



Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

FCC PART 15 SUBPART C TEST REPORT

FCC PART 15.247

Report Reference No.....:	GTS20220905004-1-15
FCC ID.....:	2AG7C-SPEED23T
Compiled by (position+printed name+signature)..:	File administrators Peter Xiao <i>Peter Xiao</i>
Supervised by (position+printed name+signature)..:	Test Engineer Jenny Zeng <i>Jenny Zeng</i>
Approved by (position+printed name+signature)..:	Manager Jason Hu <i>Jason Hu</i>
Date of issue.....:	Sep.17, 2022
Representative Laboratory Name.:	Shenzhen Global Test Service Co.,Ltd.
Address	No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong,China
Applicant's name	Hangzhou Meari Technology Co., Ltd.
Address	Room 604-605, Building 1, No.768Jianghong Road, Changhe street, Binjiang District, Hangzhou, zhejiang, China
Test specification	FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz
Standard	ANSI C63.10-2013
TRF Originator	Shenzhen Global Test Service Co.,Ltd.
Master TRF	Dated 2014-12
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Test item description	IP CAMERA
Trade Mark	N/A
Manufacturer	Hangzhou Meari Technology Co., Ltd.
Model/Type reference.....:	Speed 23T
Listed Models	Speed 23S, Speed 17T, Speed 17S, Baby 5S, Baby 5T
Operation Frequency.....:	From 2412MHz to 2462MHz
Hardware Version	BABY5S-T3MB-GC1-REV1_0
Software Version	Ares_B_Chip_IPC_NOTXCONRIM_USB_svn13216
Rating	DC 5.0V/1.0A by Adapter
Result.....:	PASS



TEST REPORT

Test Report No. : GTS20220905004-1-15	Sep.17, 2022 <hr style="border: 0; border-top: 1px solid black;"/> Date of issue
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Equipment under Test : IP CAMERA

Model /Type : Speed 23T

Listed model : Speed 23S, Speed 17T, Speed 17S, Baby 5S, Baby 5T

Applicant : **Hangzhou Meari Technology Co., Ltd.**

Address : Room 604-605, Building 1, No.768Jianghong Road, Changhe street,
Binjiang District, Hangzhou, zhejiang, China

Manufacturer : **Hangzhou Meari Technology Co., Ltd.**

Address : 4F of Building 1 and 2-4F of Building 2, No. 91 Chutian Road,
Xixing Street, Binjiang District, Hangzhou,Zhejiang,China

Test Result:	PASS
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The test report merely corresponds to the test sample.
 It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB558074 D01 DTS Meas Guidance v05r02](#): Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Sep.05, 2022
	:	
Testing commenced on	:	Sep.05, 2022
	:	
Testing concluded on	:	Sep.16, 2022

2.2. Product Description

Product Name	IP CAMERA
Trade Mark	N/A
Model/Type reference	Speed 23T
List Models	Speed 23S, Speed 17T, Speed 17S, Baby 5S, Baby 5T
Model Declaration	Speed 23T and Speed 17S only have the light board, the appearance is different, the others are the same, and the relevant differences are evaluated; Other series models Speed 23T, Speed 23S, Speed 17S, Speed 17T, Baby 5S and Baby 5T, only the model name is different, others are exactly the same.
Power supply:	DC 5.0V/1.0A by Adapter
Sample ID	GTS20220905004-1-S0001-4#(Model :Speed 23T)& GTS20220905004-1-S0001-5#(Model :Speed 23T) & GTS20220905004-1-S0001-6#(Model : Speed 17S)
WIFI(2.4G Band)	
Frequency Range	2412MHz ~ 2462MHz
Channel Spacing	5MHz
Channel Number	11 Channel for 20MHz bandwidth(2412~2462MHz)
Modulation Type	802.11b: DSSS; 802.11g/n: OFDM
Antenna Description	On board Antenna, 1.94dBi(Max.)

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 5.0V

2.4. Short description of the Equipment under Test (EUT)

This is a IP CAMERA .

For more details, refer to the user's manual of the EUT.

2.5. EUT operation mode

The application provider specific test software to control sample in continuous TX and RX (Duty Cycle >98%) for testing meet KDB558074 test requirement.

IEEE 802.11b/g/n: Thirteen channels are provided to the EUT.

Antenna	Chain 0		Chain 1		Simultaneously
Bandwidth Mode	20MHz	40MHz	20MHz	40MHz	/
IEEE 802.11b	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IEEE 802.11g	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IEEE 802.11n	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

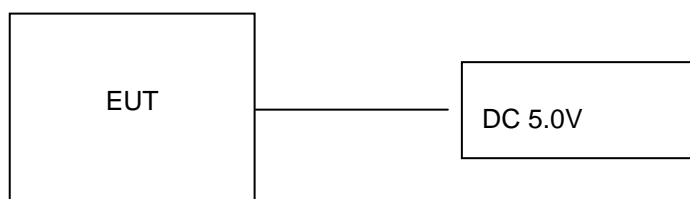
The EUT has been tested under operating condition.

AC main conducted emission pre-test voltage at both AC 120V/60Hz and AC 240V/60Hz, recorded worst case;
AC main conducted emission pre-test at charge from PC modes, recorded worst case;

This test was performed with EUT in X, Y, Z position and the worst case was found when EUT in X position.

Worst-case mode and channel used for 9 KHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be IEEE 802.11g mode (MCH).

2.6. Block Diagram of Test Setup



2.7. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2AG7C-SPEED23T** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.8. EUT Exercise Software

The system was configured for testing in a continuous transmits condition and change test channels by software (IPOP order) provided by application.

2.9. Special Accessories

Manufacturer	Description	Model	Serial Number	Certificate
SHENZHEN TIANYIN ELECTRONICS CO.,LTD.	Adapter	TPA-46B050100UU	--	SDOC
Zhuzhou Dachuan Electronic Technology Co.,Ltd.	Adapter	DCT07W050100US-C1	--	SDOC

2.10. External I/O Cable

I/O Port Description	Quantity	Cable
DC IN Port	1	1.0M, Unscreened Cable

2.11. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong,China.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L8169)

Shenzhen Global Test Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2019 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA (Certificate No. 4758.01)

Shenzhen Global Test Service Co., Ltd. has been assessed by the American Association for Laboratory Accreditation (A2LA). Certificate No. 4758.01.

Industry Canada Registration Number. is 24189.

FCC Designation Number is CN1234.

FCC Registered Test Site Number is165725.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Global Test Service Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.5. Test Description

Applied Standard: FCC Part 15 Subpart C				
ISED Rules	Description of Test	Test Sample	Result	Remark
/	On Time and Duty Cycle	GTS20220905004-1-S0001-4#	/	/
§15.247(b)	Maximum Conducted Output Power	GTS20220905004-1-S0001-4#	Compliant	Appendix A
§15.247(e)	Power Spectral Density	GTS20220905004-1-S0001-4#	Compliant	Appendix A
§15.247(a)(2)	6dB Bandwidth	GTS20220905004-1-S0001-4#	Compliant	Appendix A
§2.1047	99% Occupied Bandwidth	GTS20220905004-1-S0001-4#	Compliant	Appendix A
§15.209, §15.247(d)	Conducted Spurious Emissions and Band Edges Test	GTS20220905004-1-S0001-4#	Compliant	Appendix A
§15.209, §15.247(d)	Radiated Spurious Emissions	GTS20220905004-1-S0001-5# GTS20220905004-1-S0001-6#	Compliant	Note 1
§15.205	Emissions at Restricted Band	GTS20220905004-1-S0001-4#	Compliant	Note 1
§15.207(a)	AC Conducted Emissions	GTS20220905004-1-S0001-5# GTS20220905004-1-S0001-6#	Compliant	Note 1
§15.203 §15.247(c)	Antenna Requirements	GTS20220905004-1-S0001-4#	Compliant	Note 1
§15.247(i)§2.1091	RF Exposure	/	Compliant	Note 2

Remark:

1. The measurement uncertainty is not included in the test result.
2. NA = Not Applicable; NP = Not Performed
3. Note 1 – Test results inside test report;
4. Note 2 – Test results in other test report (MPE Report).
5. We tested all test mode and recorded worst case in report

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission Radiated Emission 9kHz~1GHz& Radiated Emission 1GHz~10 th Harmonic	11b/DSSS	1 Mbps	1/6/11
	11g/OFDM	6 Mbps	1/6/11
	11n(20MHz)/OFDM	6.5Mbps	1/6/11
	11b/DSSS	1 Mbps	1/11
Band Edge	11g/OFDM	6 Mbps	1/11
	11n(20MHz)/OFDM	6.5Mbps	1/11

3.6. Equipments Used during the Test

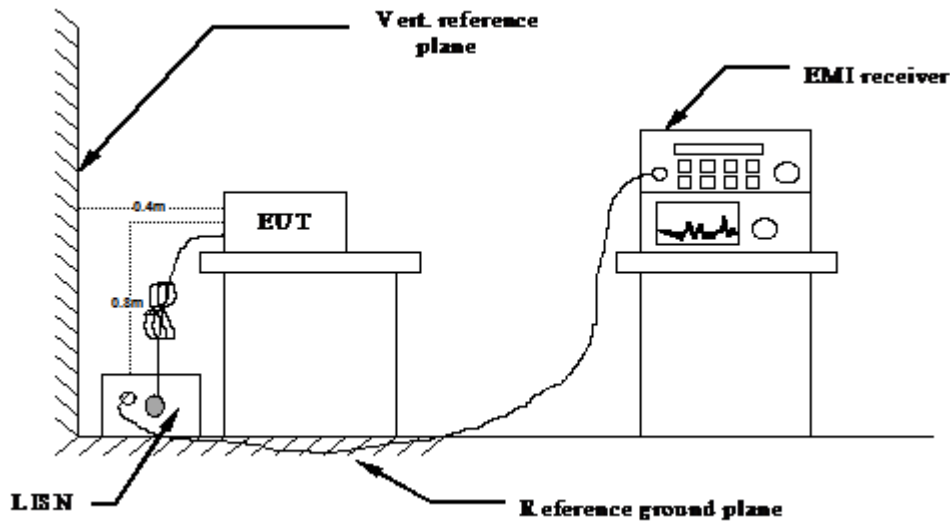
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	CYBERTEK	EM5040A	E1850400105	2022/07/13	2023/07/12
LISN	R&S	ESH2-Z5	893606/008	2022/07/13	2023/07/12
EMI Test Receiver	R&S	ESPI3	101841-cd	2022/07/13	2023/07/12
EMI Test Receiver	R&S	ESCI7	101102	2021/09/19	2022/09/18
Spectrum Analyzer	Agilent	N9020A	MY48010425	2021/09/19	2022/09/18
Spectrum Analyzer	R&S	FSV40	100019	2022/07/13	2023/07/12
Vector Signal generator	Agilent	N5181A	MY49060502	2022/07/13	2023/07/12
Signal generator	Agilent	N5182A	3610AO1069	2021/09/19	2022/09/18
Climate Chamber	ESPEC	EL-10KA	A20120523	2021/09/19	2022/09/18
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2021/09/19	2022/09/18
Active Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	15006	2021/09/19	2022/09/18
Bilog Antenna	Schwarzbeck	VULB9163	000976	2021/08/08	2022/08/07
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2021/09/19	2022/09/18
Amplifier	Schwarzbeck	BBV 9743	#202	2022/07/13	2023/07/12
Amplifier	Schwarzbeck	BBV9179	9719-025	2022/07/13	2023/07/12
Amplifier	EMCI	EMC051845B	980355	2022/07/13	2023/07/12
Temperature/Humidity Meter	Gangxing	CTH-608	02	2022/07/13	2023/07/12
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	KL142031	2022/07/13	2023/07/12
High-Pass Filter	K&L	41H10-1375/U12750-O/O	KL142032	2022/07/13	2023/07/12
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2022/07/13	2023/07/12
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2022/07/13	2023/07/12
Data acquisition card	Agilent	U2531A	TW53323507	2022/07/13	2023/07/12
Power Sensor	Agilent	U2021XA	MY5365004	2022/07/13	2023/07/12
Test Control Unit	Tonscend	JS0806-1	178060067	2022/07/13	2023/07/12
Automated filter bank	Tonscend	JS0806-F	19F8060177	2022/07/13	2023/07/12
EMI Test Software	Tonscend	JS1120-1	Ver 2.6.8.0518	/	/
EMI Test Software	Tonscend	JS1120-3	Ver 2.5.77.0418	/	/
EMI Test Software	Tonscend	JS32-CE	Ver 2.5	/	/
EMI Test Software	Tonscend	JS32-RE	Ver 2.5.1.8	/	/

Note: The Cal.Interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2013.
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013.
- 4 The EUT received DC 5V power, the adapter received AC120V/60Hz or AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST RESULTS

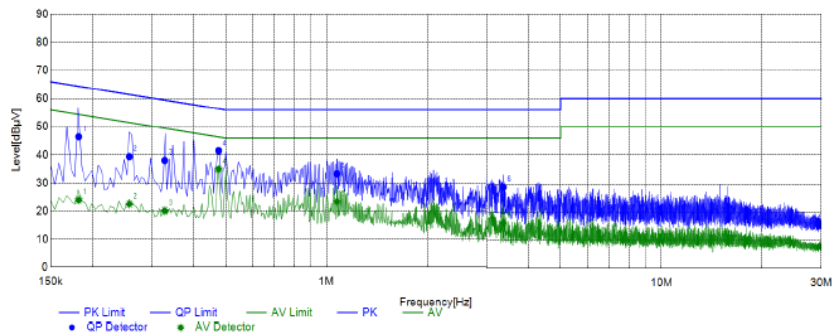
Remark: We measured Conducted Emission at 802.11b/802.11g/802.11n HT20 mode from 150 KHz to 30MHz in AC120V and the worst case was recorded.

Temperature	25°C	Humidity	60%
Test Engineer	Jenny Zeng	Configurations	IEEE 802.11g (MCH)

Speed 23T:
Adapter: TPA-46B050100UU

Power supply:	AC 120V/60Hz	Polarization	L
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Test Graph



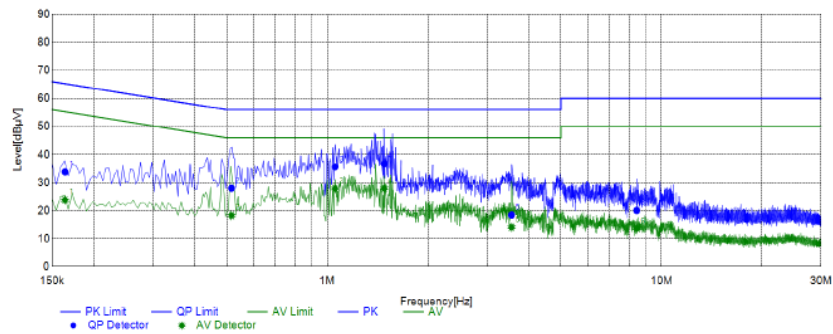
Final Data List												
NO.	Frequency	QP	AVG.	Factor	QP	AVG.	QP	AVG.	QP	AVG.	Line	Remark
		Reading	Reading		Result	Result	Limit	Limit	Margin	Margin		
1	0.1819	36.89	14.38	9.59	46.48	23.97	64.40	54.40	17.92	30.43	L1	PASS
2	0.2577	29.90	13.02	9.48	39.38	22.50	61.50	51.50	22.12	29.00	L1	PASS
3	0.3290	28.62	10.66	9.43	38.05	20.09	59.48	49.48	21.43	29.39	L1	PASS
4	0.4761	32.06	25.48	9.41	41.47	34.89	56.41	46.41	14.94	11.52	L1	PASS
5	1.0752	23.86	13.96	9.39	33.25	23.35	56.00	46.00	22.75	22.65	L1	PASS
6	3.3720	19.58	6.91	9.37	28.95	16.28	56.00	46.00	27.05	29.72	L1	PASS

Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N
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Test Graph



Final Data List												
NO.	Frequency	QP	AVG.	Factor	QP	AVG.	QP	AVG.	QP	AVG.	Line	Remark
		Reading	Reading		Result	Result	Limit	Limit	Margin	Margin		
1	0.1642	24.21	14.18	9.60	33.81	23.78	65.25	55.25	31.44	31.47	N	PASS
2	0.5166	18.54	8.89	9.40	27.94	18.29	56.00	46.00	28.06	27.71	N	PASS
3	1.0565	26.23	18.47	9.37	35.60	27.84	56.00	46.00	20.40	18.16	N	PASS
4	1.4821	27.32	18.57	9.36	36.68	27.93	56.00	46.00	19.32	18.07	N	PASS
5	3.5619	9.08	4.67	9.37	18.45	14.04	56.00	46.00	37.55	31.96	N	PASS
6	8.4378	10.73	4.35	9.31	20.04	13.66	60.00	50.00	39.96	36.34	N	PASS

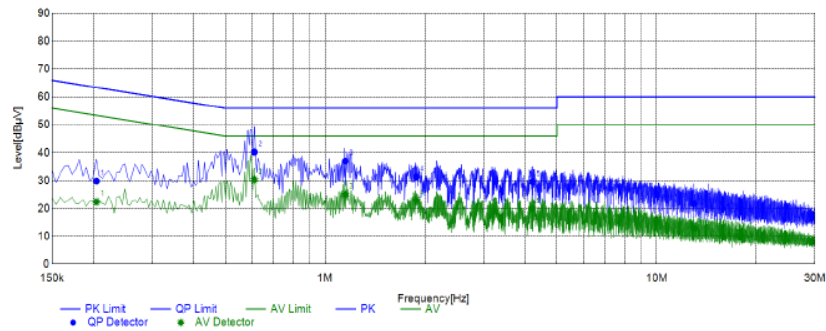
Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Adapter: DCT07W050100US-C1

Power supply:	AC 120V/60Hz	Polarization	L
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Test Graph



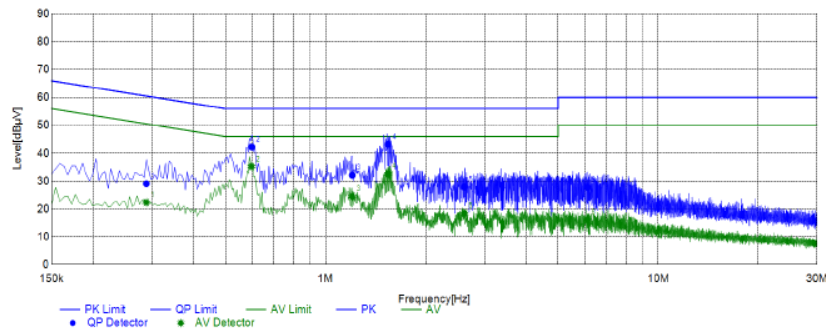
Final Data List												
NO.	Frequency	QP	AVG.	Factor	QP	AVG.	QP	AVG.	QP	AVG.	Line	Remark
		Reading	Reading		Result	Result	Limit	Limit	Margin	Margin		
1	0.2045	20.28	12.85	9.54	29.82	22.39	63.42	53.42	33.60	31.03	L1	PASS
2	0.6115	30.57	20.65	9.67	40.24	30.32	56.00	46.00	15.76	15.68	L1	PASS
3	1.1513	27.54	15.62	9.40	36.94	25.02	56.00	46.00	19.06	20.98	L1	PASS
4	1.8843	22.03	13.50	9.36	31.39	22.86	56.00	46.00	24.61	23.14	L1	PASS
5	4.2216	20.21	10.44	9.40	29.61	19.84	56.00	46.00	26.39	26.16	L1	PASS
6	12.9395	12.56	3.67	9.17	21.73	12.84	60.00	50.00	38.27	37.16	L1	PASS

Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N
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Test Graph

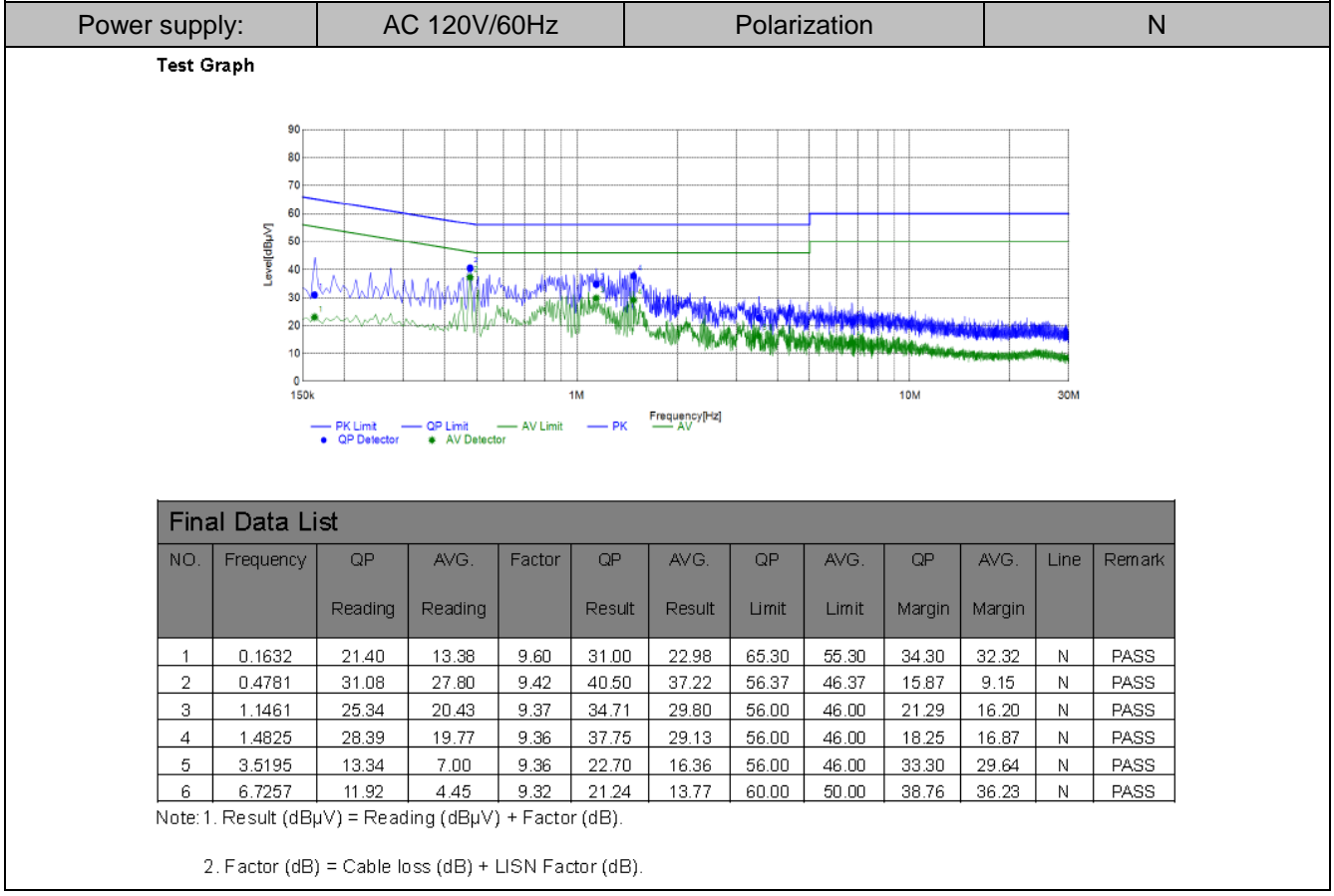
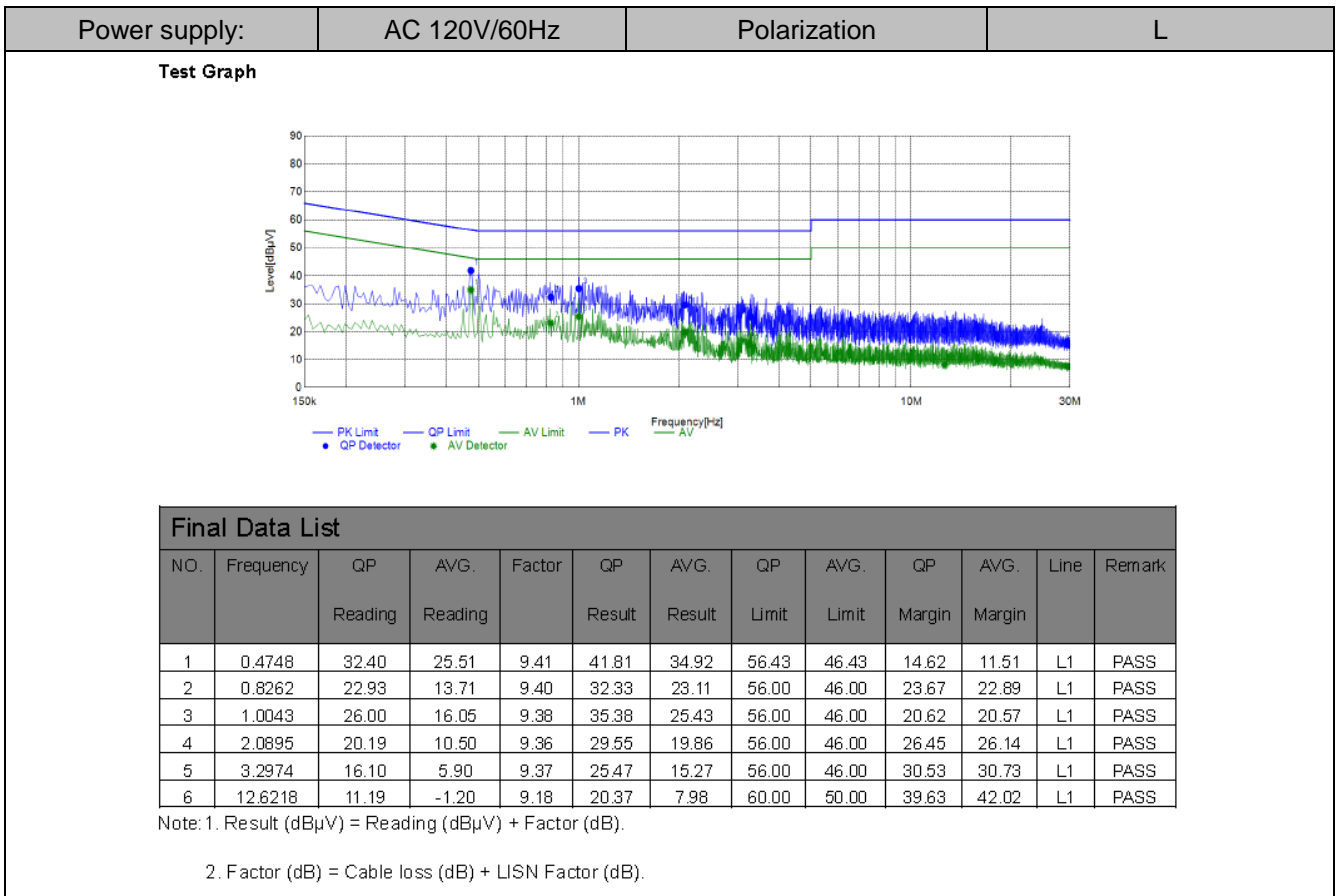


Final Data List												
NO.	Frequency	QP	AVG.	Factor	QP	AVG.	QP	AVG.	QP	AVG.	Line	Remark
		Reading	Reading		Result	Result	Limit	Limit	Margin	Margin		
1	0.2894	19.60	12.87	9.47	29.07	22.34	60.54	50.54	31.47	28.20	N	PASS
2	0.5998	32.85	25.79	9.40	42.25	35.19	56.00	46.00	13.75	10.81	N	PASS
3	1.2045	22.77	15.11	9.38	32.15	24.49	56.00	46.00	23.85	21.51	N	PASS
4	1.5436	33.85	23.24	9.36	43.21	32.60	56.00	46.00	12.79	13.40	N	PASS
5	2.6158	18.54	9.05	9.34	27.88	18.39	56.00	46.00	28.12	27.61	N	PASS
6	6.1299	18.39	6.71	9.34	27.73	16.05	60.00	50.00	32.27	33.95	N	PASS

Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

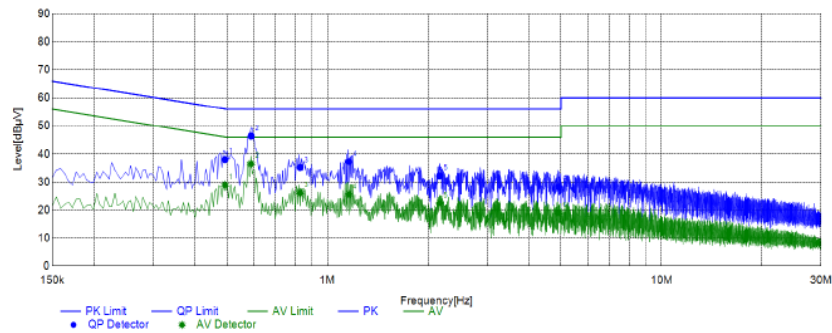
**Speed 17S:
Adapter: TPA-46B050100UU**



Adapter: DCT07W050100US-C1

Power supply:	AC 120V/60Hz	Polarization	L
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Test Graph



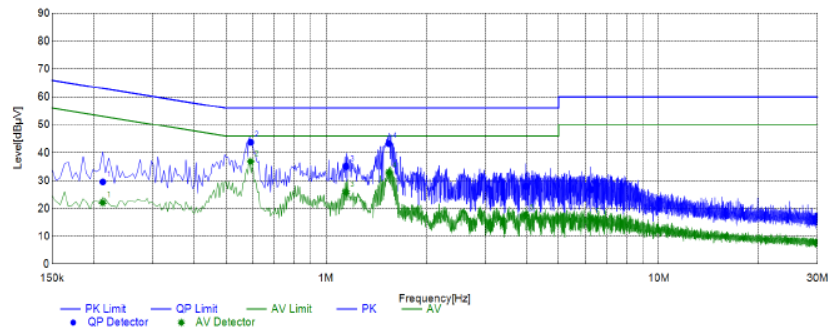
Final Data List												
NO.	Frequency	QP	AVG.	Factor	QP	AVG.	QP	AVG.	QP	AVG.	Line	Remark
		Reading	Reading		Result	Result	Limit	Limit	Margin	Margin		
1	0.4934	28.66	19.56	9.40	38.06	28.96	56.11	46.11	18.05	17.15	L1	PASS
2	0.5908	36.79	26.85	9.67	46.46	36.52	56.00	46.00	9.54	9.48	L1	PASS
3	0.8280	25.76	16.78	9.40	35.16	26.18	56.00	46.00	20.84	19.82	L1	PASS
4	1.1601	27.87	16.16	9.40	37.27	25.56	56.00	46.00	18.73	20.44	L1	PASS
5	2.1644	22.91	13.07	9.35	32.26	22.42	56.00	46.00	23.74	23.58	L1	PASS
6	4.9157	18.97	9.66	9.36	28.33	19.02	56.00	46.00	27.67	26.98	L1	PASS

Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N
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Test Graph



Final Data List												
NO.	Frequency	QP	AVG.	Factor	QP	AVG.	QP	AVG.	QP	AVG.	Line	Remark
		Reading	Reading		Result	Result	Limit	Limit	Margin	Margin		
1	0.2134	19.96	12.52	9.57	29.53	22.09	63.07	53.07	33.54	30.98	N	PASS
2	0.5937	34.34	27.41	9.40	43.74	36.81	56.00	46.00	12.26	9.19	N	PASS
3	1.1490	25.67	16.44	9.37	35.04	25.81	56.00	46.00	20.96	20.19	N	PASS
4	1.5469	33.88	23.43	9.36	43.24	32.79	56.00	46.00	12.76	13.21	N	PASS
5	3.9903	18.48	8.20	9.40	27.88	17.60	56.00	46.00	28.12	28.40	N	PASS
6	6.2631	17.44	6.80	9.33	26.77	16.13	60.00	50.00	33.23	33.87	N	PASS

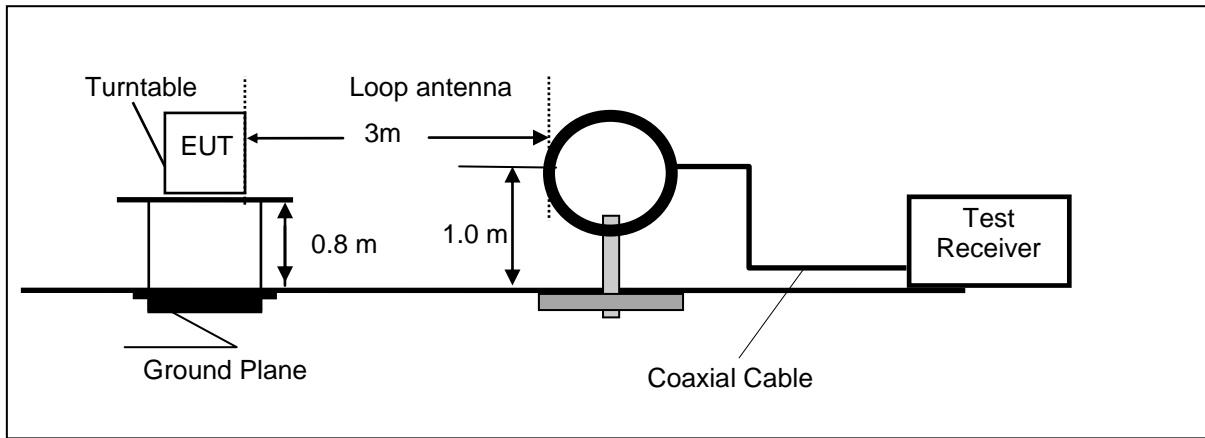
Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

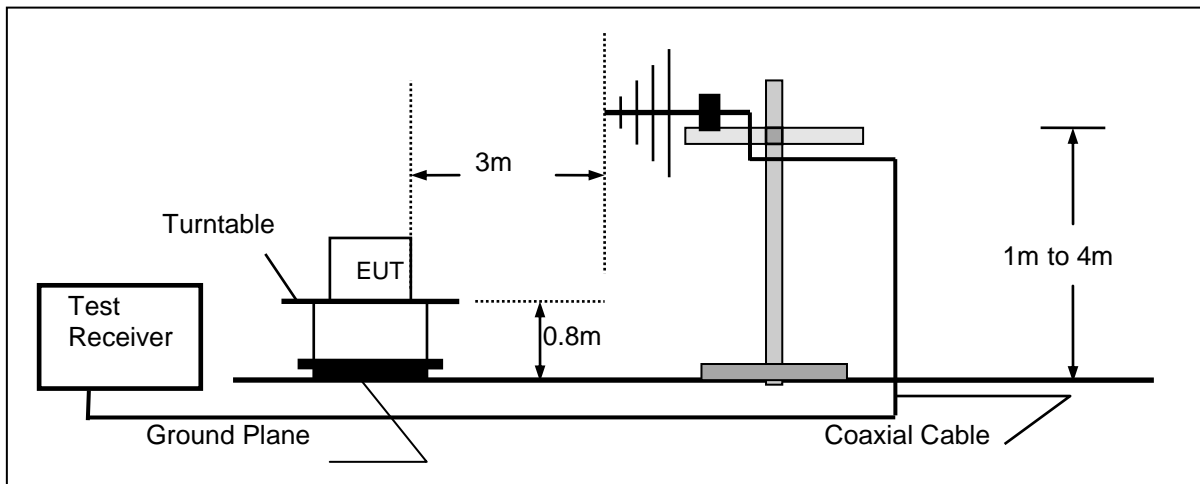
4.2. Radiated Emission

TEST CONFIGURATION

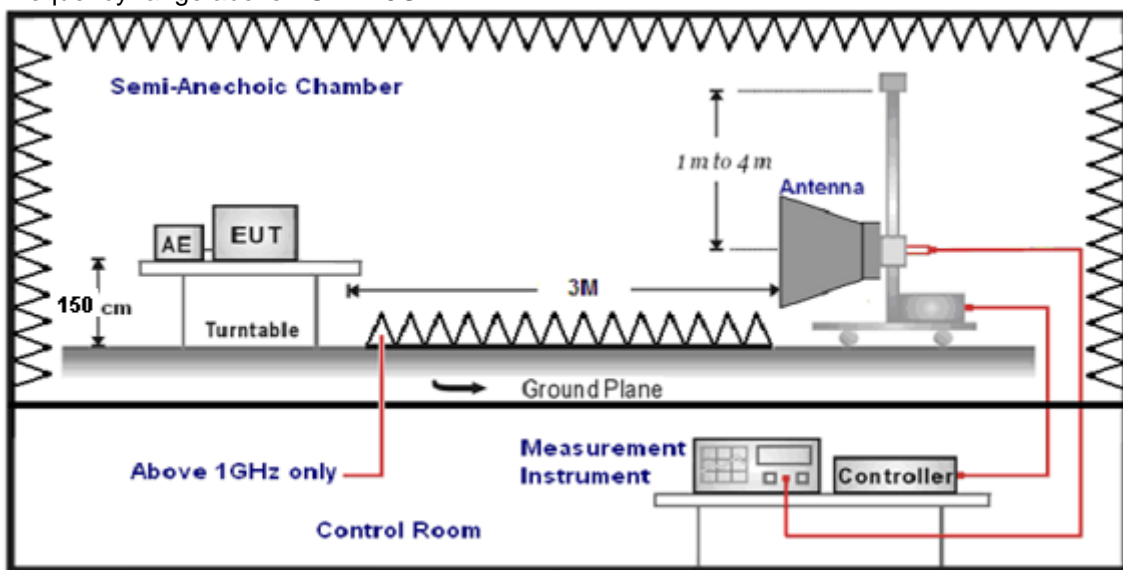
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane when testing frequency range 30MHz –1GHz;the EUT was placed on a turn table which is 1.5m above ground plane when testing frequency range 1GHz – 25GHz.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 30MHz to 25GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

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:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

$$Transd=AF +CL-AG$$

RADIATION LIMIT

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	2400/F(KHz)
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	24000/F(KHz)
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

Remark: We measured Radiated Emission at 802.11b/802.11g/802.11n HT20 mode from 9 KHz to 25GHz in AC120V and the worst case was recorded.

Temperature	25°C	Humidity	60%
Test Engineer	Jenny Zeng	Configurations	IEEE 802.11g (MCH)

For 9 KHz~30MHz

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

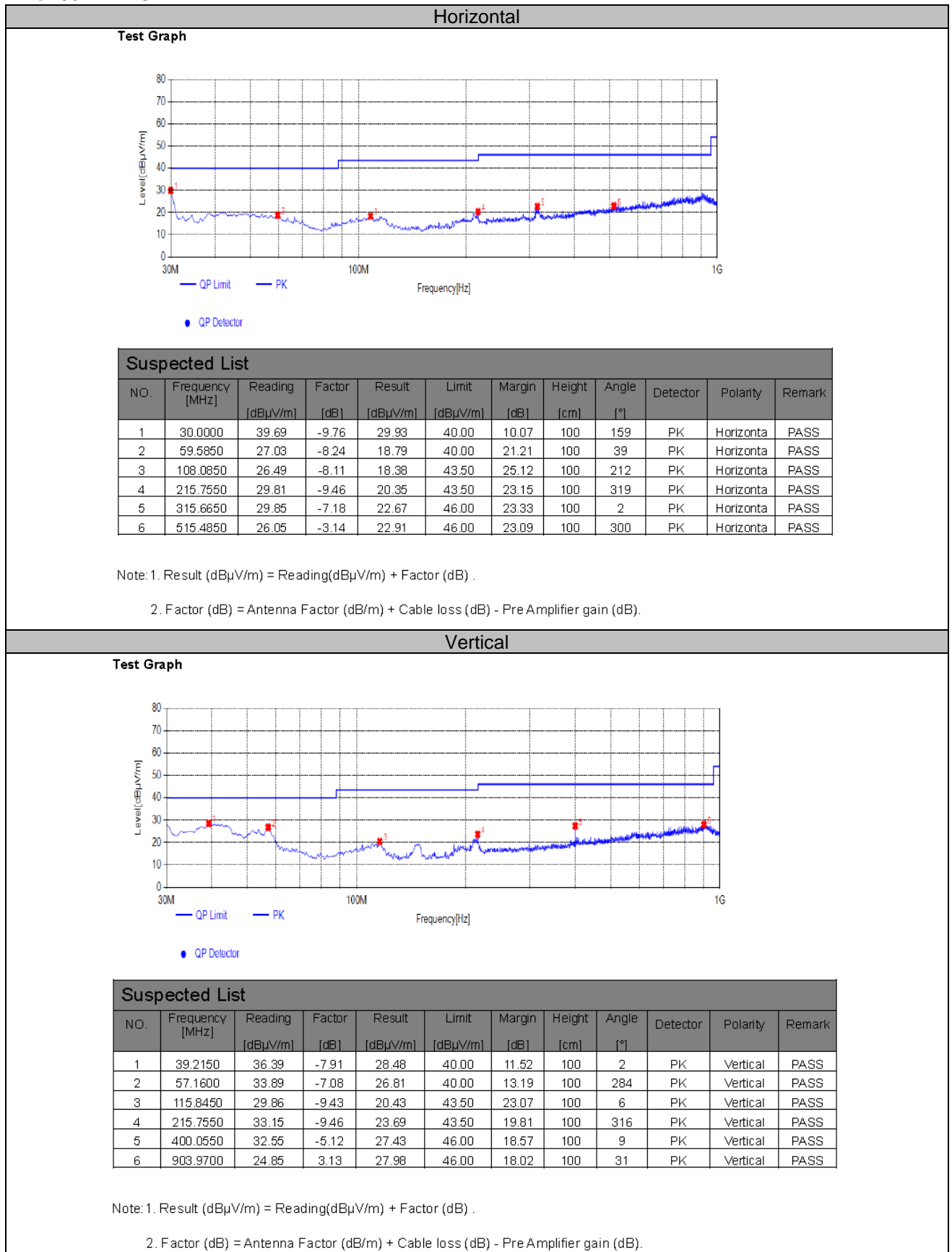
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

Speed 23T:

Adapter: TPA-46B050100UU

For 30MHz-1GHz

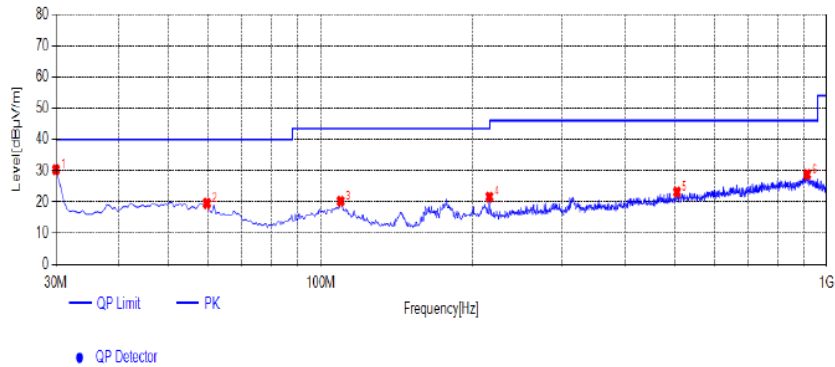


Adapter: DCT07W050100US-C1

For 30MHz-1GHz

Horizontal

Test Graph



Suspected List

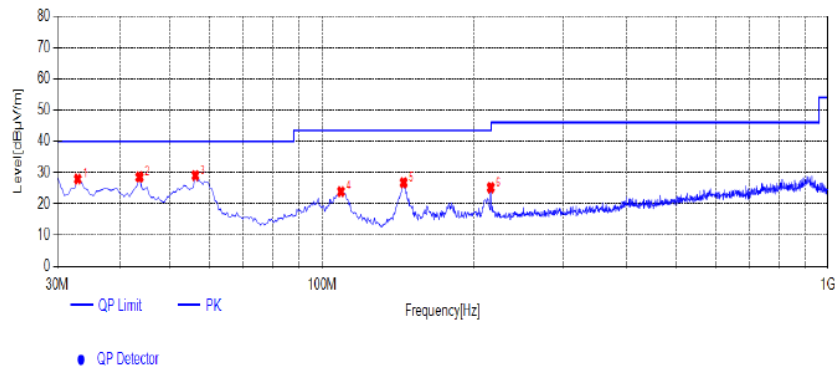
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	30.0000	40.08	-9.76	30.32	40.00	9.68	100	236	PK	Horizontal	PASS
2	59.5850	27.77	-8.24	19.53	40.00	20.47	100	56	PK	Horizontal	PASS
3	109.5400	28.65	-8.42	20.23	43.50	23.27	100	224	PK	Horizontal	PASS
4	215.7550	31.07	-9.46	21.61	43.50	21.89	100	293	PK	Horizontal	PASS
5	506.2700	26.45	-3.30	23.15	46.00	22.85	100	214	PK	Horizontal	PASS
6	916.0950	25.32	3.44	28.76	46.00	17.24	100	246	PK	Horizontal	PASS

Note: 1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



Suspected List

NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	32.9100	37.45	-9.55	27.90	40.00	12.10	100	358	PK	Vertical	PASS
2	43.5800	35.25	-6.73	28.52	40.00	11.48	100	41	PK	Vertical	PASS
3	56.1900	36.37	-7.30	29.07	40.00	10.93	100	44	PK	Vertical	PASS
4	109.0550	32.22	-8.32	23.90	43.50	19.60	100	44	PK	Vertical	PASS
5	144.9450	38.88	-12.15	26.73	43.50	16.77	100	307	PK	Vertical	PASS
6	215.7550	34.62	-9.46	25.16	43.50	18.34	100	300	PK	Vertical	PASS

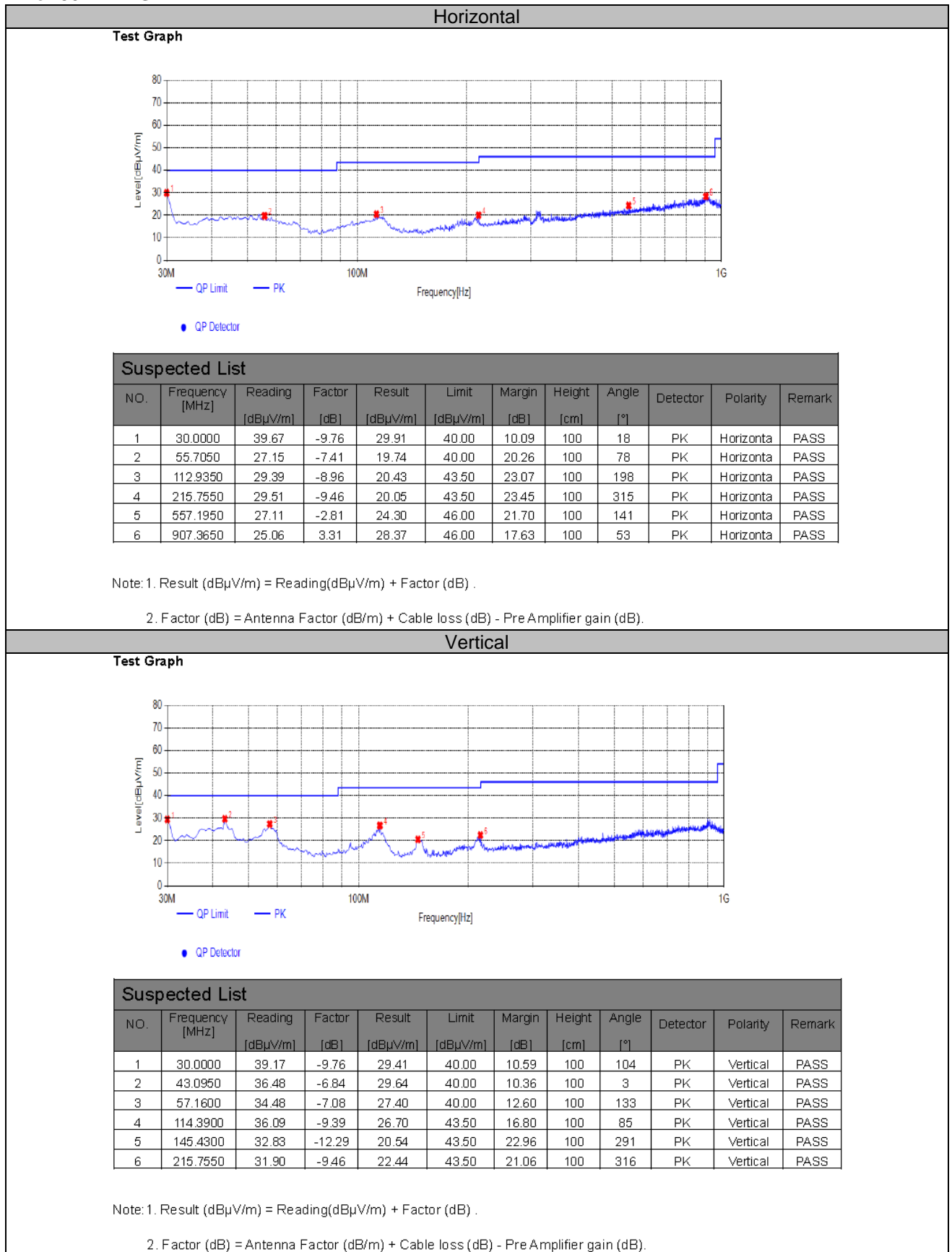
Note: 1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Speed 17S:

Adapter: TPA-46B050100UU

For 30MHz-1GHz

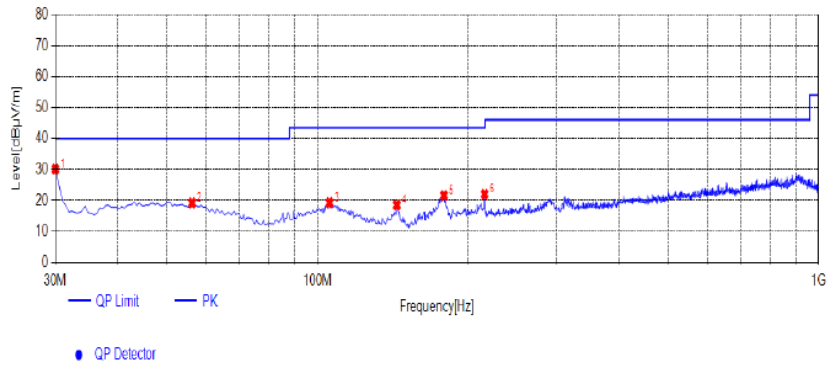


Adapter: DCT07W050100US-C1

For 30MHz-1GHz

Horizontal

Test Graph



Suspected List

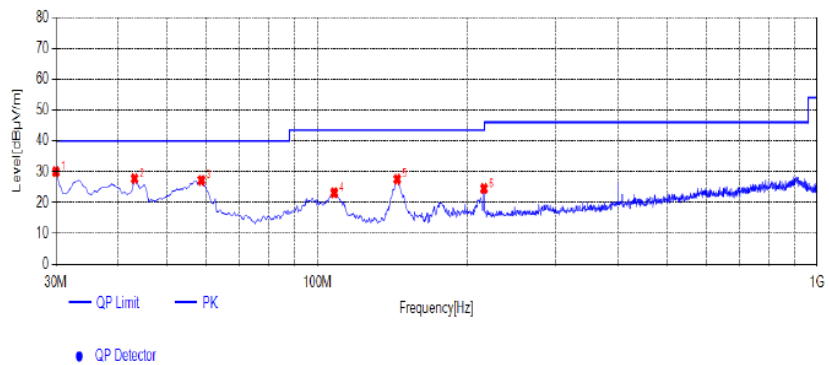
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	30.0000	39.85	-9.76	30.09	40.00	9.91	100	202	PK	Horizontal	PASS
2	56.1900	26.46	-7.30	19.16	40.00	20.84	100	108	PK	Horizontal	PASS
3	105.6600	27.28	-8.03	19.25	43.50	24.25	100	215	PK	Horizontal	PASS
4	143.9750	30.40	-11.88	18.52	43.50	24.98	100	291	PK	Horizontal	PASS
5	178.8950	32.90	-11.30	21.60	43.50	21.90	100	73	PK	Horizontal	PASS
6	215.7550	31.46	-9.46	22.00	43.50	21.50	100	304	PK	Horizontal	PASS

Note: 1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



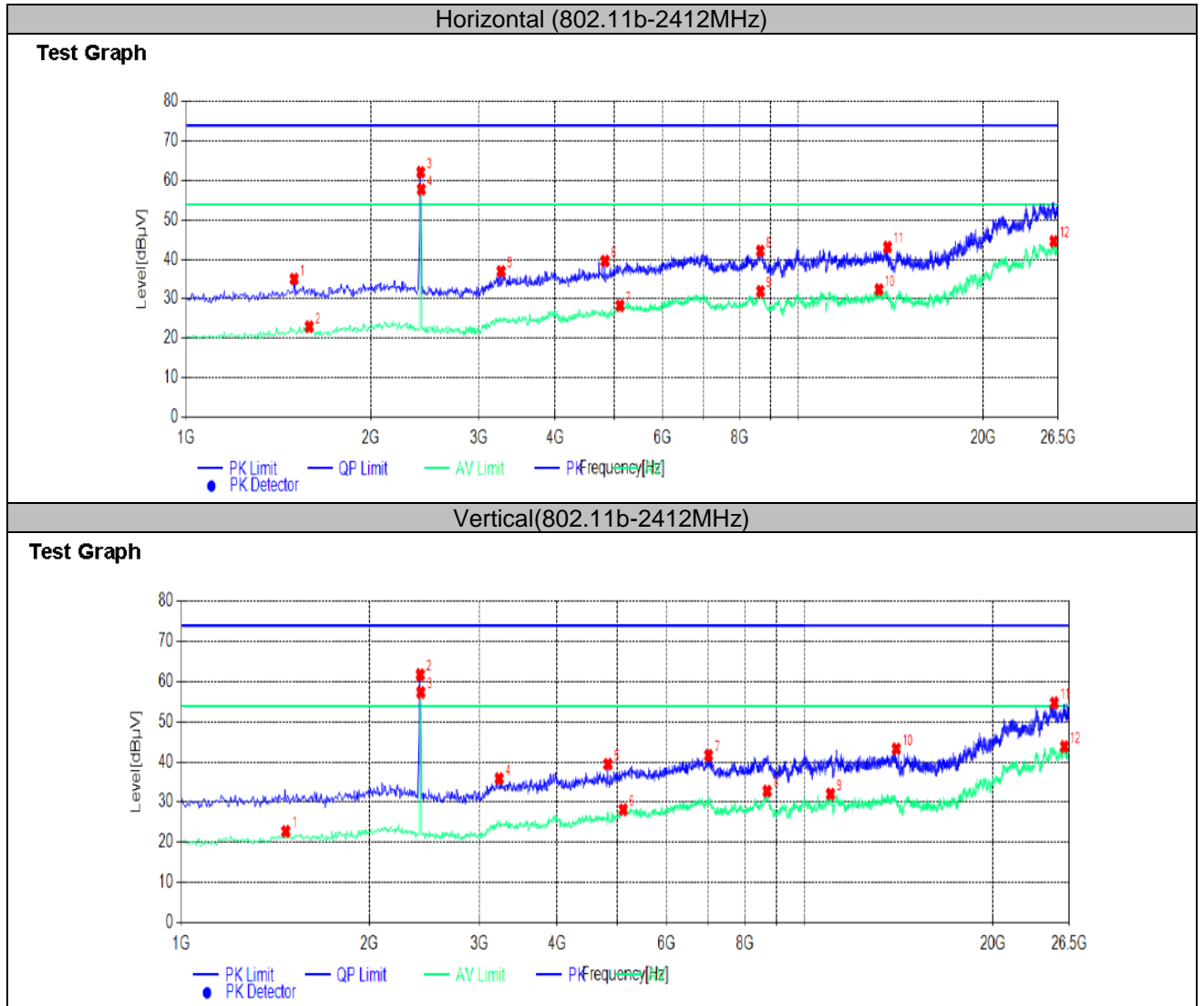
Suspected List

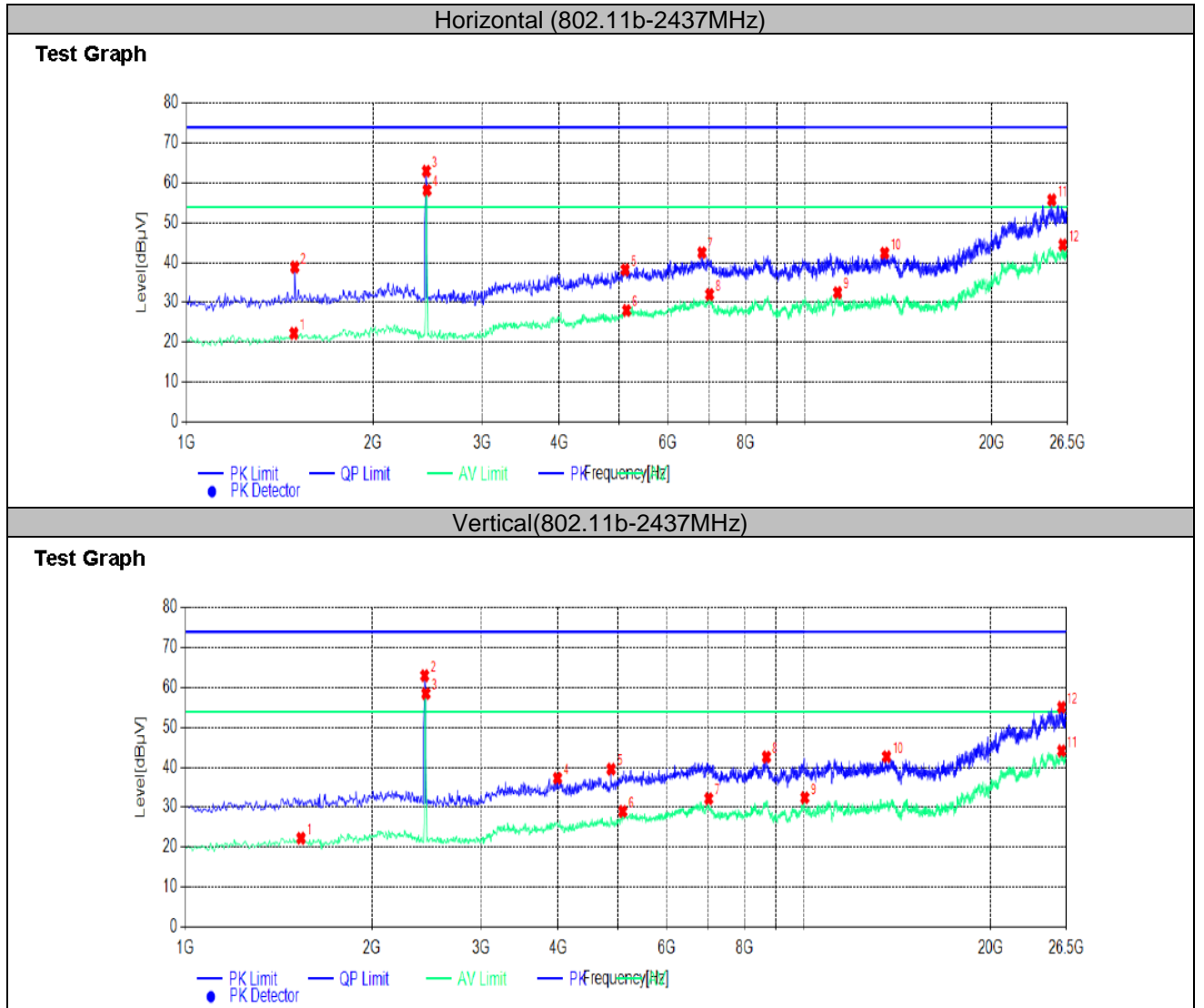
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	30.0000	39.72	-9.76	29.96	40.00	10.04	100	107	PK	Vertical	PASS
2	43.0950	34.58	-6.84	27.74	40.00	12.26	100	24	PK	Vertical	PASS
3	58.6150	35.13	-7.91	27.22	40.00	12.78	100	110	PK	Vertical	PASS
4	108.0850	31.24	-8.11	23.13	43.50	20.37	100	69	PK	Vertical	PASS
5	144.4600	39.56	-12.01	27.55	43.50	15.95	100	357	PK	Vertical	PASS
6	215.7550	33.96	-9.46	24.50	43.50	19.00	100	272	PK	Vertical	PASS

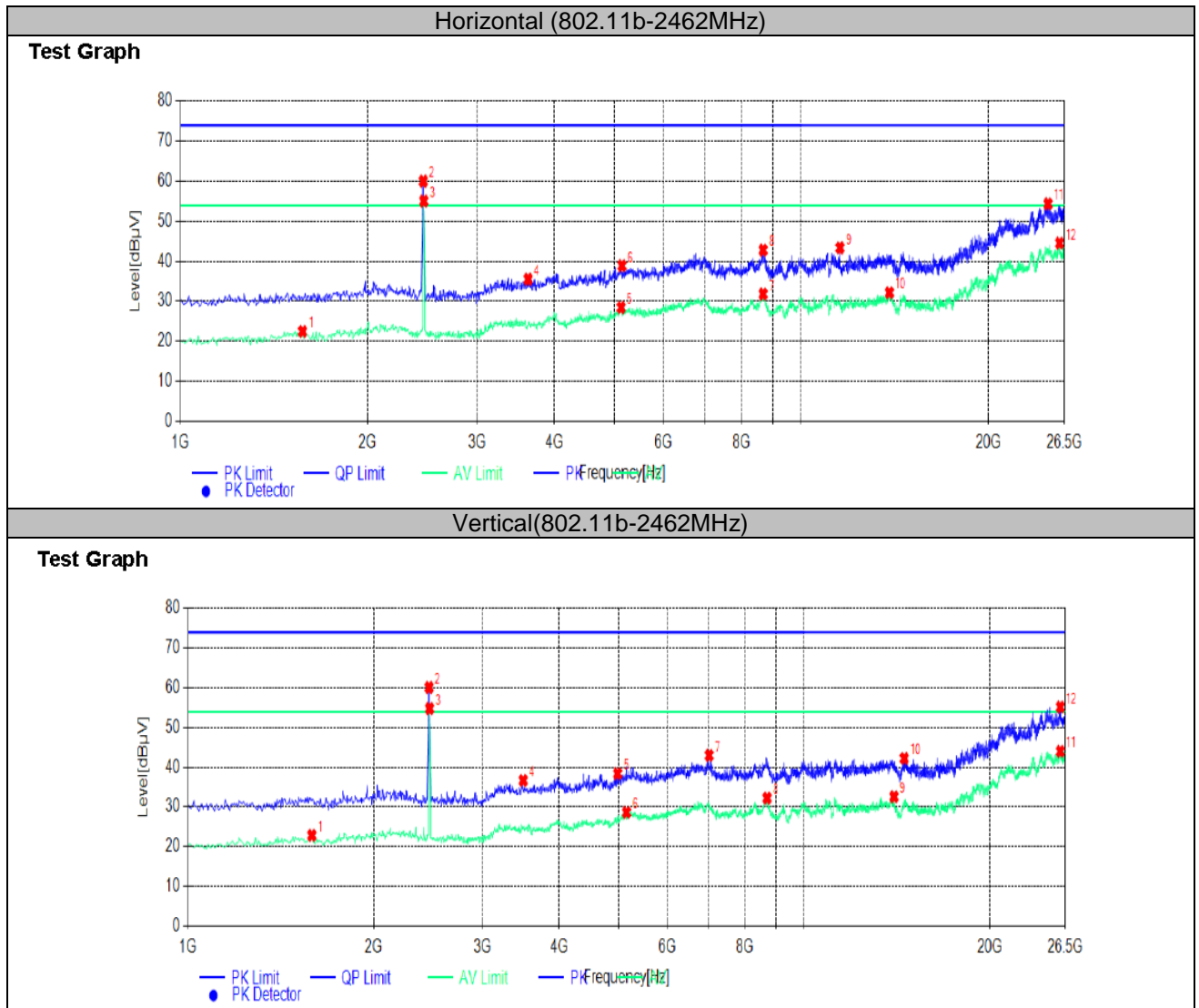
Note: 1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

For Greater than 1GHz







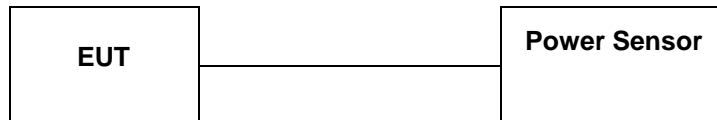
REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.
6. point 2 is the PK fundamental, Limit is 125.16 dB μ V/m, point 3 is the AV fundamental, Limit is 105.16 dB μ V/m.

NOTE: All the modes have been tested and recorded worst mode in the report.

4.3. Maximum Peak Output Power

TEST CONFIGURATION



TEST PROCEDURE

According to KDB558074 D01 15.247 Measurement Guidance v05r02 Section 8.3.1 Maximum peak conducted output power, 8.3.1.3 The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

LIMIT

The Maximum Peak Output Power Measurement is 30dBm.

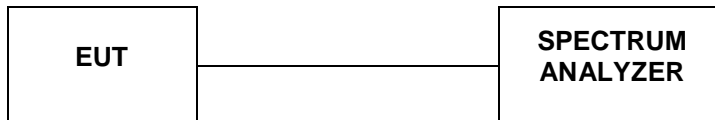
TEST RESULTS

For reporting purpose only.

Please refer to Appendix A.3.

4.4. Power Spectral Density

TEST CONFIGURATION



TEST PROCEDURE

According to KDB 558074 D01 Method PKPSD (peak PSD) This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \text{ RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

LIMIT

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

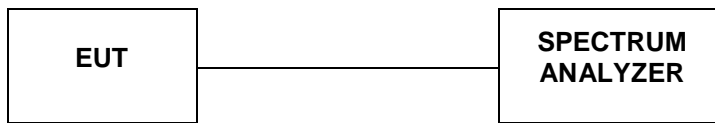
TEST RESULTS

For reporting purpose only.

Please refer to Appendix A.4.

4.5. 99% and 6dB Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW=100 KHz and VBW=300KHz. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB. According to KDB558074 D01 for one of the following procedures may be used to determine the modulated DTS device signal bandwidth.

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

LIMIT

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

TEST RESULTS

For reporting purpose only.

Please refer to Appendix A.1.

Please refer to Appendix A.2.