

FCC Test Report

FCC ID: 2APX2-DDKL4Q1

Product: Smart Audio Dev Kit
Trade Mark: ROOBO
Model Number: DDKL4Q1
Serial Model: DDKC7Q1
Report No.: SER180521001002E

Prepared for

Intelligent Steward Co.,Ltd
Room 5-128, B1, Building C, Galaxy SOHO, Dongcheng District,
Beijing, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name: Intelligent Steward Co.,Ltd

Address: Room 5-128, B1, Building C, Galaxy SOHO, Dongcheng District,
Beijing, China

Manufacturer's Name.....: Intelligent Steward Co.,Ltd

Address: Room 5-128, B1, Building C, Galaxy SOHO, Dongcheng District,
Beijing, China

Product description

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

Model and/or type reference : DDKL4Q1, DDKC7Q1

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: 21 May. 2018 ~ 30 May. 2018

Date of Issue.....: 30 May. 2018

Test Result.....: **Pass**

Testing Engineer : Loren Luo
(Loren Luo)

Technical Manager : Jason Chen
(Jason Chen)

Authorized Signatory : Sam Chen
(Sam Chen)

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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	
Trade Mark	ROOBO	
Model Name	DDKL4Q1	
Serial Model	DDKC7Q1	
Model Difference	All models are the same circuit and RF module, except the array board.	
Product Description	The EUT is a Smart Audio Dev Kit.	
	Connecting I/O port:	USB, AUX out, TF Card
	Operation Frequency:	1.2GHz (Declaration by factory)
	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	DDK_V1.0	
SW Version	R008B100D019C02	

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.

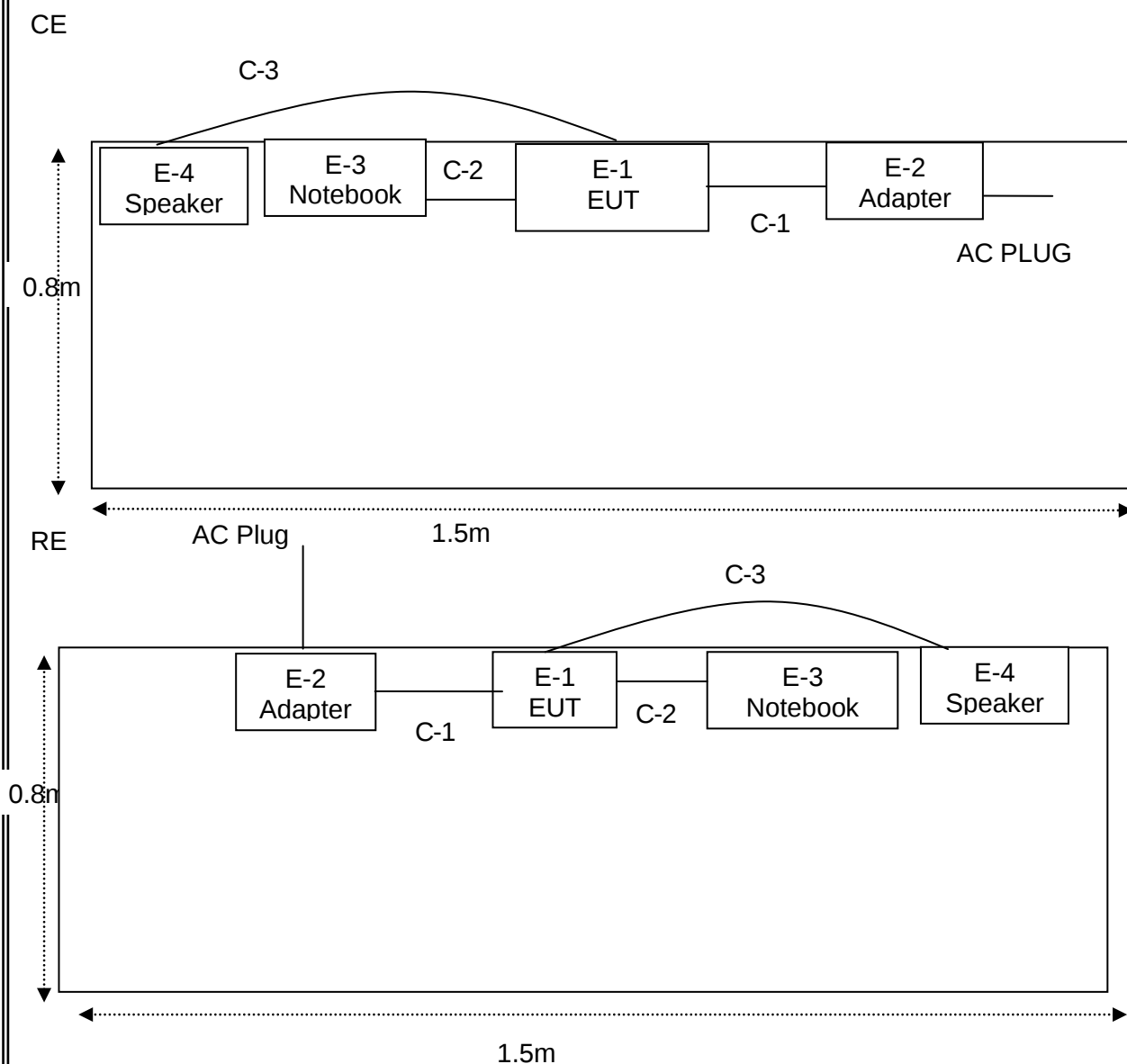
Pretest Mode	Description
Mode 1	USB Control +WIFI+audio out
Mode 2	TF playing +audio out

For Conducted Test	
Final Test Mode	Description
Mode 1	USB Control +WIFI+audio out
Mode 2	TF playing +audio out

For Radiated Test	
Final Test Mode	Description
Mode 1	USB Control +WIFI+audio out
Mode 2	TF playing +audio out

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
E-1	Smart Audio Dev Kit	ROOBO	DDKL4Q1	N/A	EUT
E-2	Adapter	N/A	N/A	N/A	Peripherals
E-3	Notebook	N/A	N/A	N/A	Peripherals
E-4	Speaker	N/A	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	Power Cable	NO	NO	1.2m	
C-2	USB Cable	NO	NO	1.0m	
C-3	Audio Cable	NO	NO	1.0m	
C-4	RF Cable	NO	NO	0.5m	

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	2017.06.06	2018.06.05	1 year
2	Test Receiver	R&S	ESPI	101318	2017.06.06	2018.06.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2018.04.08	2019.04.07	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2017.06.06	2018.06.05	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2017.06.06	2018.06.05	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2018.04.08	2019.04.07	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2017.07.06	2018.07.05	1 year
8	Amplifier	EMC	EMC051835SE	980246	2017.08.09	2018.08.08	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2017.06.06	2018.06.05	1 year
10	Power Meter	DARE	RPR3006W	15I00041SNO84	2017.08.07	2018.08.06	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2017.07.05	2018.07.04	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-40 GHz)	N/A	R-03	N/A	2017.04.21	2020.04.20	3 year
14	High Test Cable(1G-40 GHz)	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	2017.06.06	2018.06.05	1 year
2	LISN	R&S	ENV216	101313	2018.04.18	2019.04.17	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2017.06.06	2018.06.05	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2017.06.06	2018.06.05	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.

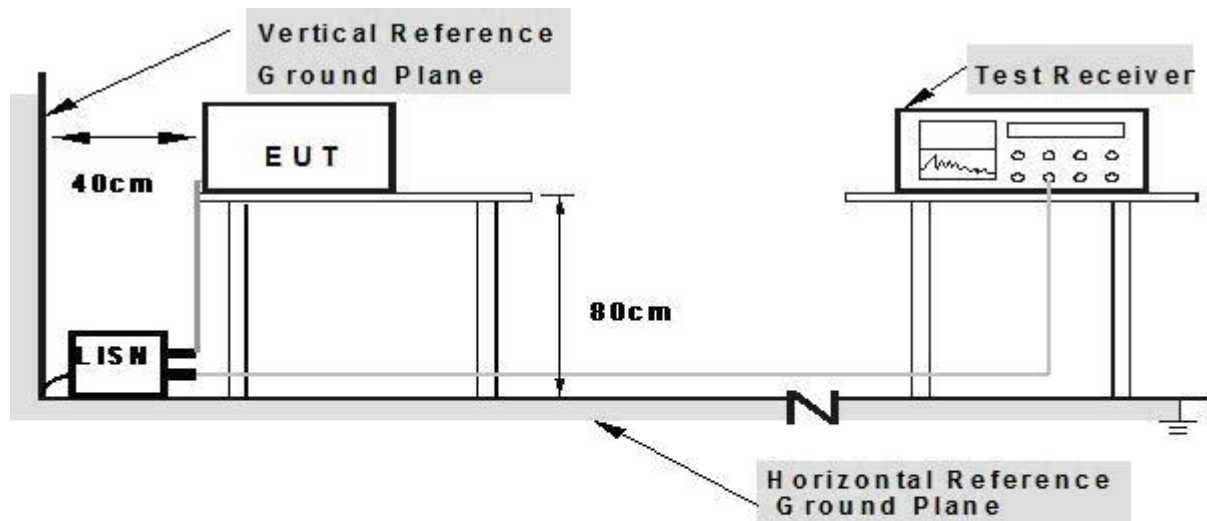
The following table is the setting of the receiver

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.

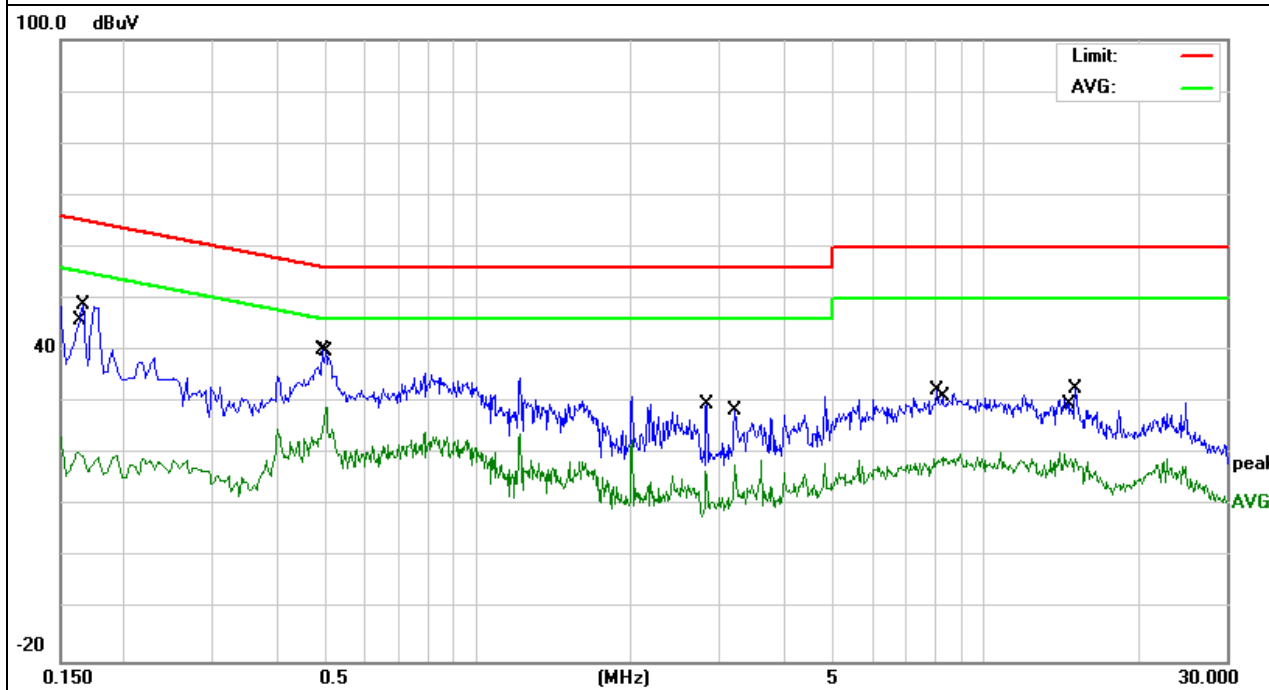
3.1.5 TEST RESULTS

EUT:	Smart Audio Dev Kit	Model Name. :	DDKL4Q1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from Adapter AC120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1620	10.58	9.82	20.40	55.36	-34.96	QP
0.1660	37.86	9.82	47.68	65.15	-17.47	AVG
0.4940	29.54	9.83	39.37	56.10	-16.73	QP
0.5020	19.31	9.83	29.14	46.00	-16.86	AVG
2.8220	6.62	10.01	16.63	46.00	-29.37	QP
2.8260	19.68	10.02	29.70	56.00	-26.30	AVG
3.2219	18.48	10.05	28.53	56.00	-27.47	QP
3.2220	7.99	10.05	18.04	46.00	-27.96	AVG
8.0620	21.67	9.97	31.64	60.00	-28.36	QP
8.2738	9.46	9.97	19.43	50.00	-30.57	AVG
14.7619	9.08	10.21	19.29	50.00	-30.71	QP
15.1020	22.34	10.22	32.56	60.00	-27.44	AVG

Remark:

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

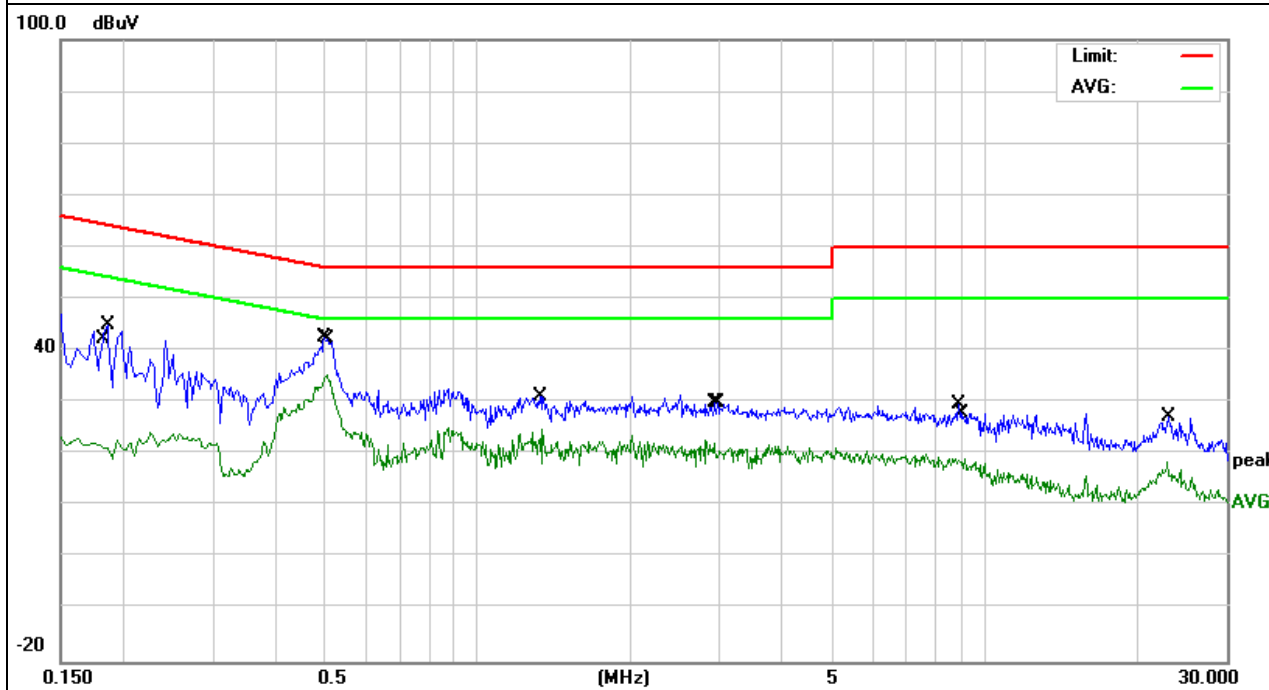


EUT:	Smart Audio Dev Kit	Model Name. :	DDKL4Q1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from Adapter AC120V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1796	11.78	9.92	21.70	54.50	-32.80	QP
0.1859	34.59	9.92	44.51	64.21	-19.70	AVG
0.4980	32.47	9.93	42.40	56.03	-13.63	QP
0.5060	25.44	9.93	35.37	46.00	-10.63	AVG
1.3260	21.13	9.93	31.06	56.00	-24.94	QP
1.3380	14.84	9.93	24.77	46.00	-21.23	AVG
2.9300	12.26	9.95	22.21	46.00	-23.79	QP
2.9620	20.08	9.95	30.03	56.00	-25.97	AVG
8.8700	19.43	10.07	29.50	60.00	-30.50	QP
9.1297	9.21	10.08	19.29	50.00	-30.71	AVG
22.9340	8.19	10.33	18.52	50.00	-31.48	QP
23.1220	16.37	10.33	26.70	60.00	-33.30	AVG

Remark:

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

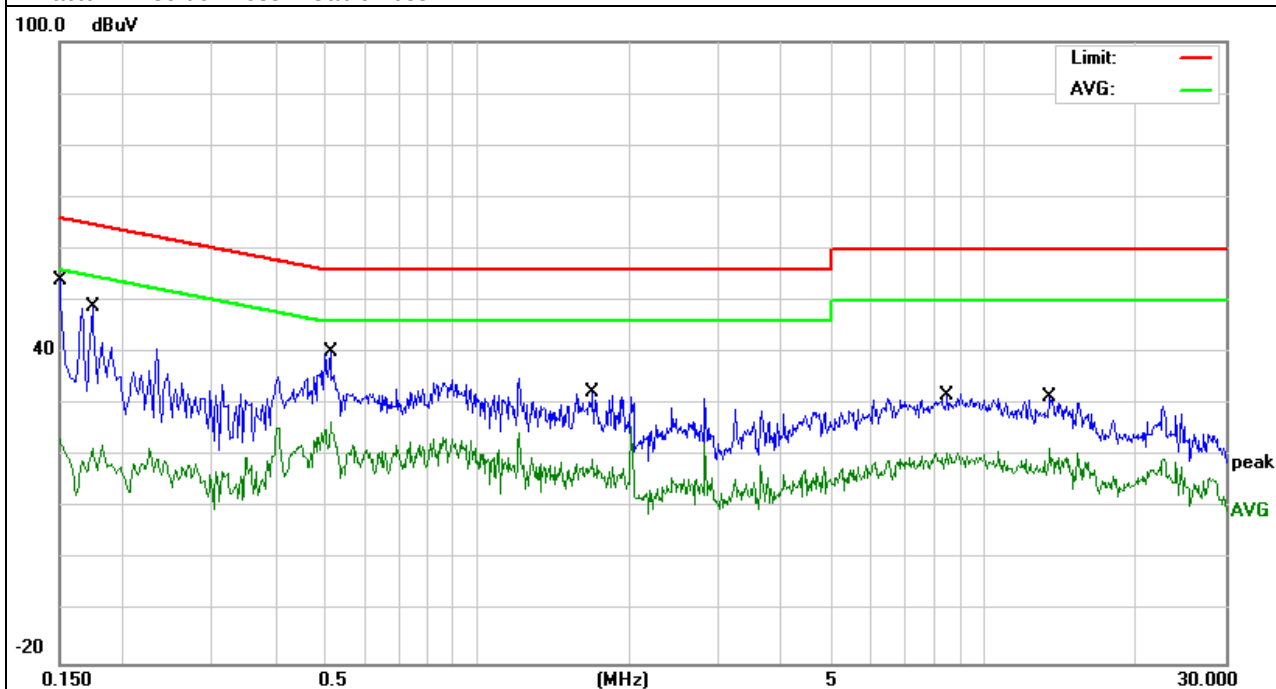


EUT:	Smart Audio Dev Kit	Model Name. :	DDKL4Q1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from Adapter AC240V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1500	42.39	9.82	52.21	65.99	-13.78	QP
0.1500	13.44	9.82	23.26	55.99	-32.73	AVG
0.1739	38.57	9.82	48.39	64.77	-16.38	QP
0.1739	37.86	9.82	47.68	64.77	-17.09	AVG
0.5140	30.43	9.83	40.26	56.00	-15.74	QP
0.5140	16.92	9.83	26.75	46.00	-19.25	AVG
1.6979	22.51	9.87	32.38	56.00	-23.62	QP
1.6980	22.51	9.87	32.38	56.00	-23.62	AVG
8.4859	10.70	9.97	20.67	50.00	-29.33	QP
8.4860	21.72	9.97	31.69	60.00	-28.31	AVG
13.5059	20.26	10.14	30.40	60.00	-29.60	QP
13.5060	11.37	10.14	21.51	50.00	-28.49	AVG

Remark:

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

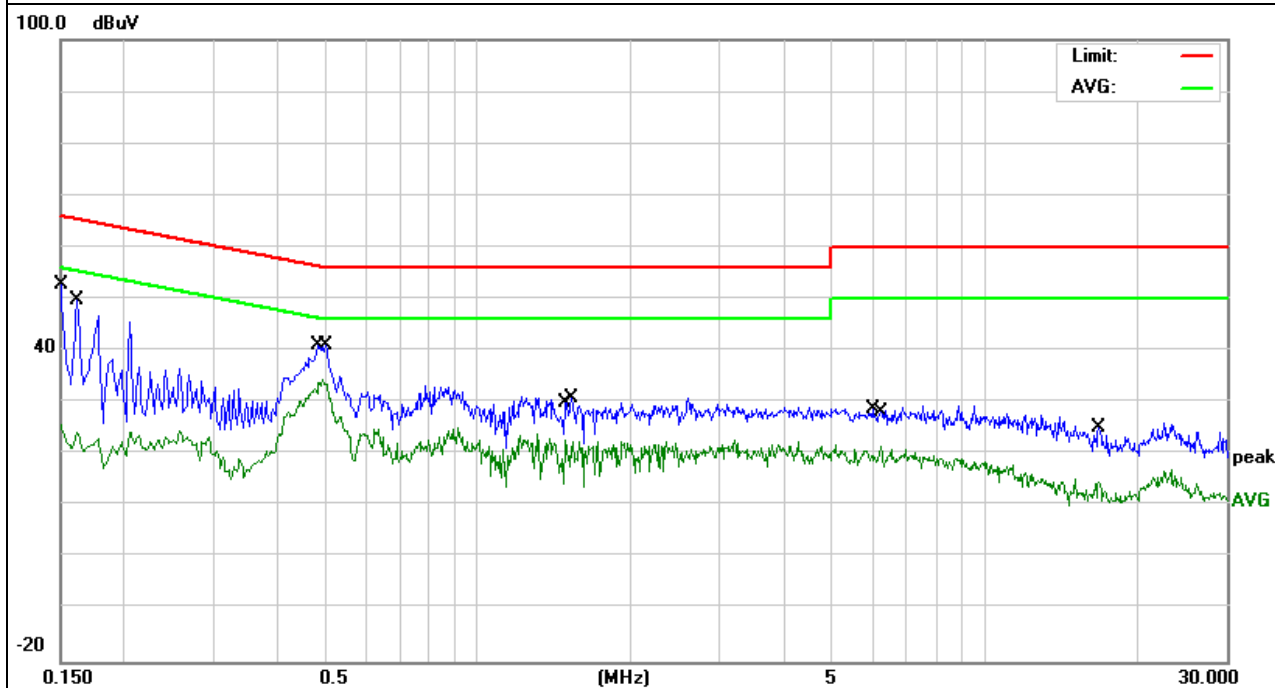


EUT:	Smart Audio Dev Kit	Model Name. :	DDKL4Q1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from Adapter AC240V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1500	41.56	9.92	51.48	65.99	-14.51	QP
0.1500	15.84	9.92	25.76	55.99	-30.23	AVG
0.1620	38.76	9.92	48.68	65.36	-16.68	QP
0.1620	14.43	9.92	24.35	55.36	-31.01	AVG
0.4860	31.25	9.93	41.18	56.24	-15.06	QP
0.4940	24.55	9.93	34.48	46.10	-11.62	AVG
1.4939	12.82	9.93	22.75	46.00	-23.25	QP
1.5339	21.00	9.94	30.94	56.00	-25.06	AVG
6.0020	18.77	10.01	28.78	60.00	-31.22	QP
6.2340	11.42	10.02	21.44	50.00	-28.56	AVG
16.7499	4.50	10.25	14.75	50.00	-35.25	QP
16.7500	14.82	10.25	25.07	60.00	-34.93	AVG

Remark:

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

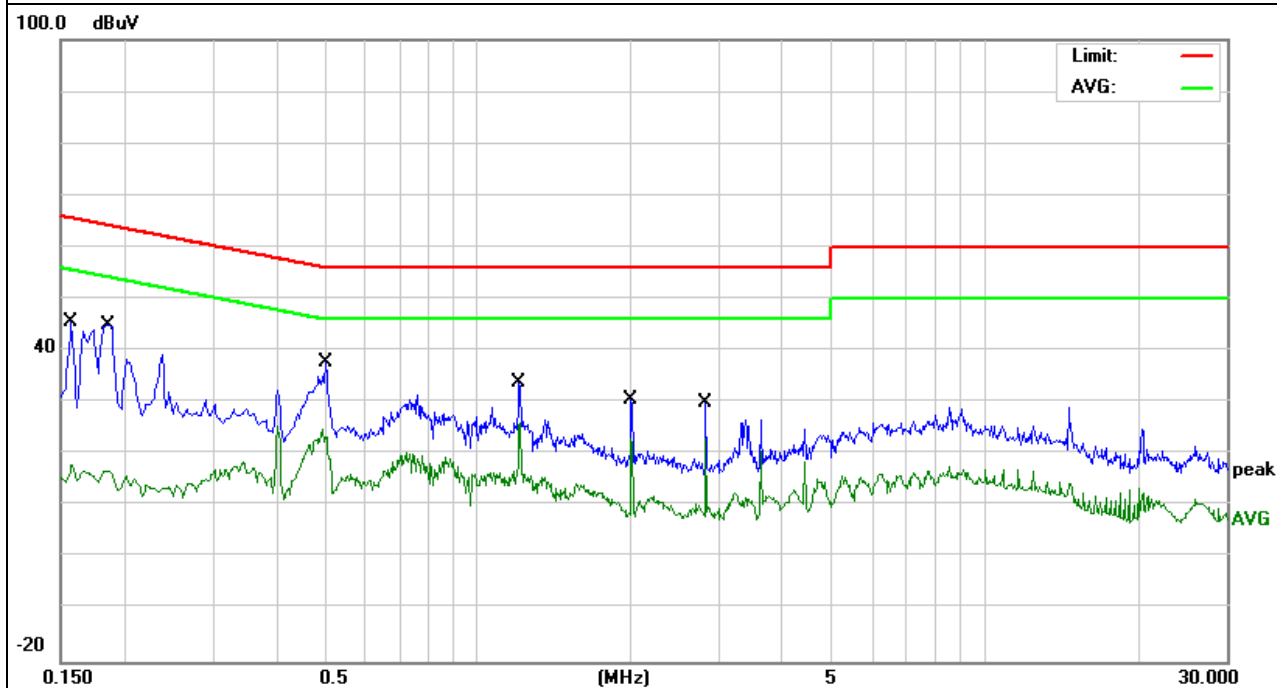


EUT:	Smart Audio Dev Kit	Model Name. :	DDKC7Q1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from Adapter AC120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.158	34.55	9.82	44.37	65.56	-21.19	QP
0.158	8.11	9.82	17.93	55.56	-37.63	AVG
0.186	34.78	9.82	44.60	64.21	-19.61	QP
0.186	7.03	9.82	16.85	54.21	-37.36	AVG
0.494	14.94	9.83	24.77	46.10	-21.33	QP
0.502	27.98	9.83	37.81	56.00	-18.19	AVG
1.206	24.00	9.91	33.91	56.00	-22.09	QP
1.210	16.05	9.91	25.96	46.00	-20.04	AVG
2.010	20.83	9.84	30.67	56.00	-25.33	QP
2.010	13.24	9.84	23.08	46.00	-22.92	AVG
2.818	19.89	10.01	29.90	56.00	-26.10	QP
2.818	12.98	10.01	22.99	46.00	-23.01	AVG

Remark:

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

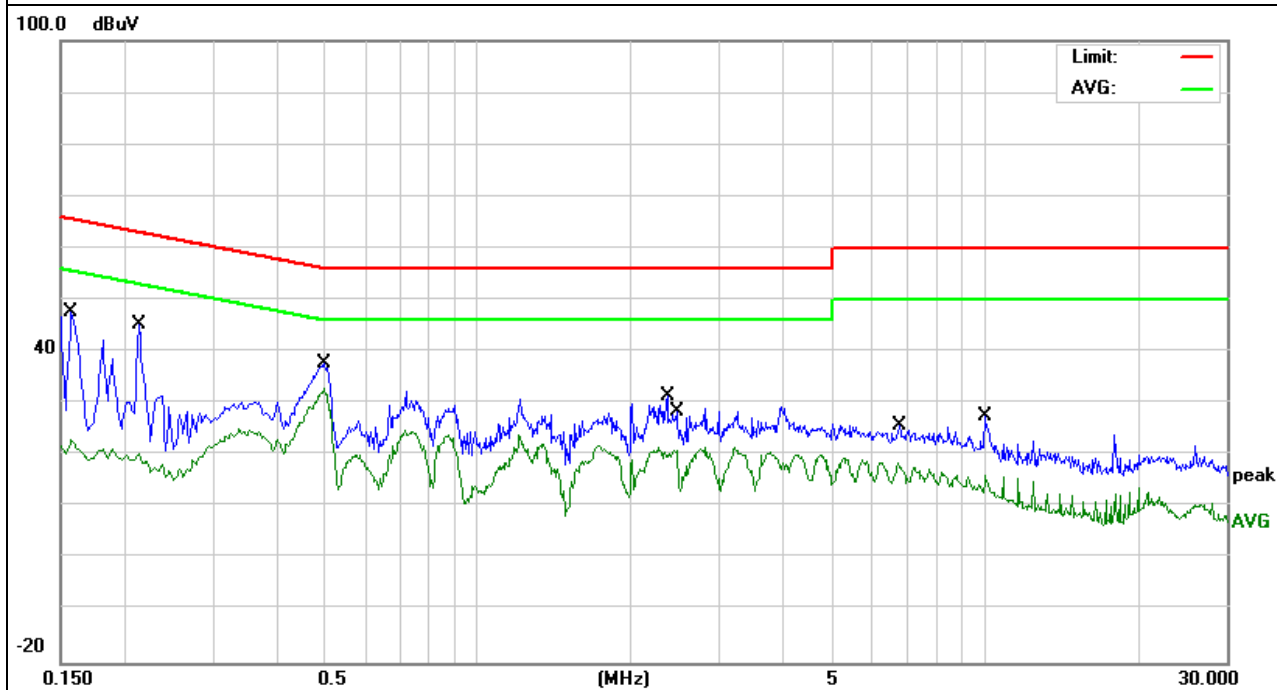


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Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from Adapter AC120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1580	36.46	9.92	46.38	65.56	-19.18	QP
0.1580	13.04	9.92	22.96	55.56	-32.60	AVG
0.2140	34.42	9.92	44.34	63.04	-18.70	QP
0.2140	10.39	9.92	20.31	53.04	-32.73	AVG
0.4980	27.76	9.93	37.69	56.03	-18.34	QP
0.4980	22.92	9.93	32.85	46.03	-13.18	AVG
2.3620	21.38	9.94	31.32	56.00	-24.68	QP
2.4620	11.16	9.94	21.10	46.00	-24.90	AVG
6.7660	8.55	10.06	18.61	50.00	-31.39	QP
6.7940	15.67	10.06	25.73	60.00	-34.27	AVG
9.9780	17.46	10.08	27.54	60.00	-32.46	QP
10.0580	6.21	10.08	16.29	50.00	-33.71	AVG

Remark:

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

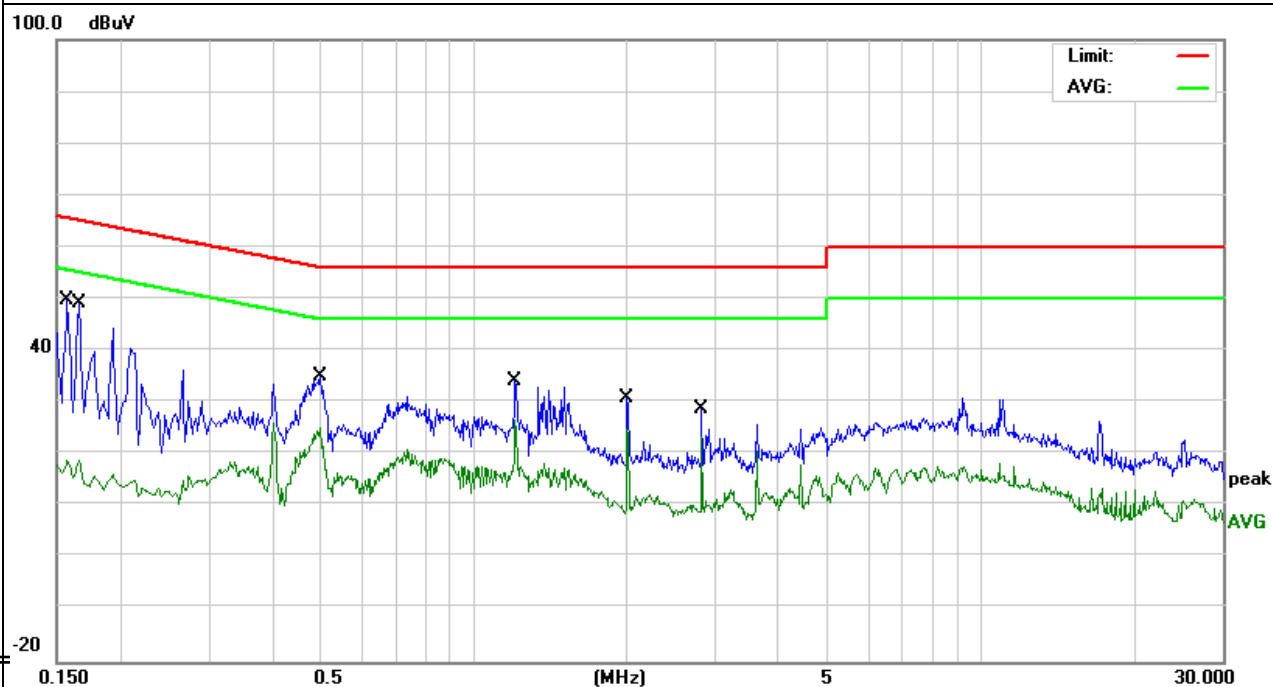


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Test Voltage:	DC 5V from Adapter AC240V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1580	38.62	9.82	48.44	65.56	-17.12	QP
0.1580	8.93	9.82	18.75	55.56	-36.81	AVG
0.1660	38.45	9.82	48.27	65.15	-16.88	QP
0.1660	9.02	9.82	18.84	55.15	-36.31	AVG
0.4980	25.15	9.83	34.98	56.03	-21.05	QP
0.4980	15.32	9.83	25.15	46.03	-20.88	AVG
1.2059	24.24	9.91	34.15	56.00	-21.85	QP
1.2059	16.63	9.91	26.54	46.00	-19.46	AVG
2.0100	20.97	9.84	30.81	56.00	-25.19	QP
2.0100	15.04	9.84	24.88	46.00	-21.12	AVG
2.8179	18.59	10.01	28.60	56.00	-27.40	QP
2.8179	13.22	10.01	23.23	46.00	-22.77	AVG

Remark:

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

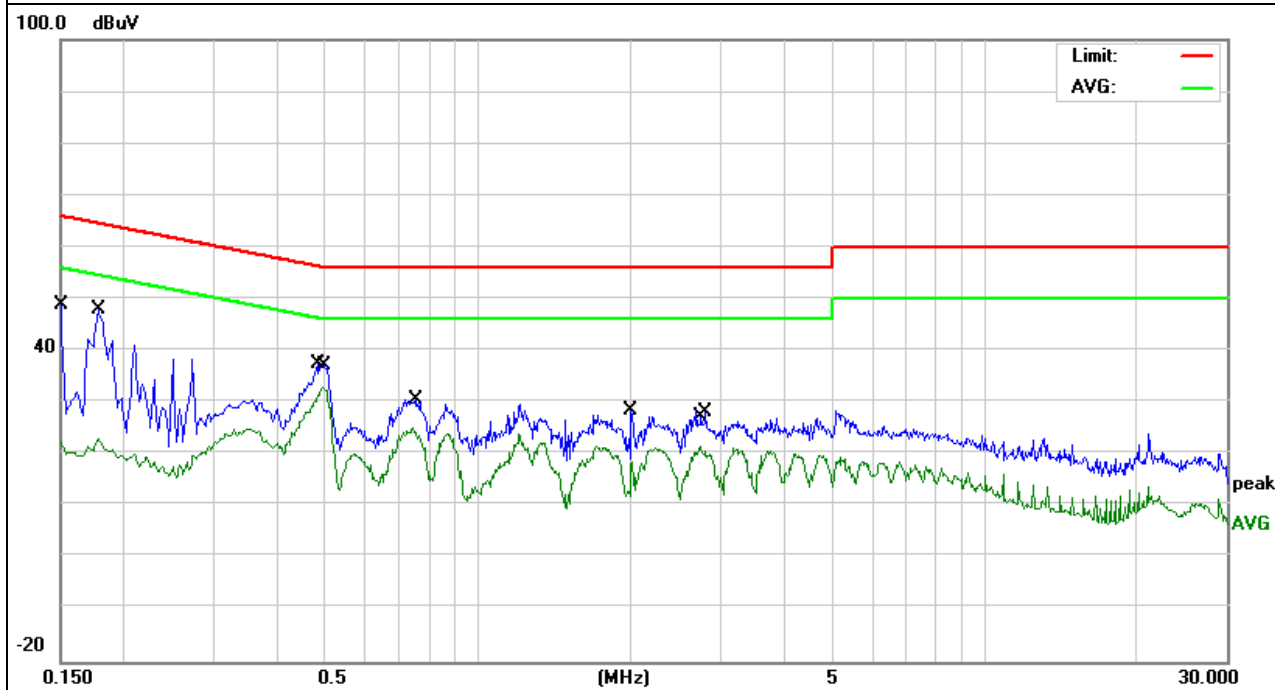


EUT:	Smart Audio Dev Kit	Model Name. :	DDKC7Q1
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2018-5-23
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from Adapter AC240V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1500	12.57	9.92	22.49	56.00	-33.51	QP
0.1500	36.53	9.92	46.45	65.99	-19.54	AVG
0.1780	36.09	9.92	46.01	64.57	-18.56	QP
0.1780	13.24	9.92	23.16	54.57	-31.41	AVG
0.4820	27.56	9.93	37.49	56.30	-18.81	QP
0.4940	22.90	9.93	32.83	46.10	-13.27	AVG
0.7460	15.14	9.93	25.07	46.00	-20.93	QP
0.7539	20.59	9.93	30.52	56.00	-25.48	AVG
2.0100	18.60	9.94	28.54	56.00	-27.46	QP
2.0100	18.60	9.94	28.54	56.00	-27.46	AVG
2.7420	11.56	9.94	21.50	46.00	-24.50	QP
2.8179	18.31	9.95	28.26	56.00	-27.74	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.

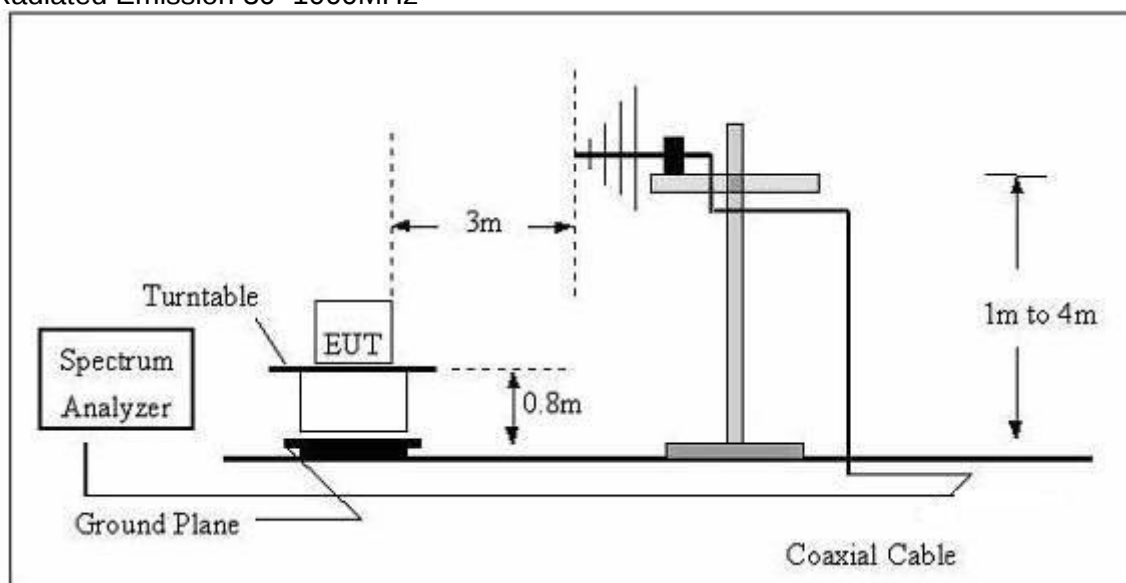
Note: For the hand-held device, the EUT should be measured for all 3 axes and only the worst

case is recorded in the report
During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

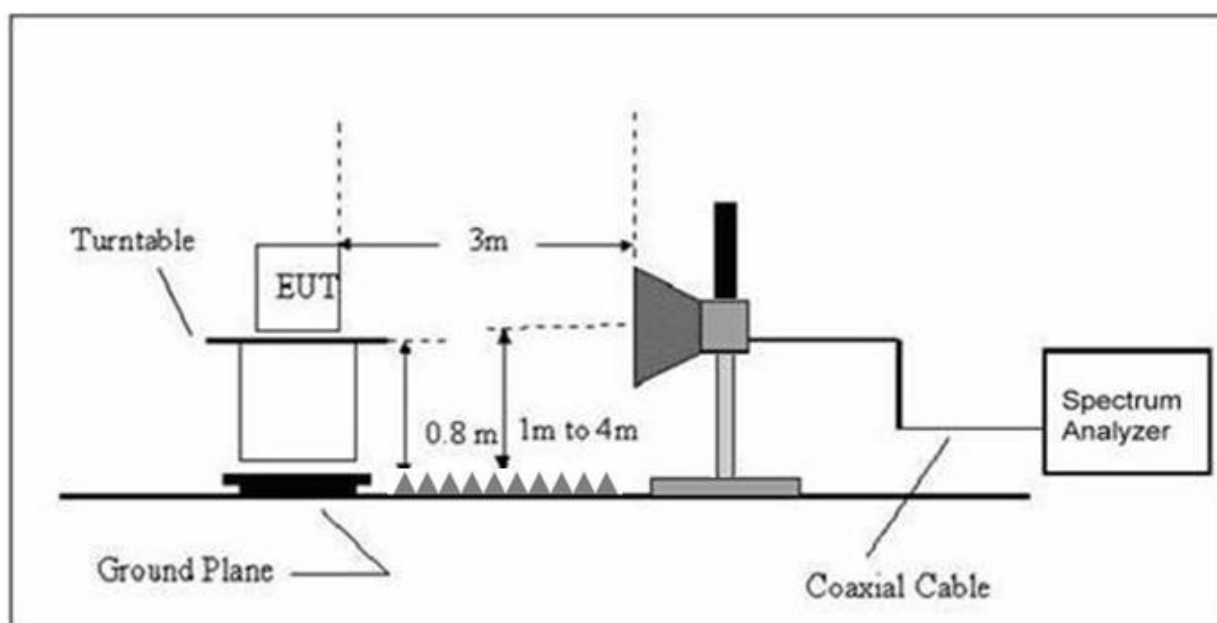
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Avg	1 MHz	10 Hz

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)

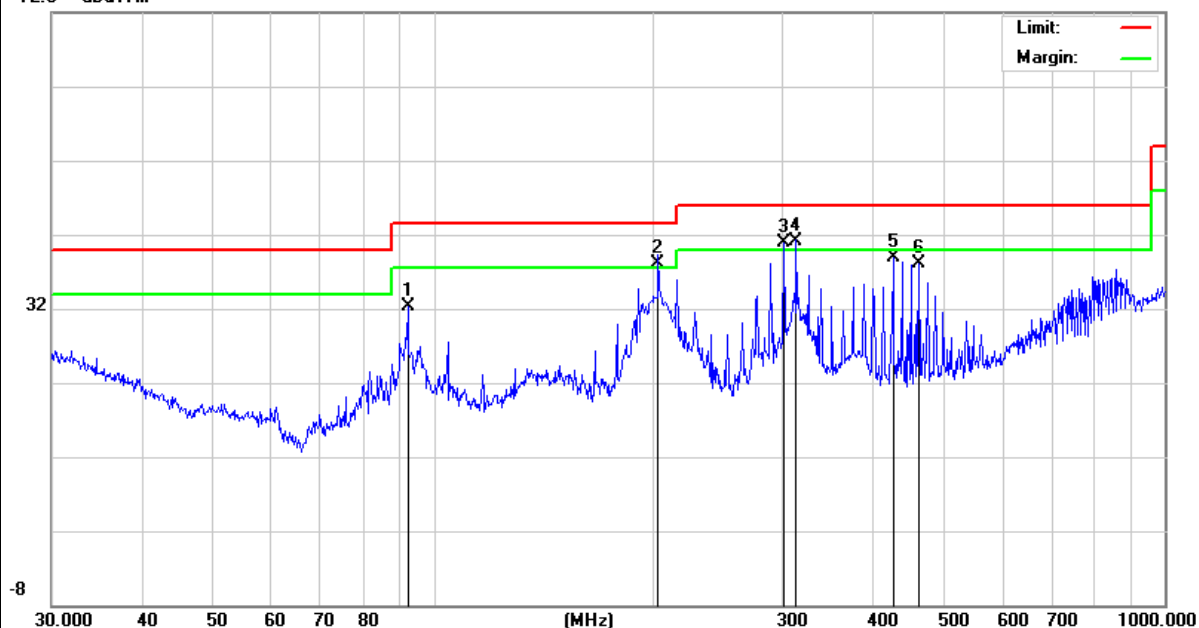
EUT:	Smart Audio Dev Kit	Model Name:	DDKL4Q1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2018-5-23
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V from Adapter AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	92.1388	20.43	11.92	32.35	43.50	-11.15	QP
H	202.8104	24.24	13.84	38.08	43.50	-5.42	QP
H	301.4223	26.37	14.52	40.89	46.00	-5.11	QP
H	313.2760	27.87	13.31	41.18	46.00	-4.82	QP
H	425.0280	22.20	16.70	38.90	46.00	-7.10	QP
H	460.7271	21.66	16.49	38.15	46.00	-7.85	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.

72.0 dBuV/m

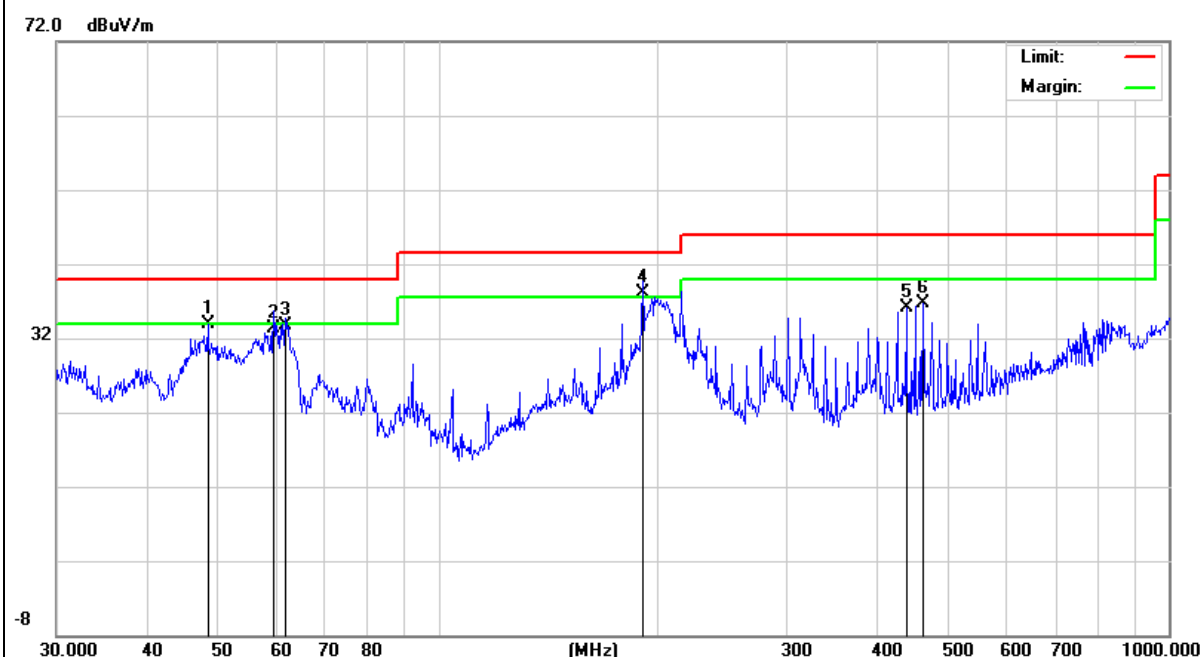


EUT:	Smart Audio Dev Kit	Model Name :	DDKL4Q1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2018-5-23
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V from Adapter AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	48.3318	20.63	13.37	34.00	40.00	-6.00	QP
V	59.4405	21.71	11.55	33.26	40.00	-6.74	QP
V	61.7781	24.48	9.32	33.80	40.00	-6.20	QP
V	190.4050	25.23	12.81	38.04	43.50	-5.46	QP
V	437.1198	19.86	16.15	36.01	46.00	-9.99	QP
V	460.7271	20.21	16.49	36.70	46.00	-9.30	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.

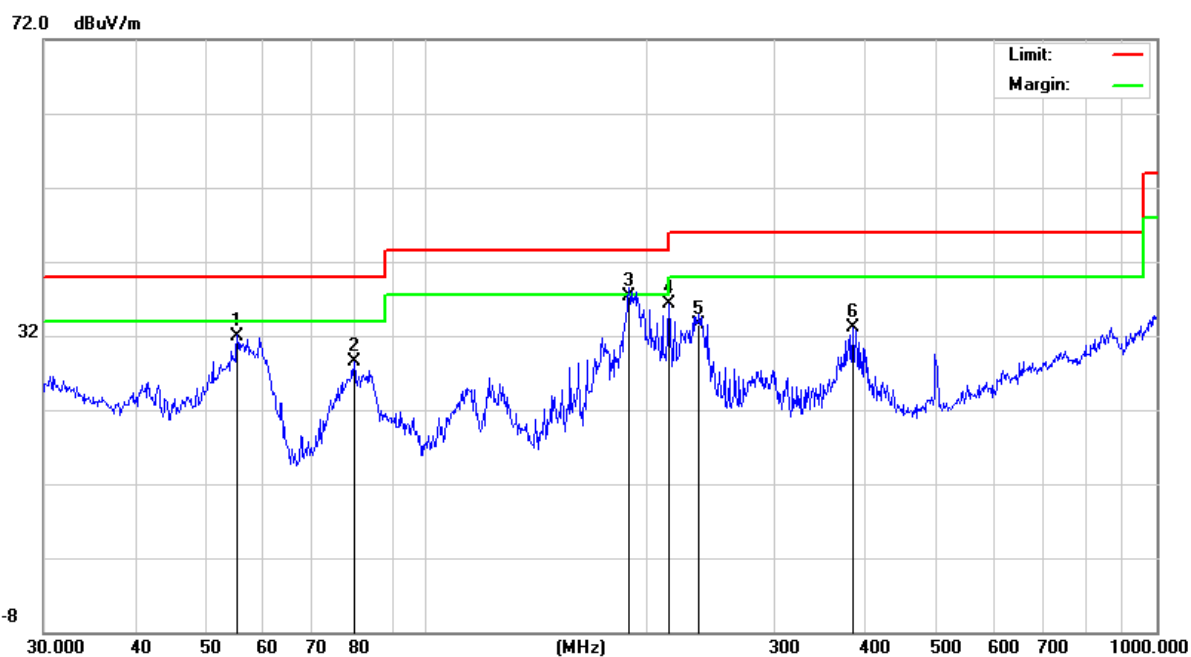


EUT:	Smart Audio Dev Kit	Model Name:	DDKC7Q1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2018-5-23
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V from Adapter AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	55.2207	19.77	12.23	32.00	40.00	-8.00	QP
H	79.8002	16.89	11.62	28.51	40.00	-11.49	QP
H	189.7385	24.62	12.73	37.35	43.50	-6.15	QP
H	215.2677	23.04	13.25	36.29	43.50	-7.21	QP
H	236.6447	21.54	12.03	33.57	46.00	-12.43	QP
H	383.9318	18.20	14.94	33.14	46.00	-12.86	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.

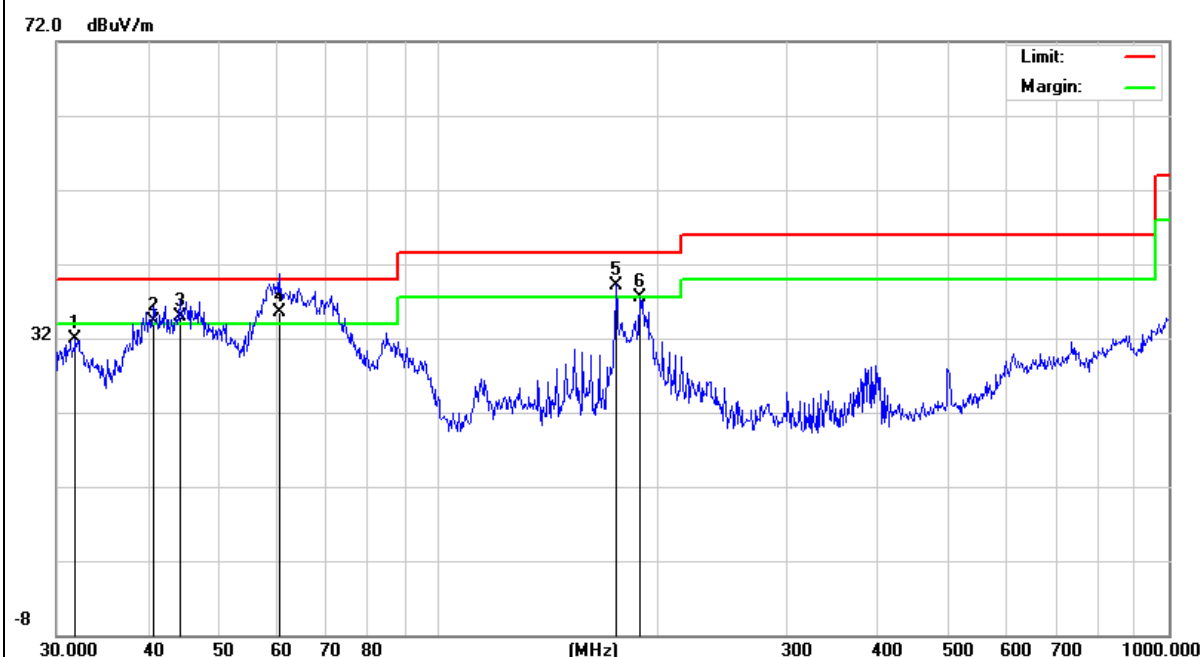


EUT:	Smart Audio Dev Kit	Model Name :	DDKC7Q1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2018-5-23
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V from Adapter AC120V/60Hz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	31.8427	11.40	20.41	31.81	40.00	-8.19	QP
V	40.7014	18.35	16.00	34.35	40.00	-5.65	QP
V	44.2751	20.77	14.20	34.97	40.00	-5.03	QP
V	60.4919	24.52	10.89	35.41	40.00	-4.59	QP
V	175.0367	26.51	12.63	39.14	43.50	-4.36	QP
V	188.4124	24.82	12.72	37.54	43.50	-5.96	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.



3.2.5 TEST RESULTS(1000~6000MHz)

EUT:	Smart Audio Dev Kit	Model Name :	DDKL4Q1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2018-5-23
Test Mode :	Mode 1		
Test Power :	DC 5V from Adapter AC120V/60Hz		

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

Polar (H/V)	Frequency	Reading	Correct	Result	Limit	Over Limit	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
V	1467.50	41.87	-1.59	40.28	74.00	-33.72	Pk
V	1467.50	30.25	-1.59	28.66	54.00	-25.34	AV
V	2232.50	41.36	1.62	42.98	74.00	-31.02	Pk
V	2232.50	32.32	1.62	33.94	54.00	-20.06	AV
V	4400.00	37.44	10.49	47.93	74.00	-26.07	Pk
V	4400.00	28.57	10.49	39.06	54.00	-14.94	AV
V	4825.00	47.49	11.97	59.46	74.00	-14.54	Pk
V	4825.00	32.95	11.97	44.92	54.00	-9.08	AV
H	1127.50	42.84	-3.19	39.65	74.00	-34.35	Pk
H	1127.50	30.19	-3.19	27.00	54.00	-27.00	AV
H	2232.50	41.15	1.62	42.77	74.00	-31.23	Pk
H	2232.50	32.62	1.62	34.24	54.00	-19.76	AV
H	4831.96	37.59	12.01	49.60	74.00	-24.40	Pk
H	4831.96	25.49	12.01	37.50	54.00	-16.50	AV
H	5760.00	38.54	11.46	50.00	74.00	-24.00	Pk
H	5760.00	27.33	11.46	38.79	54.00	-15.21	AV

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	Model Name :	DDKC7Q1
Temperature:	24 °C	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2018-5-23
Test Mode :	Mode 1		
Test Power :	DC 5V from Adapter AC120V/60Hz		

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

Polar (H/V)	Frequenc y	Reading	Correc t	Result	Limit	Over Limit	Remark
	(MHz)	(dBuV/m	dB/m	(dBuV/m	(dBuV/m	(dB)	
V	2105.00	41.71	1.35	43.06	74.00	-30.94	Pk
V	2105.00	30.63	1.35	31.98	54.00	-22.02	AV
V	2955.00	41.42	0.50	41.92	74.00	-32.08	Pk
V	2955.00	29.28	0.50	29.78	54.00	-24.22	AV
V	4400.00	36.76	10.49	47.25	74.00	-26.75	Pk
V	4400.00	24.48	10.49	34.97	54.00	-19.03	AV
V	4831.96	36.29	12.01	48.30	74.00	-25.70	Pk
V	4831.96	25.47	12.01	37.48	54.00	-16.52	AV
H	1212.50	43.78	-2.97	40.81	74.00	-33.19	Pk
H	1212.50	29.78	-2.97	26.81	54.00	-27.19	AV
H	2105.00	40.96	1.35	42.31	74.00	-31.69	Pk
H	2105.00	29.56	1.35	30.91	54.00	-23.09	AV
H	4825.00	35.53	11.97	47.50	74.00	-26.50	Pk
H	4825.00	25.29	11.97	37.26	54.00	-16.74	AV
H	5207.50	36.20	11.71	47.91	74.00	-26.09	Pk
H	5207.50	25.45	11.71	37.16	54.00	-16.84	AV

Remark:

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

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