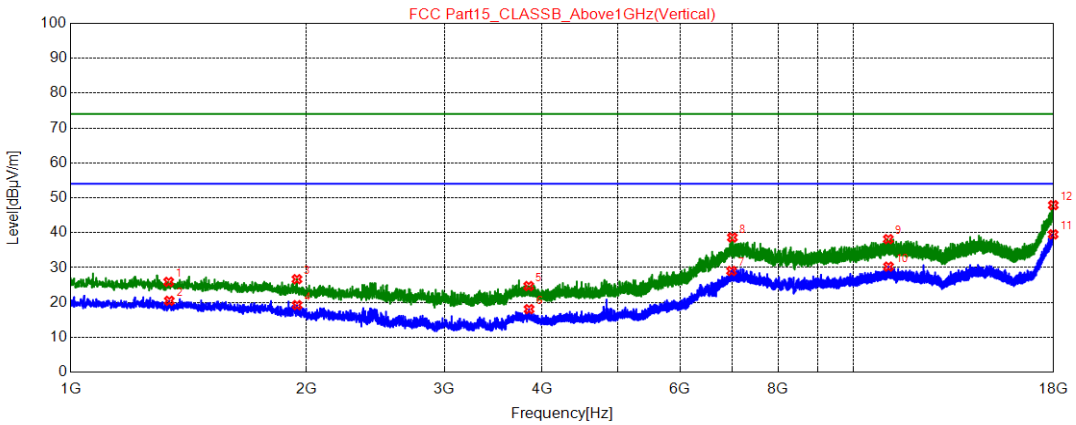


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle[°]	Polarity	Detector
1	1261.8000	39.32	19.68	54.00	34.32	100	333	Horizont	AV
2	1272.8500	45.63	26.03	74.00	47.97	100	333	Horizont	PK
3	2202.7500	38.45	21.95	74.00	52.05	100	256	Horizont	PK
4	2203.6000	32.81	16.31	54.00	37.69	100	256	Horizont	AV
5	3817.7500	36.66	24.82	74.00	49.18	100	217	Horizont	PK
6	3818.6000	29.47	17.63	54.00	36.37	100	175	Horizont	AV
7	6949.1500	26.53	26.07	54.00	27.93	100	136	Horizont	AV
8	6996.7500	33.96	33.87	74.00	40.13	100	333	Horizont	PK
9	11166.000	35.39	35.88	74.00	38.12	100	217	Horizont	PK
10	11176.200	28.19	28.69	54.00	25.31	100	59	Horizont	AV
11	17971.100	24.83	39.34	54.00	14.66	100	333	Horizont	AV
12	17981.300	32.23	46.84	74.00	27.16	100	59	Horizont	PK

REMARKS:

1. The emission levels of other frequencies were very low against the limit.
2. Margin = Limit –Level

Position: Vertical



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle[°]	Polarity	Detector
1	1334.0500	45.31	25.90	74.00	48.10	100	262	Vertical	PK
2	1336.6000	39.87	20.47	54.00	33.53	100	224	Vertical	AV
3	1945.2000	44.09	26.67	74.00	47.33	100	31	Vertical	PK
4	1946.0500	36.65	19.23	54.00	34.77	100	69	Vertical	AV
5	3844.9500	36.48	24.70	74.00	49.30	100	301	Vertical	PK
6	3849.2000	29.85	18.08	54.00	35.92	100	69	Vertical	AV
7	6980.6000	29.24	29.03	54.00	24.97	100	262	Vertical	AV
8	6997.6000	38.70	38.62	74.00	35.38	100	301	Vertical	PK
9	11068.250	37.70	38.15	74.00	35.85	100	31	Vertical	PK
10	11075.050	29.83	30.28	54.00	23.72	100	31	Vertical	AV
11	17967.700	25.04	39.51	54.00	14.49	100	340	Vertical	AV
12	17976.200	33.33	47.89	74.00	26.11	100	224	Vertical	PK

REMARKS:

1. The emission levels of other frequencies were very low against the limit.
2. Margin = Limit –Level

5.7 Test Photographs (30MHz ~ 1000MHz)

Please refer to the attached file (Test Setup Photo).

5.8 Test Photographs (1000MHz ~ 18000MHz)

Please refer to the attached file (Test Setup Photo).

6 Photographs of EUT

--- END ---