

FCC Test Report

FCC ID: 2ASEF-DDK2C7M1

Product: Smart Audio Dev Kit 2
Trade Mark: ROOBO
Model Number: DDK2C7M1
Family Model: DDK2L4M1
Report No.: S19042201801004

Prepared for

Beijing Roobo Technology Co., Ltd.
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Prepared by

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TEST RESULT CERTIFICATION**Applicant's name** : Beijing Roobo Technology Co., Ltd.Address..... : Room 5-128, B1, Building C, Galaxy SOHO, Dongcheng District,
Beijing, China**Manufacturer's Name** : Beijing Roobo Technology Co., Ltd.Address..... : Room 5-128, B1, Building C, Galaxy SOHO, Dongcheng District,
Beijing, China**Product description**

Product name..... : Smart Audio Dev Kit 2

Model and/or type reference : DDK2C7M1, DDK2L4M1

FCC Part15B

Standards : ANSI C63.4:2014

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Date of Test :

Date (s) of performance of tests..... : 22 Apr, 2019~27 Apr, 2019

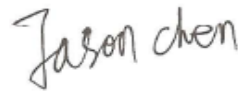
Date of Issue : 05 May, 2019

Test Result : **Pass**

Testing Engineer

: 
(Allen Liu)

Technical Manager

: 
(Jason Chen)

Authorized Signatory

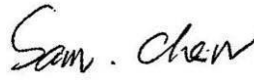
: 
(Sam Chen)

Table of Contents

Page

1 . TEST SUMMARY	4
1.1 TEST FACILITY	5
1.2 MEASUREMENT UNCERTAINTY	5
2 . GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF TEST SETUP	8
2.3 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL	9
2.4 MEASUREMENT INSTRUMENTS LIST	10
3 . EMC EMISSION TEST	11
3.1 CONDUCTED EMISSION MEASUREMENT	11
3.1.1 POWER LINE CONDUCTED EMISSION	11
3.1.2 TEST PROCEDURE	12
3.1.3 TEST SETUP	12
3.1.4 EUT OPERATING CONDITIONS	12
3.1.5 TEST RESULTS	13
3.2 RADIATED EMISSION MEASUREMENT	21
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	21
3.2.2 TEST PROCEDURE	21
3.2.3 TEST SETUP	22
3.2.4 TEST RESULTS	23
3.2.5 TEST RESULTS(1000~26500MHz)	27

1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B ANSI C63.4: 2014	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report
- (2) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd

Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

FCC Registration Number:463705; IC Registration Number:9270A-1

CNAS Registration Number:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
NTEKC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
NTEKA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~12.4GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Audio Dev Kit 2	
Trade Mark	ROOBO	
Model Name	DDK2C7M1	
Family Model	DDK2L4M1	
Model Difference	All models are the same circuit and RF module. Except the microphone array.	
Product Description	The EUT is a Smart Audio Dev Kit 2.	
	Connecting I/O port:	Micro USB
	Operation Frequency:	26 MHz (Declaration by factory) 2.4 GHz by WIFI
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Power Source	DC 5V from USB Port.	
Adapter	N/A	
Battery	N/A	
HW Version	DDK2-MB-V0.1, DDK2-CIRCULAR-V2.0, DDK2-L4MICS-V10	
SW Version	20190410023344	

2.1.1 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

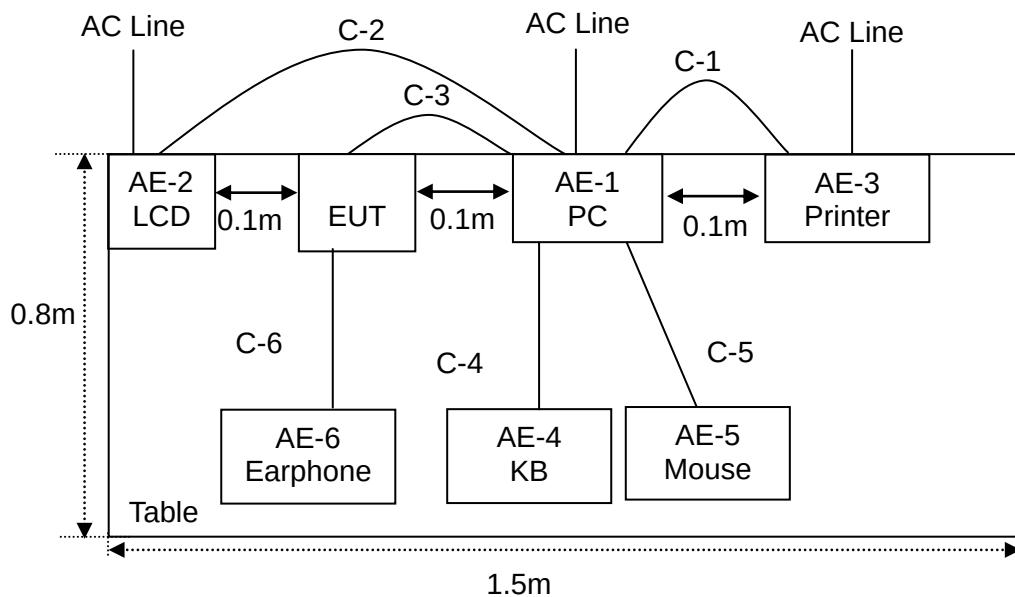
Pretest Mode	Description
Mode 1	Light + MP3 Playing
Mode 2	MP3 Playing
Mode 3	Recording

For Conducted Test	
Final Test Mode	Description
Mode 1	Light + MP3 Playing
Mode 2	MP3 Playing
Mode 3	Recording

For Radiated Test	
Final Test Mode	Description
Mode 1	Light + MP3 Playing
Mode 2	MP3 Playing
Mode 3	Recording

Note: Final Test Mode: Through Pre-scan, find the mode 1 is the worst case.
Only the worst case mode is recorded in the report.

2.2 DESCRIPTION OF TEST SETUP



2.3 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
AE-1	PC	DELL	D06S	N/A	Peripherals
AE-2	LCD	SHARP	LCD-32MS46A	N/A	Peripherals
AE-3	Printer	Canon	L11121E	N/A	Peripherals
AE-4	Keyboard	Logi	Y-U0011	N/A	Peripherals
AE-5	Mouse	HP	MS-SBF96	N/A	Peripherals
AE-6	Earphone	N/A	2688	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable	NO	NO	1.0m	
C-2	HDMI Cable	YES	YES	1.0m	
C-3	USB Cable	YES	YES	1.0m	
C-4	Keyboard Cable	NO	NO	1.2m	
C-5	Mouse Cable	NO	NO	1.2m	
C-6	Earphone Cable	NO	NO	1.2m	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.4 MEASUREMENT INSTRUMENTS LIST

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2018.05.19	2019.05.18	1 year
2	Test Receiver	R&S	ESPI	101318	2018.05.19	2019.05.18	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2019.04.15	2020.04.14	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2018.05.19	2019.05.18	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2018.05.19	2019.05.18	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2019.04.15	2020.04.14	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2018.05.19	2019.05.18	1 year
8	Amplifier	EMC	EMC051835SE	980246	2018.08.05	2019.08.04	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2018.05.19	2019.05.18	1 year
10	Power Meter	DARE	RPR3006W	15100041SNO84	2018.08.05	2019.08.04	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2018.05.19	2019.05.18	1 year
12	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2017.04.21	2020.04.20	3 year
13	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2017.04.21	2020.04.20	3 year
14	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2017.04.21	2020.04.20	3 year

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2018.05.19	2019.05.18	1 year
2	LISN	R&S	ENV216	101313	2019.04.15	2020.04.14	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2018.05.19	2019.05.18	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2018.05.19	2019.05.18	1 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2017.04.21	2020.04.20	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2017.04.21	2020.04.20	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2017.04.21	2020.04.20	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable which is scheduled for calibration every 3 years.

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

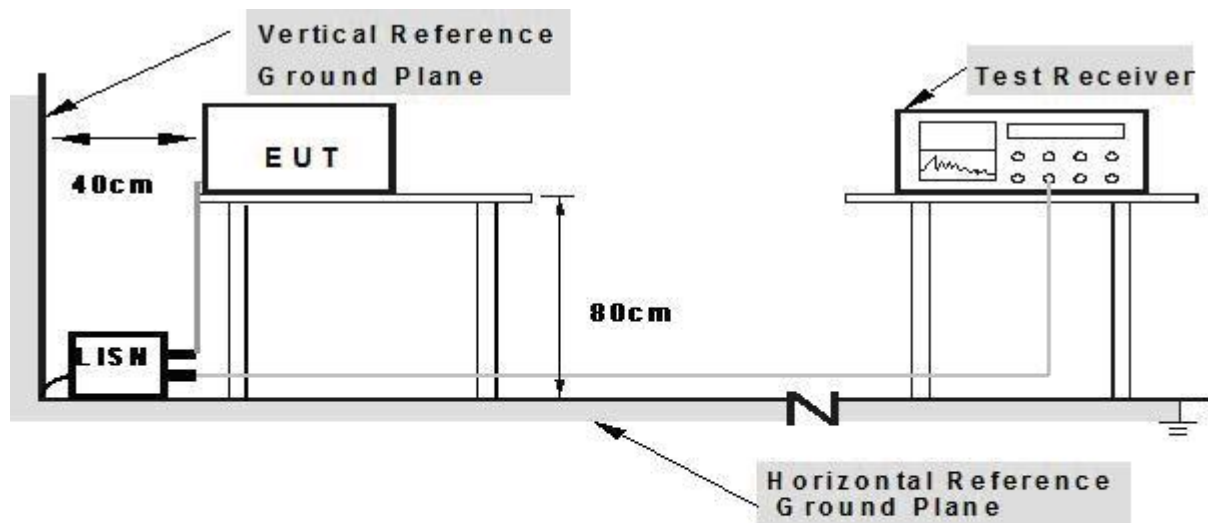
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



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

3.1.4 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.

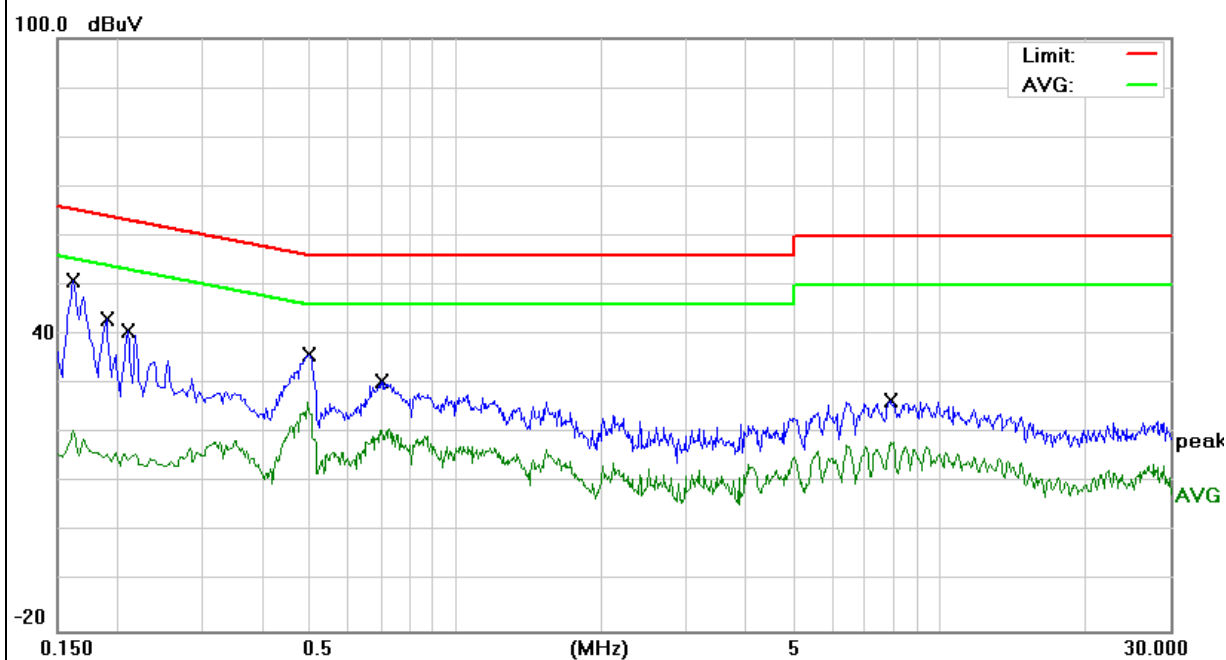
3.1.5 TEST RESULTS

EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2C7M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from PC AC120V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1620	41.23	9.76	50.99	65.36	-14.37	QP
0.1620	25.90	9.76	35.66	55.36	-19.70	AVG
0.1900	33.44	9.76	43.20	64.03	-20.83	QP
0.1900	18.36	9.76	28.12	54.03	-25.91	AVG
0.2100	31.10	9.76	40.86	63.20	-22.34	QP
0.2100	17.11	9.76	26.87	53.20	-26.33	AVG
0.4980	26.12	9.74	35.86	56.03	-20.17	QP
0.4980	16.53	9.74	26.27	46.03	-19.76	AVG
0.7019	20.73	9.74	30.47	56.00	-25.53	QP
0.7019	11.08	9.74	20.82	46.00	-25.18	AVG
7.8940	16.83	9.93	26.76	60.00	-33.24	QP
7.8940	8.38	9.93	18.31	50.00	-31.69	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

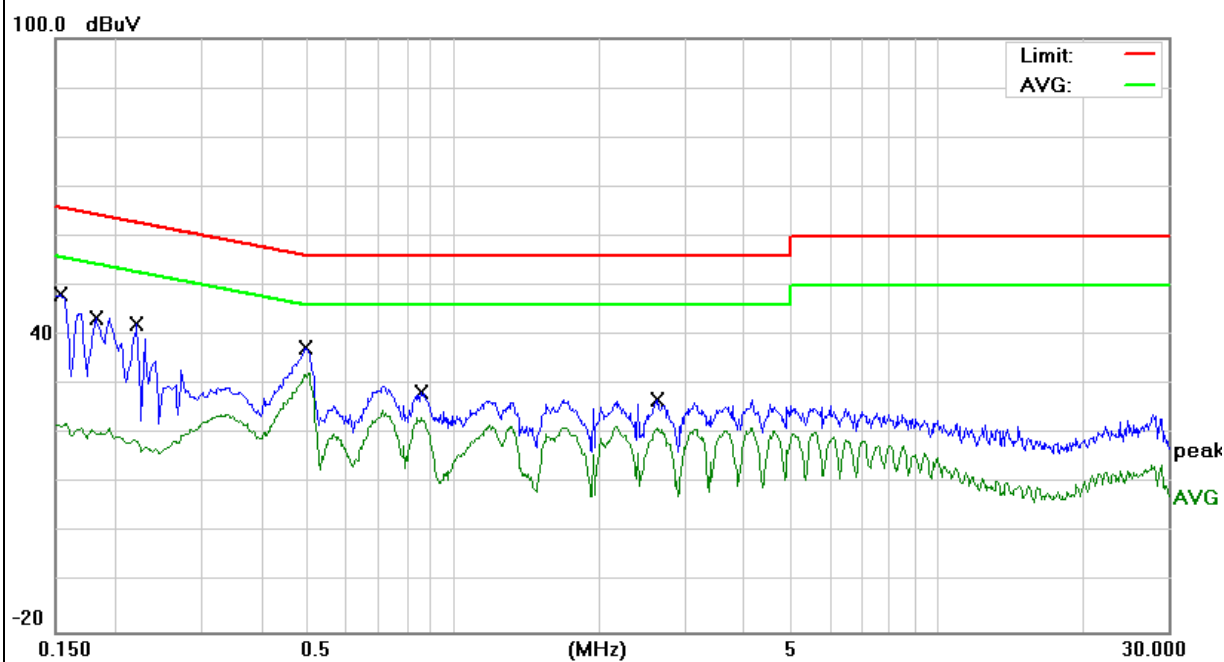


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2C7M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from PC AC120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	38.43	9.74	48.17	65.78	-17.61	QP
0.1539	18.28	9.74	28.02	55.78	-27.76	AVG
0.1819	33.86	9.73	43.59	64.39	-20.80	QP
0.1819	19.60	9.73	29.33	54.39	-25.06	AVG
0.2220	32.50	9.73	42.23	62.74	-20.51	QP
0.2220	20.29	9.73	30.02	52.74	-22.72	AVG
0.4940	27.59	9.75	37.34	56.10	-18.76	QP
0.4940	22.54	9.75	32.29	46.10	-13.81	AVG
0.8540	18.55	9.75	28.30	56.00	-27.70	QP
0.8540	13.67	9.75	23.42	46.00	-22.58	AVG
2.6380	17.11	9.83	26.94	56.00	-29.06	QP
2.6380	11.34	9.83	21.17	46.00	-24.83	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

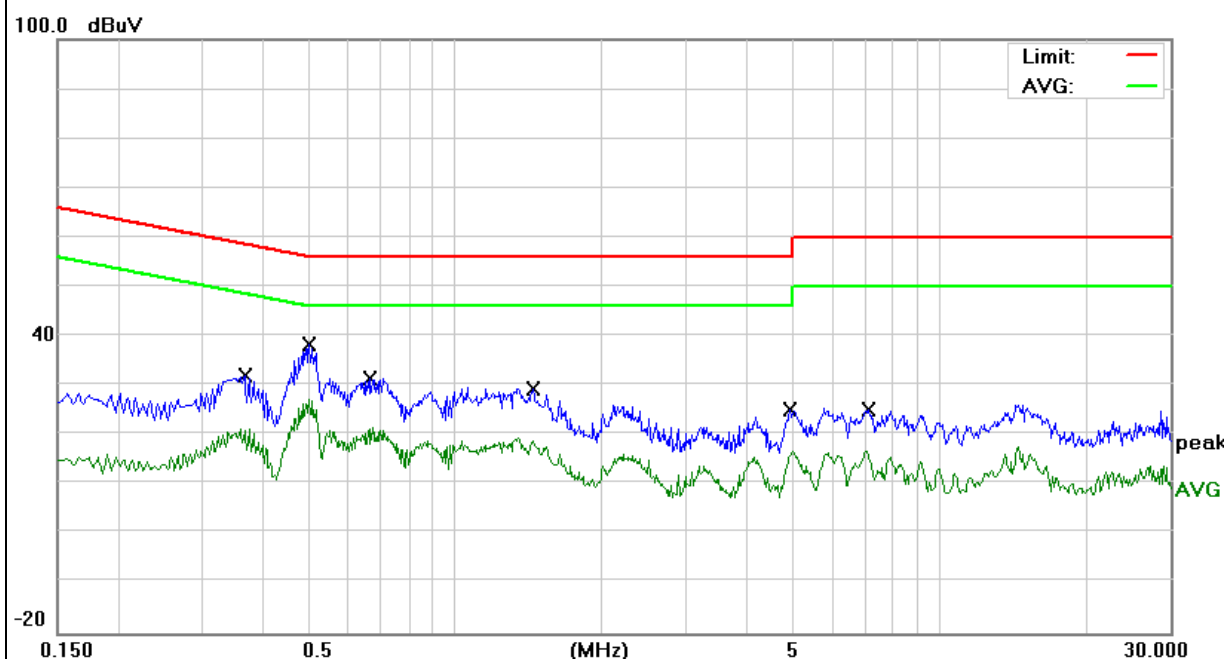


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2C7M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from PC AC240V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.3660	22.33	9.74	32.07	58.59	-26.52	QP
0.3660	13.28	9.74	23.02	48.59	-25.57	AVG
0.4980	28.47	9.74	38.21	56.03	-17.82	QP
0.4980	17.39	9.74	27.13	46.03	-18.90	AVG
0.6660	21.78	9.74	31.52	56.00	-24.48	QP
0.6660	11.71	9.74	21.45	46.00	-24.55	AVG
1.4460	19.57	9.76	29.33	56.00	-26.67	QP
1.4460	9.21	9.76	18.97	46.00	-27.03	AVG
4.9219	15.22	9.87	25.09	56.00	-30.91	QP
4.9219	3.79	9.87	13.66	46.00	-32.34	AVG
7.1180	15.18	9.90	25.08	60.00	-34.92	QP
7.1180	6.75	9.90	16.65	50.00	-33.35	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

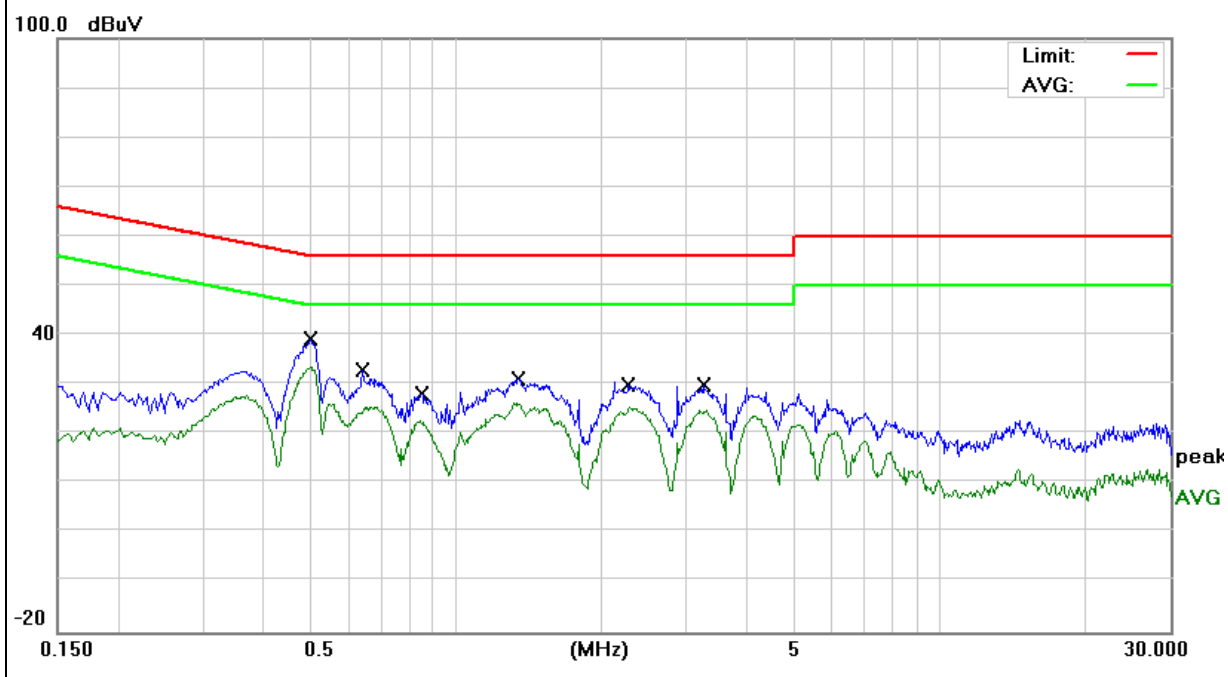


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2C7M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from PC AC240V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.5020	29.48	9.75	39.23	56.00	-16.77	QP
0.5020	23.88	9.75	33.63	46.00	-12.37	AVG
0.6419	23.29	9.75	33.04	56.00	-22.96	QP
0.6419	11.27	9.75	21.02	46.00	-24.98	AVG
0.8500	18.46	9.75	28.21	56.00	-27.79	QP
0.8500	5.91	9.75	15.66	46.00	-30.34	AVG
1.3460	21.45	9.76	31.21	56.00	-24.79	QP
1.3460	16.50	9.76	26.26	46.00	-19.74	AVG
2.2820	20.19	9.81	30.00	56.00	-26.00	QP
2.2820	15.51	9.81	25.32	46.00	-20.68	AVG
3.2580	20.00	9.88	29.88	56.00	-26.12	QP
3.2580	9.34	9.88	19.22	46.00	-26.78	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

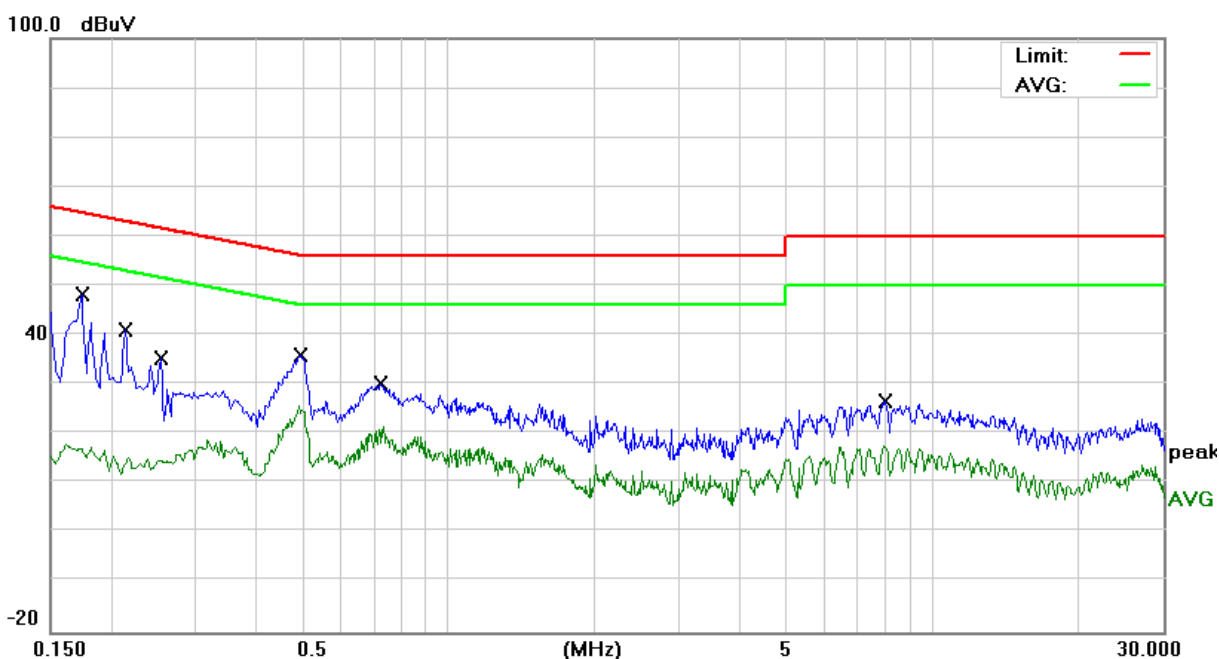


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2L4M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from PC AC120V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1740	38.40	9.76	48.16	64.76	-16.60	QP
0.1740	20.79	9.76	30.55	54.76	-24.21	AVG
0.2140	31.30	9.76	41.06	63.04	-21.98	QP
0.2140	21.49	9.76	31.25	53.04	-21.79	AVG
0.2540	25.65	9.76	35.41	61.62	-26.21	QP
0.2540	17.36	9.76	27.12	51.62	-24.50	AVG
0.4940	26.07	9.74	35.81	56.10	-20.29	QP
0.4940	15.96	9.74	25.70	46.10	-20.40	AVG
0.7220	20.66	9.74	30.40	56.00	-25.60	QP
0.7220	11.92	9.74	21.66	46.00	-24.34	AVG
7.9860	16.59	9.93	26.52	60.00	-33.48	QP
7.9860	7.15	9.93	17.08	50.00	-32.92	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

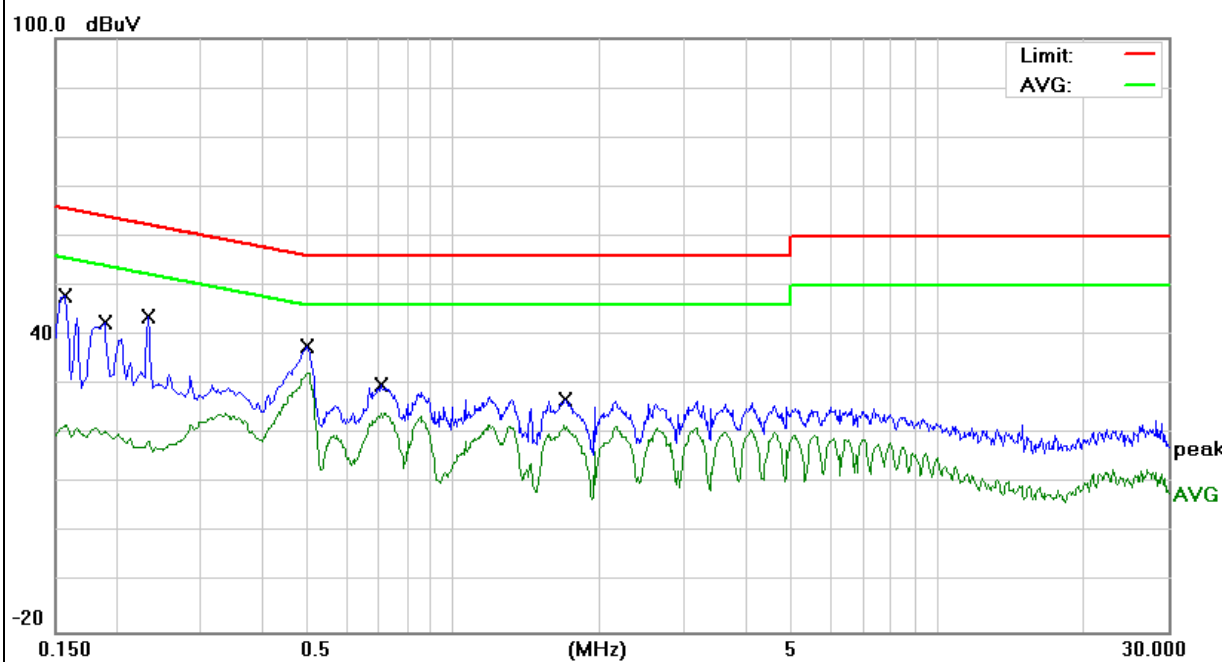


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2L4M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from PC AC120V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1580	38.24	9.74	47.98	65.56	-17.58	QP
0.1580	23.28	9.74	33.02	55.56	-22.54	AVG
0.1900	32.71	9.73	42.44	64.03	-21.59	QP
0.1900	20.72	9.73	30.45	54.03	-23.58	AVG
0.2340	33.88	9.74	43.62	62.30	-18.68	QP
0.2340	19.71	9.74	29.45	52.30	-22.85	AVG
0.4980	27.88	9.75	37.63	56.03	-18.40	QP
0.4980	22.61	9.75	32.36	46.03	-13.67	AVG
0.7060	20.09	9.75	29.84	56.00	-26.16	QP
0.7060	14.53	9.75	24.28	46.00	-21.72	AVG
1.7020	17.04	9.78	26.82	56.00	-29.18	QP
1.7020	12.14	9.78	21.92	46.00	-24.08	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

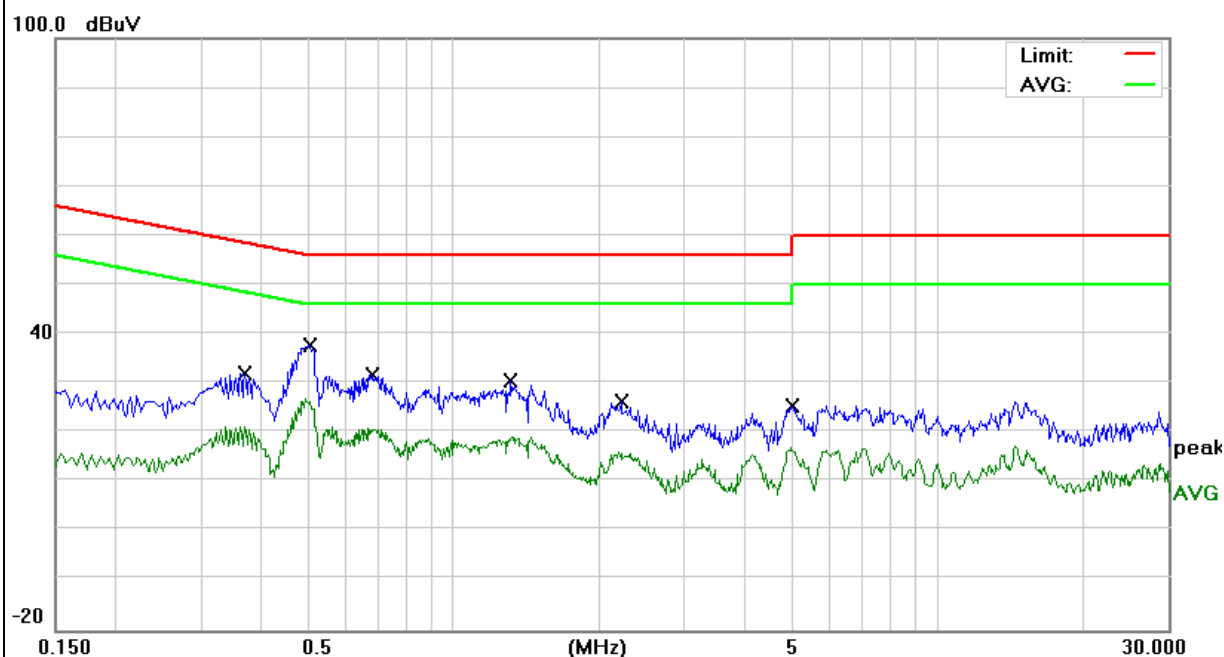


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2L4M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from PC AC240V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.3700	22.31	9.74	32.05	58.50	-26.45	QP
0.3700	13.28	9.74	23.02	48.50	-25.48	AVG
0.5060	28.09	9.74	37.83	56.00	-18.17	QP
0.5060	17.17	9.74	26.91	46.00	-19.09	AVG
0.6820	21.92	9.74	31.66	56.00	-24.34	QP
0.6820	11.35	9.74	21.09	46.00	-24.91	AVG
1.3140	20.72	9.75	30.47	56.00	-25.53	QP
1.3140	9.35	9.75	19.10	46.00	-26.90	AVG
2.2139	16.51	9.78	26.29	56.00	-29.71	QP
2.2139	5.34	9.78	15.12	46.00	-30.88	AVG
5.0059	15.73	9.87	25.60	60.00	-34.40	QP
5.0059	0.82	9.87	10.69	50.00	-39.31	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

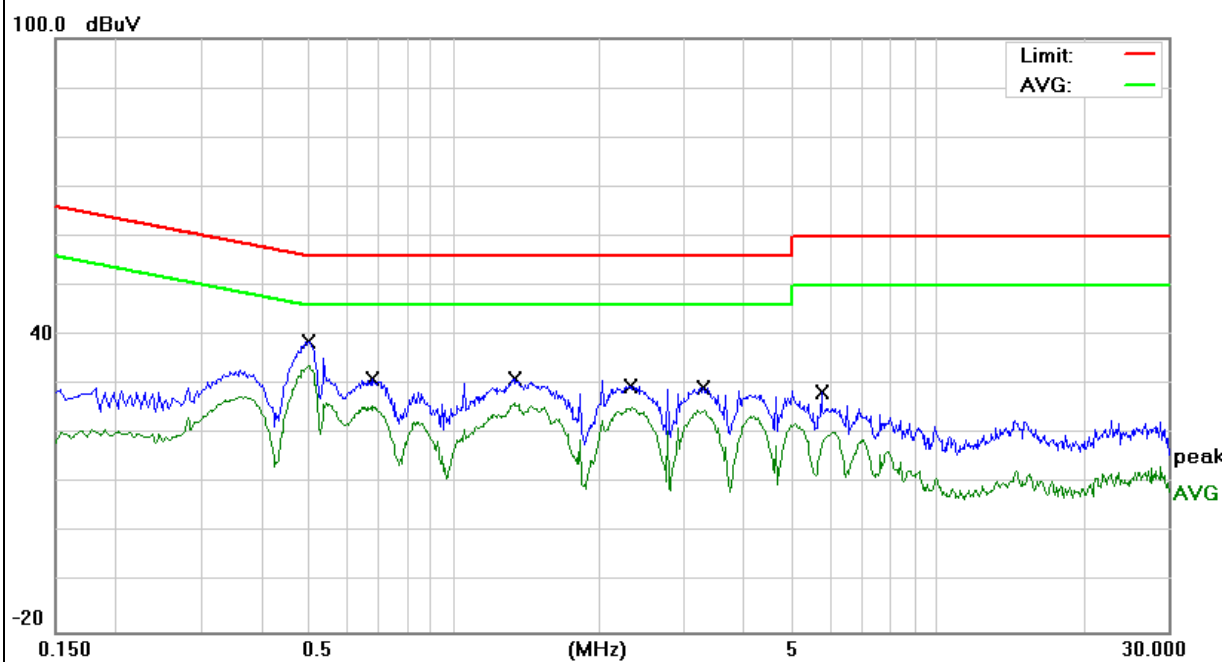


EUT:	Smart Audio Dev Kit 2	Model Name. :	DDK2L4M1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2019-04-26
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from PC AC240V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.5020	29.00	9.75	38.75	56.00	-17.25	QP
0.5020	24.20	9.75	33.95	46.00	-12.05	AVG
0.6780	21.27	9.75	31.02	56.00	-24.98	QP
0.6780	10.91	9.75	20.66	46.00	-25.34	AVG
1.3380	21.50	9.76	31.26	56.00	-24.74	QP
1.3380	16.53	9.76	26.29	46.00	-19.71	AVG
2.3140	19.96	9.81	29.77	56.00	-26.23	QP
2.3140	15.57	9.81	25.38	46.00	-20.62	AVG
3.2860	19.48	9.88	29.36	56.00	-26.64	QP
3.2860	3.81	9.88	13.69	46.00	-32.31	AVG
5.7699	18.60	9.95	28.55	60.00	-31.45	QP
5.7699	5.17	9.95	15.12	50.00	-34.88	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

- (1) The limit for radiated test was performed according to as following:
FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

Test Arrangement for Radiated Emissions up to 1 GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.

Test Arrangement for Radiated Emissions above 1 GHz.

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

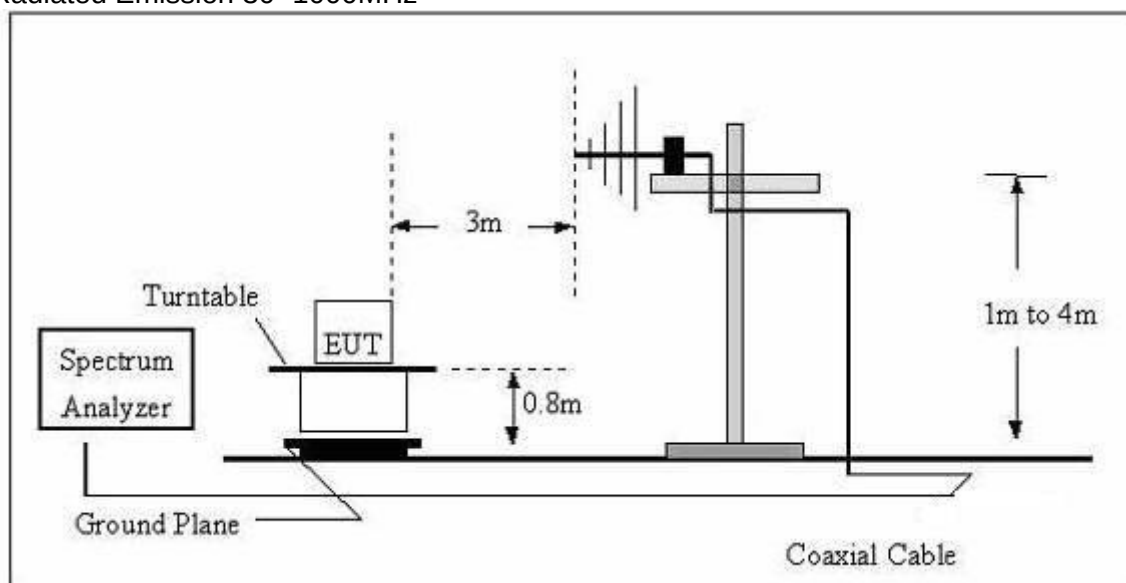
Note: For the hand-held device, the EUT should be measured for all 3 axes and only the worst case is recorded in the report

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

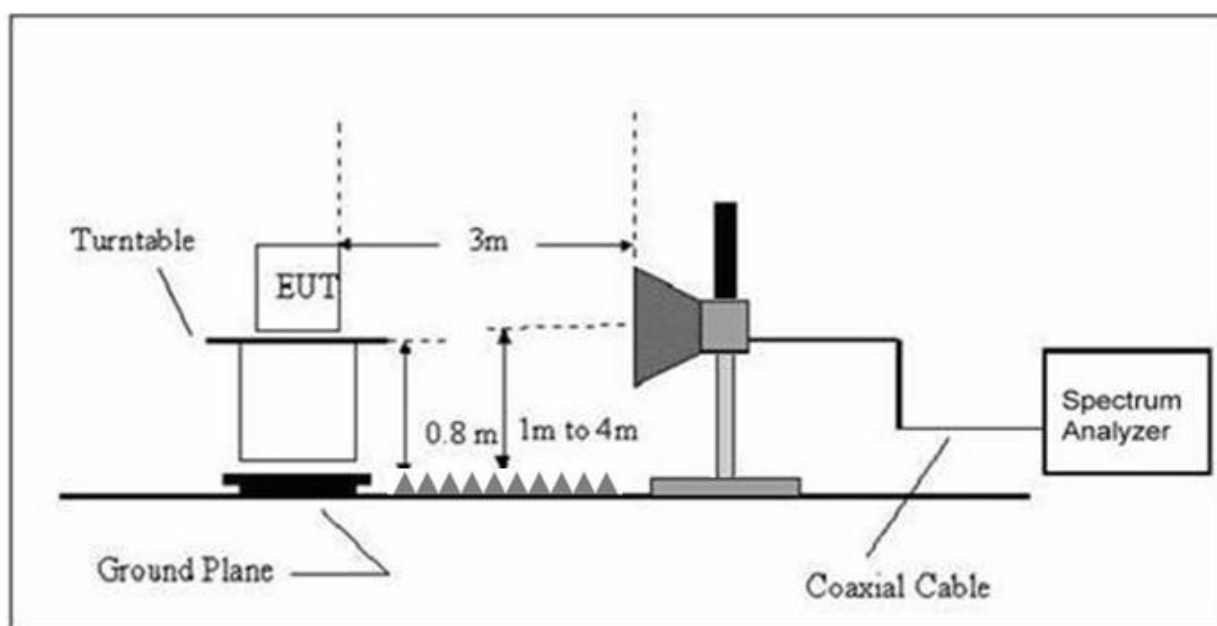
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Avg	1 MHz	10 Hz

3.2.3 TEST SETUP

For Radiated Emission 30~1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.4 TEST RESULTS

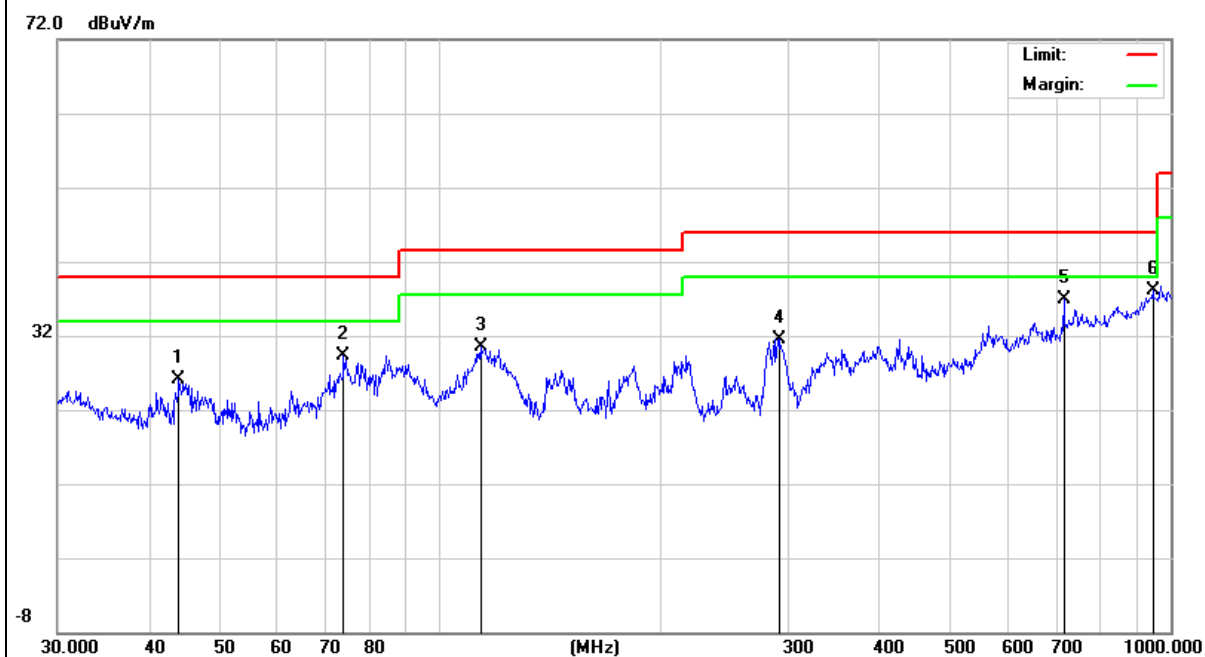
TEST RESULTS (30~1000 MHz)

EUT:	Smart Audio Dev Kit 2	Model Name:	DDK2C7M1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2019-04-26
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V from PC AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	43.9658	14.13	12.04	26.17	40.00	-13.83	QP
H	73.8756	21.56	7.76	29.32	40.00	-10.68	QP
H	113.7142	17.55	12.99	30.54	43.50	-12.96	QP
H	291.0360	15.94	15.62	31.56	46.00	-14.44	QP
H	714.1734	10.74	26.16	36.90	46.00	-9.10	QP
H	945.4397	7.09	31.01	38.10	46.00	-7.90	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.

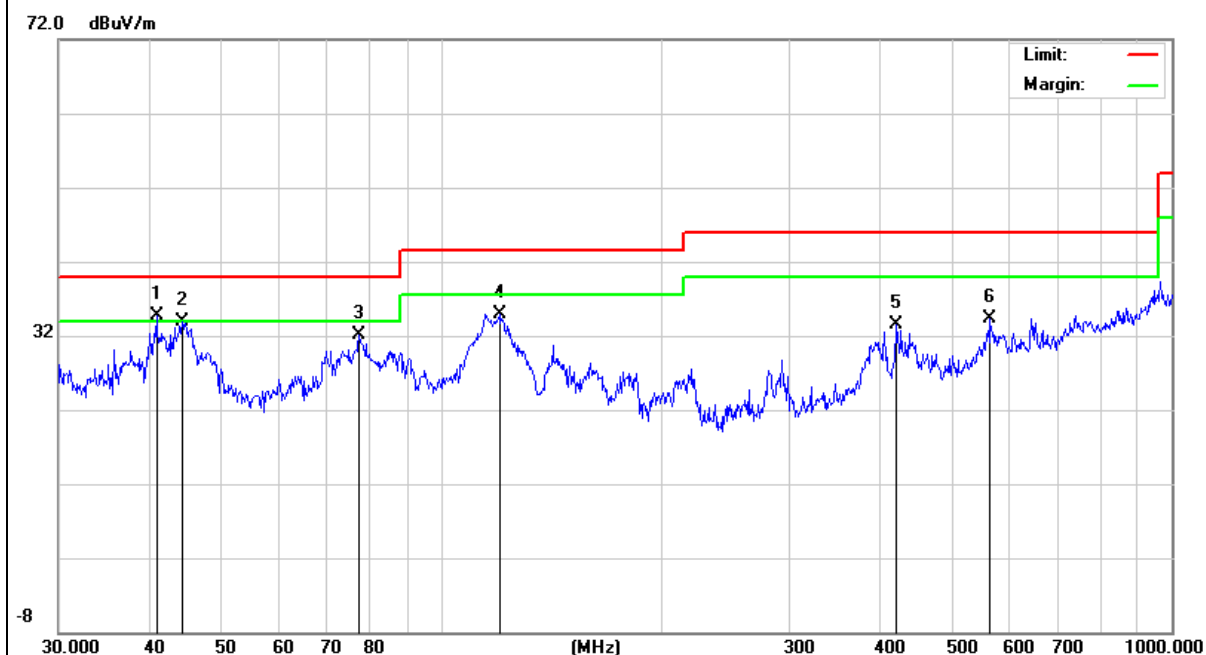


EUT:	Smart Audio Dev Kit 2	Model Name :	DDK2C7M1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2019-04-26
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V from PC AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	40.8444	20.92	13.87	34.79	40.00	-5.21	QP
V	44.2751	22.07	11.92	33.99	40.00	-6.01	QP
V	77.3212	23.96	8.14	32.10	40.00	-7.90	QP
V	120.2766	21.71	13.19	34.90	43.50	-8.60	QP
V	419.1080	13.23	20.30	33.53	46.00	-12.47	QP
V	564.6389	10.22	24.00	34.22	46.00	-11.78	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.

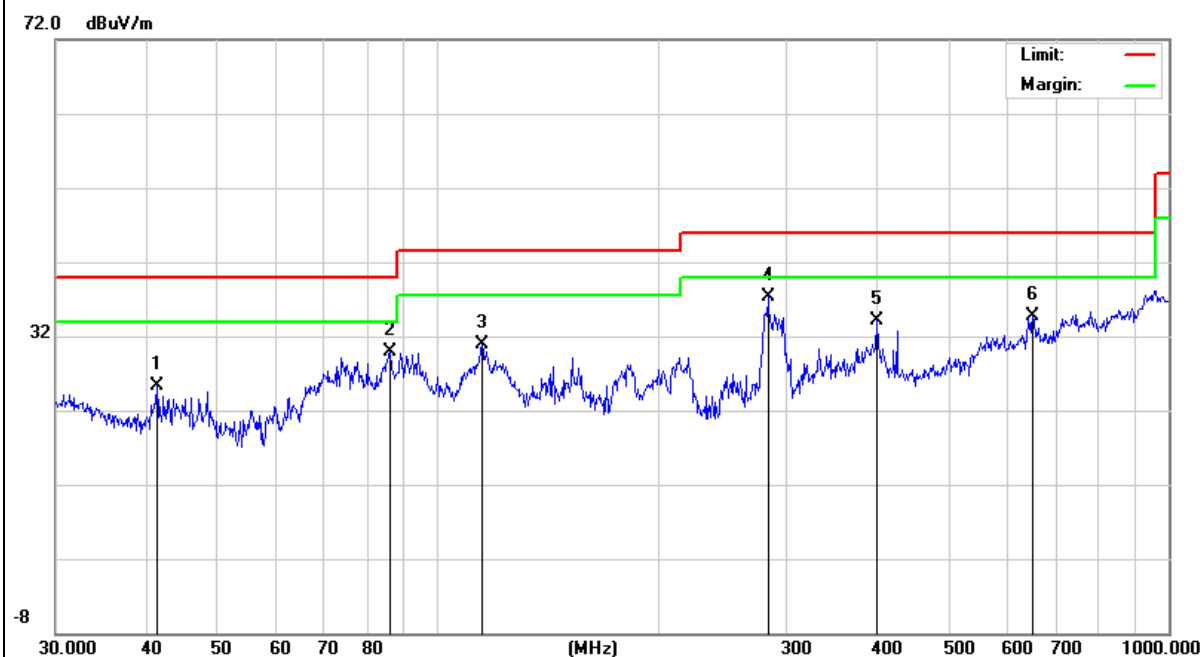


EUT:	Smart Audio Dev Kit 2	Model Name:	DDK2L4M1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2019-04-26
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V from PC AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	41.2765	11.72	13.58	25.30	40.00	-14.70	QP
H	86.2001	19.85	10.03	29.88	40.00	-10.12	QP
H	114.9169	17.70	13.22	30.92	43.50	-12.58	QP
H	282.9852	20.98	16.26	37.24	46.00	-8.76	QP
H	399.0302	14.44	19.57	34.01	46.00	-11.99	QP
H	651.9417	10.00	24.73	34.73	46.00	-11.27	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.

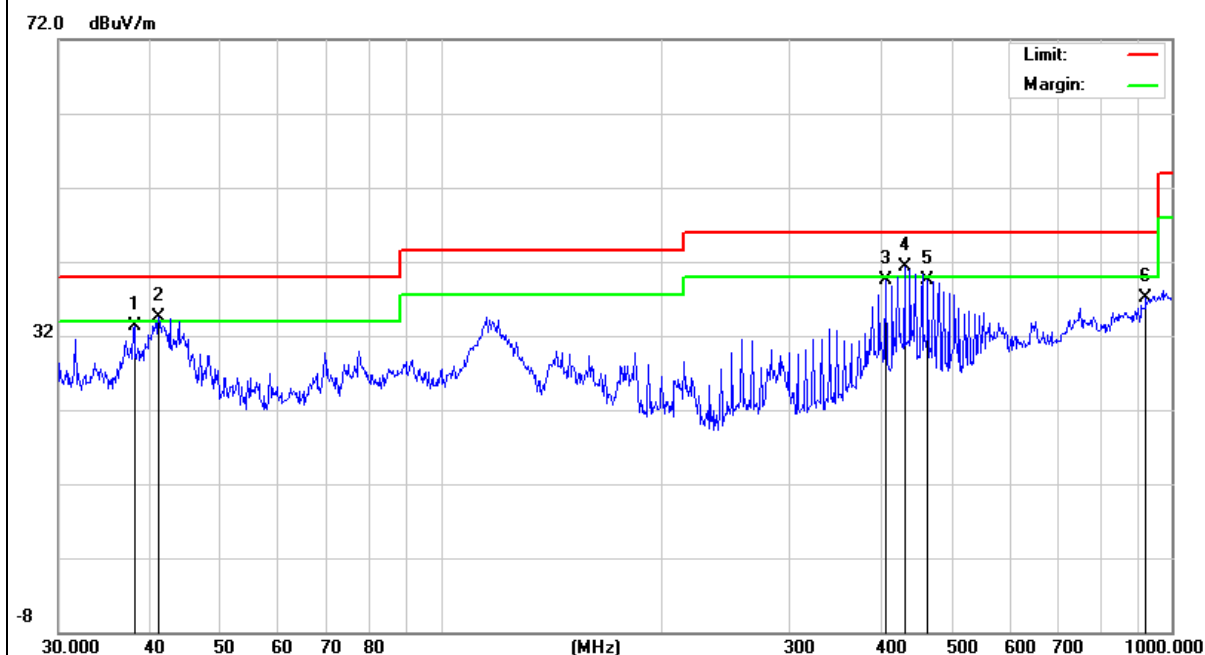


EUT:	Smart Audio Dev Kit 2	Model Name :	DDK2L4M1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2019-04-26
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V from PC AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	38.0782	18.12	15.21	33.33	40.00	-6.67	QP
V	41.1319	20.86	13.68	34.54	40.00	-5.46	QP
V	406.0880	19.58	19.84	39.42	46.00	-6.58	QP
V	431.0316	21.27	20.11	41.38	46.00	-4.62	QP
V	463.9696	18.77	20.83	39.60	46.00	-6.40	QP
V	922.5157	6.89	30.15	37.04	46.00	-8.96	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.



3.2.5 TEST RESULTS(1000~26500MHz)

EUT:	Smart Audio Dev Kit 2	Model Name :	DDK2C7M1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2019-04-26
Test Mode :	Mode 1		
Test Power :	DC 5V from PC AC120V/60Hz		

All the modulation modes have been tested, and the worst result was report as below:

Polar (H/V)	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Remark
V	2955.00	41.42	-2.45	38.97	74.00	-35.03	peak
V	2955.00	27.81	-2.45	25.36	54.00	-28.64	AVG
V	4102.50	36.62	3.82	40.44	74.00	-33.56	peak
V	4102.50	26.30	3.82	30.12	54.00	-23.88	AVG
V	4782.50	35.24	6.15	41.39	74.00	-32.61	peak
V	4782.50	22.00	6.15	28.15	54.00	-25.85	AVG
V	6440.00	-5.55	49.16	43.61	74.00	-30.39	peak
V	6440.00	-19.80	49.16	29.36	54.00	-24.64	AVG
V	7715.00	-6.46	52.00	45.54	74.00	-28.46	peak
V	7715.00	-20.98	52.00	31.02	54.00	-22.98	AVG
V	13452.50	-10.15	60.85	50.70	74.00	-23.30	peak
V	13452.50	-20.75	60.85	40.10	54.00	-13.90	AVG
H	1127.50	58.02	-10.12	47.90	74.00	-26.10	peak
H	1127.50	40.37	-10.12	30.25	54.00	-23.75	AVG
H	2360.00	49.17	-4.50	44.67	74.00	-29.33	peak
H	2360.00	35.52	-4.50	31.02	54.00	-22.98	AVG
H	2955.00	45.29	-2.45	42.84	74.00	-31.16	peak
H	2955.00	35.90	-2.45	33.45	54.00	-20.55	AVG
H	4782.50	36.58	6.15	42.73	74.00	-31.27	peak
H	4782.50	23.30	6.15	29.45	54.00	-24.55	AVG
H	7885.00	-6.09	52.50	46.41	74.00	-27.59	peak
H	7885.00	-22.35	52.50	30.15	54.00	-23.85	AVG
H	14387.50	-10.24	61.81	51.57	74.00	-22.43	peak
H	14387.50	-26.45	61.81	35.36	54.00	-18.64	AVG

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

Note: Only the worst results data points are reported in the report.

EUT:	Smart Audio Dev Kit 2	Model Name :	DDK2L4M1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2019-04-26
Test Mode :	Mode 1		
Test Power :	DC 5V from PC AC120V/60Hz		

All the modulation modes have been tested, and the worst result was report as below:

Polar (H/V)	Frequency (MHz)	Reading (dBuV/m)	Correc t dB/m	Result (dBuV/m)	Limit (dBuV/ m)	Over Limit (dB)	Remar k
V	1850.00	42.83	-6.83	36.00	74.00	-38.00	peak
V	1850.00	34.95	-6.83	28.12	54.00	-25.88	AVG
V	2785.00	41.59	-2.80	38.79	74.00	-35.21	peak
V	2785.00	32.15	-2.80	29.35	54.00	-24.65	AVG
V	3890.00	36.63	3.82	40.45	74.00	-33.55	peak
V	3890.00	26.20	3.82	30.02	54.00	-23.98	AVG
V	4782.50	35.24	6.15	41.39	74.00	-32.61	peak
V	4782.50	25.30	6.15	31.45	54.00	-22.55	AVG
V	5462.50	35.54	7.26	42.80	74.00	-31.20	peak
V	5462.50	21.29	7.26	28.55	54.00	-25.45	AVG
V	6440.00	-6.05	49.16	43.11	74.00	-30.89	peak
V	6440.00	-19.80	49.16	29.36	54.00	-24.64	AVG
H	1127.50	47.52	-10.12	37.40	74.00	-36.60	peak
H	1127.50	35.78	-10.12	25.66	54.00	-28.34	AVG
H	2360.00	46.67	-4.50	42.17	74.00	-31.83	peak
H	2360.00	34.35	-4.50	29.85	54.00	-24.15	AVG
H	2955.00	46.79	-2.45	44.34	74.00	-29.66	peak
H	2955.00	32.88	-2.45	30.43	54.00	-23.57	AVG
H	4782.50	36.58	6.15	42.73	74.00	-31.27	peak
H	4782.50	25.87	6.15	32.02	54.00	-21.98	AVG
H	7885.00	-5.09	52.50	47.41	74.00	-26.59	peak
H	7885.00	-19.05	52.50	33.45	54.00	-20.55	AVG
H	13240.00	-10.91	60.82	49.91	74.00	-24.09	peak
H	13240.00	-25.74	60.82	35.08	54.00	-18.92	AVG

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

Note: Only the worst results data points are reported in the report.