

RF Test Report

Applicant: Quectel Wireless Solutions Co., Ltd.

Address: Building 5, Shanghai Business Park Phase III (Area B), No.1016
Tianlin Road, Minhang District, Shanghai, 200233 China

Product: Wi-Fi & Bluetooth Module

Model No.: FCM362K

Brand Name: QUECTEL

FCC ID: XMR2023FCM362K

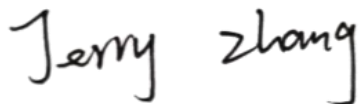
Standards: FCC CFR47 Part 15E

Report No.: PD20250012-R3D

Issue Date: 2025/05/07

Test Result: PASS *

* Testing performed at Hefei Panwin Technology Co., Ltd. on the above equipment indicates the product meets the requirements of the relevant standards.



Reviewed By: Jerry Zhang



Approved By: Alec Yang

Hefei Panwin Technology Co., Ltd.

Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin
Avenue, High-tech Zone, Hefei City, Anhui Province, China
TEL: +86-0551-63811775

Revision History

Report No.	Version	Description	Issue Date	Note
PD20250012-R3D	1	Initial Report	2025/05/07	Valid

Remark:

The customer claims that product with ordering code FCM362KAAMD-0P-04 and FCM362KABMD-0P-04 both use AIC8800M40B chipset, share the same chipset baseline, same software and hardware design, the difference is PCB antenna matching is in consistent. Distinguish by changing the position of one resistor. Above changes won't impact the protocol and RF performance for same frequency.

We have verified the RF output power and power spectral density, and there is no deterioration compared to the original report data. Therefore this report records the verification data of Unwanted Emissions. Other test data is referred to in the original report (Report No.: FR3N1003D) released by Sporton International Inc. (KunShan) on Dec. 21, 2023.

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Summary of Test Results

No.	Test Case	FCC Rules	Verdict
1	Occupied Bandwidth Measurement	15.407(e)	Refer to original report
2	Maximum Conducted Output Power Measurement	15.407(a)	Refer to original report
3	Power Spectral Density Measurement	15.407(a)	Refer to original report
4	Unwanted Emissions Measurement	15.407(b)	PASS
5	AC Conducted Emission Measurement	15.207	NA
6	Antenna Requirements	15.203 & 15.407(a)	PASS
7	Frequency Stability ^{Note1}	15.407(g)	NA

Date of Testing: 2025/03/03 to 2025/04/26

Date of Sample Received: 2025/01/26

• We, Hefei Panwin Technology Co., Ltd., would like to declare that the tested sample has been evaluated in accordance with the procedures given in applied standard(s) in **Section 2.3** of this report and shown compliance with the applicable technical standards.

• All indications of PASS/FAIL in this report are based on interpretations and/or observations of test results.

Measurement Uncertainties were not taken into account and are published for informational purposes only.

Note1: Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

1 General Information

1.1 Notes of the Test Report

This report is invalid without signature of auditor and approver or with any alterations. The report shall not be partially reproduced without written approval of the testing company. Entrusted test results are only responsible for incoming samples. If there is any objection to the testing report, it shall be raised to the testing company within 15 days from the date of receiving the report. In the test results, "NA" means "not applicable", and the test items marked with "Δ" are subcontracted projects.

1.2 Test Facility

A2LA (Certificate Number: 6849.01)

Hefei Panwin Technology Co., Ltd. has been accredited by American Association for Laboratory Accreditation to perform measurement.

FCC (Designation Number: CN1361, Test Firm Registration Number: 473156)

Hefei Panwin Technology Co., Ltd. has been accredited on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Laboratory

Company Name	Hefei Panwin Technology Co., Ltd.
Address	Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin Avenue, High-tech Zone, Hefei City, Anhui Province, China
Telephone	+86-0551-63811775
Post Code	230031

2 General Description of Equipment under Test

2.1 Details of Application

Applicant	Quectel Wireless Solutions Co., Ltd.
Applicant Address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233 China
Manufacturer	Quectel Wireless Solutions Co., Ltd.
Manufacturer Address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233 China

2.2 General Information

Product	Wi-Fi & Bluetooth Module
Model	FCM362K
SN	Conducted: D1M24J70J000152 Radiated: D1M24J70D000136 & D1M24K70D000126
Hardware Version	R1.1
Software Version	FCM362KAAR03A03M04
Antenna Type	PCB Antenna
WLAN Mode Supported:	802.11a 802.11n 20M/40M 802.11ac 20M/40M 802.11ax 20M/40M
Antenna Gain	5150MHz to 5250MHz: -1.50dBi 5250MHz to 5350MHz: -0.20dBi 5470MHz to 5725MHz: 1.00dBi 5725MHz to 5850MHz: -2.40dBi
Directional Gain	NA
Test Band	U-NII-1(5150MHz-5250MHz) U-NII-2A(5250MHz-5350MHz) U-NII-2C(5470MHz-5725MHz) U-NII-3(5725MHz-5850MHz)
Operating voltage	Typical 3.3Vdc
Modulation Type	802.11a/n/ac/ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Remark 1: The declared of product specification for EUT and/or Antenna presented in the report are provided by the	

manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Remark 2: 802.11ax only supports full RU tones and does not support partial RU tones.

2.3 Application Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart E
- FCC KDB 789033 D02 General UN II Test Procedures New Rules v02r01
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

3 Test Condition

3.1 Test Configuration

Test mode

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). The worst cases were recorded in this report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes (Z, X, Y axis), receiver antenna polarization (horizontal and vertical), the worst emission was found in Z position and the worst case was recorded. This report presents the data for the worst polarity.

Test Mode	Data Rate(Mbps)
802.11a	6
802.11n 20M	MCS0
802.11n 40M	MCS0
802.11ac 20M	MCS0
802.11ac 40M	MCS0
802.11ax 20M	MCS0
802.11ax 40M	MCS0

3.2 Wireless Technology and Frequency Range

Wireless Technology	Bandwidth		Channel	Frequency	
Wi-Fi	U-NII-1	20MHz	36	5180 MHz	
			40	5200 MHz	
			44	5220 MHz	
			48	5240 MHz	
		40MHz	38	5190 MHz	
			46	5230 MHz	
	U-NII-2A	20MHz	52	5260 MHz	
			56	5280 MHz	
			60	5300 MHz	
			64	5320 MHz	
		40MHz	54	5270 MHz	
			62	5310 MHz	
	U-NII-2C	20MHz	100	5500 MHz	
			104	5520 MHz	
			108	5540 MHz	
			112	5560 MHz	
			116	5580 MHz	
			132	5660 MHz	
			136	5680 MHz	
			140	5700 MHz	
		40MHz	102	5510 MHz	
			110	5550 MHz	
			118	5590 MHz	
			126	5630 MHz	
			134	5670 MHz	
	U-NII-3	20MHz	149	5745 MHz	
			153	5765 MHz	
			157	5785 MHz	
			161	5805 MHz	
			165	5825 MHz	
		40MHz	151	5755 MHz	
159			5795 MHz		
Does this device support TPC function?		☐ Yes		☒ No	
Does this device support TDWR band?		☐ Yes		☒ No	

3.3 Equipment List

Radiated

Instrument	Manufacturer	Model	Asset No.	Cal. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR7	PWB0023	1 Year	2025/09/11
Spectrum Analyzer	R&S	FSV3044	PWB0024	1 Year	2025/09/11
Loop Antenna	R&S	HFH2-Z2E	PWB0026	1 Year	2025/09/13
TRILOG Broadband	Schwarzbeck	VULB9162	PWB0029	1 Year	2025/09/09
Double-Ridged Guide Antenna	ETS-Lindgren	3117	PWB0031	1 Year	2025/09/26
k Type Horn Antenna	Steatite Antennas	QMS-00880	PWB0035	1 Year	2025/09/08
Pre-Amplifier	R&S	SCU40F1	PWB0036	1 Year	2025/09/11
Pre-Amplifier	COM-MW	DLNA8	PWB0094	1 Year	2025/09/11
Pre-Amplifier	R&S	SCU18F	PWB0034	1 Year	2025/09/11
Pre-Amplifier	R&S	OSP220 (OSP-B155G)	PWB0042	1 Year	2025/09/11
Anechoic Chamber	ETS.LINDGREN	Fact 3-2m	PWB0003	3 Years	2026/06/05
Test Software	Tonscend	TS+ V5.0.0	/	/	/

3.4 Support Equipment List

Equipment	Manufacturer	Description	Model	Serial Number
EVB	Quectel	/	/	/
RF cable	/	2.4G:0.5dB; 5G:1dB	/	/

3.5 Test Uncertainty

No.	Parameter	Uncertainty
1	Emission Bandwidth	1.9%
2	Occupied channel bandwidth	1.9%
3	Min emission bandwidth	1.9%
4	Unwanted Emissions Measurement	9kHz-7GHz: 1.21dB 7GHz-40GHz: 3.31dB
5	Radiated Band Edges and Spurious Emission	Below 1GHz: 4.88 dB Above 1GHz: 5.06 dB
6	Temperature	3 °C
7	Humidity	1.3 %
8	Supply voltages	0.006 V

4 Test Items Description

Ambient condition

Anechoic Chamber

Temperature [°C]	20.5 to 23.2
Humidity [%RH]	30 to 48
Pressure [kPa]	99.5 to 102.5

4.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

4.1.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

The minimum 6 dB bandwidth shall be at least 500 kHz

26dB and 99% Occupied bandwidth are reporting only.

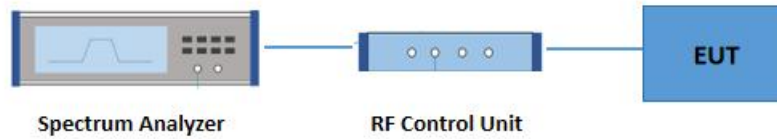
4.1.2 Measuring Instruments

The measuring equipment is listed in the section 3.3 of this test report.

4.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01Section C) Emission bandwidth.
2. For 6dB BW, Set RBW = 100kHz.
For 26dB BW, Set RBW = approximately 1% of the emission bandwidth.
For 99% OBW, Set RBW = 1% to 5% of the OBW.
3. For 26dB BW. Set the VBW > RBW.
For 6dB BW & 99% OBW. Set the VBW $\geq 3 \times$ RBW
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer, Readjust RBW and repeat measurements needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1% to 5% of the OBW and set the Video bandwidth (VBW) $\geq 3 \times$ RBW.
8. Measure and record the results in the test report.

4.1.4 Test Setup



4.1.5 Test Results

See ANNEX A.

4.2 Maximum Conducted Output Power Measurement

4.2.1 Limit of Maximum Conducted Output Power

<FCC 14 -30 CFR 15.407>

For the band 5.15–5.25 GHz.

(i) For an outdoor access point operating in the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U–NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U–NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25 – 5.35 GHz and 5.47 – 5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725–5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2.2 Measuring Instruments

The measuring equipment is listed in the section 3.3 of this test report.

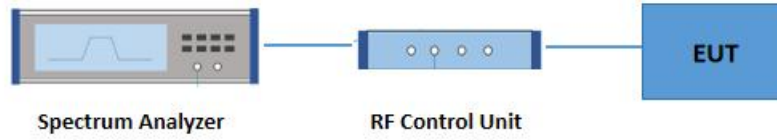
4.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):

1. Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
2. Set RBW = 1 MHz.
3. Set VBW $\geq$ 3 MHz.
4. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
5. Sweep time = auto.
6. Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
7. If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq$ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."
8. Trace average at least 100 traces in power averaging (rms) mode.
9. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

4.2.4 Test Setup



4.2.5 Test Result of Maximum Conducted Output Power

Please refer to ANNEX A.

4.3 Power Spectral Density Measurement

4.3.1 Limit of Power Spectral Density

Rule FCC Part 15.407(a)(1)/ Part 15.407(a)(2)/Part 15.407(a)(3)

For an indoor access point operating in the band 5.15–5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the 5.25-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3.2 Measuring Instruments

The measuring equipment is listed in the section 3.3 of this test report.

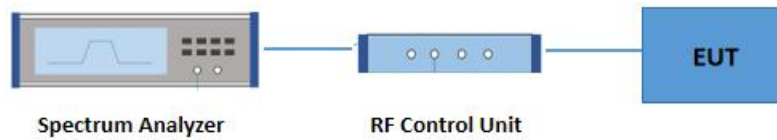
4.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section F) Maximum power spectral density.

1. Measure the duty cycle.
2. Set span to encompass the entire emission bandwidth (EBW) of the signal.
3. Set $RBW \geq 1/T$, where T is defined in II.B.I.a).
4. Set $VBW \geq 3 RBW$.
5. If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz}/RBW)$ to the measured result, whereas $RBW (<500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
6. If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
7. Care must be taken to ensure that the measurements are performed during a period of continuous

transmission or are corrected upward for duty cycle.

4.3.4 Test Setup



4.3.5 Test Result of Power Spectral Density

Please refer to ANNEX A.

4.4 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

4.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5725 MHz band: all emissions outside of the 5470-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band:

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30-88	100	3
88 -216	150	3
216 - 960	200	3
Above 960	500	3

EIRP (dBm)	Field Strength at 3m (dB μ V/m)
- 27	68.2

Note: The following formula is used to convert the EIRP to field strength.

$$\text{EIRP} = E_{\text{Meas}} + 20\log(d_{\text{Meas}}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dB μ V/m

d_{Meas} is the measurement distance, in m

4.4.2 Measuring Instruments

The measuring equipment is listed in the section 3.3 of this test report.

4.4.3 Test Procedures

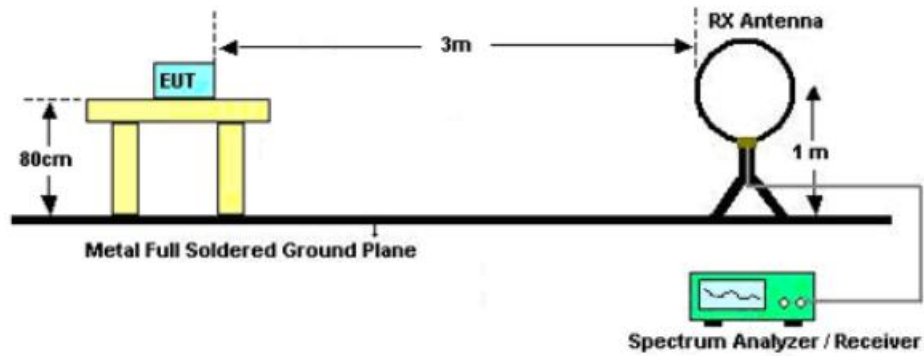
- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section G) Unwanted emissions measurement.
 - Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW= 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
- The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The antenna is a broadband antenna and its height is adjusted between one meter and four.

meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.

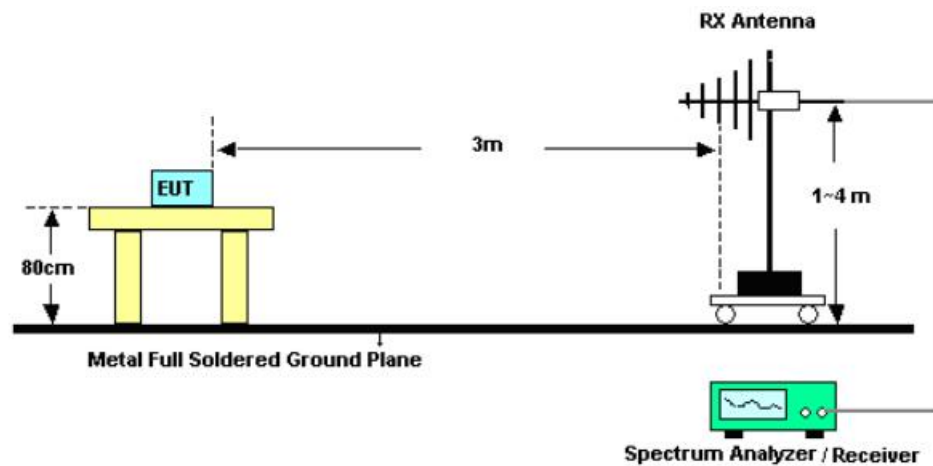
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

4.4.4 Test Setup

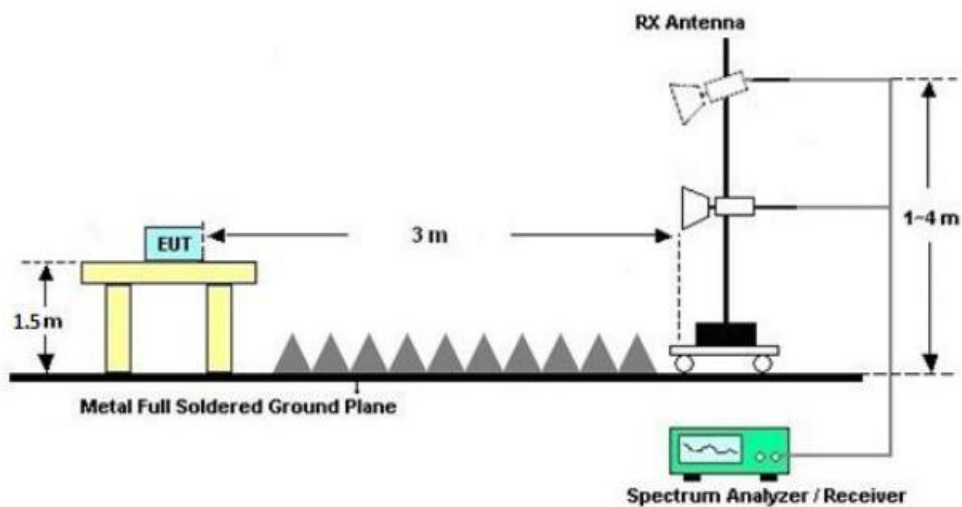
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



4.4.5 Test Results of Radiated Spurious Emissions (9 kHz - 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

4.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to ANNEX B.1.

4.4.7 Test Result of Radiated Spurious Emissions (30MHz - 10th Harmonic or 40GHz whichever is lower)

Please refer to ANNEX B.1

4.4.8 Duty Cycle

Please refer to ANNEX A.

4.5 AC Conducted Emission Measurement

4.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	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.

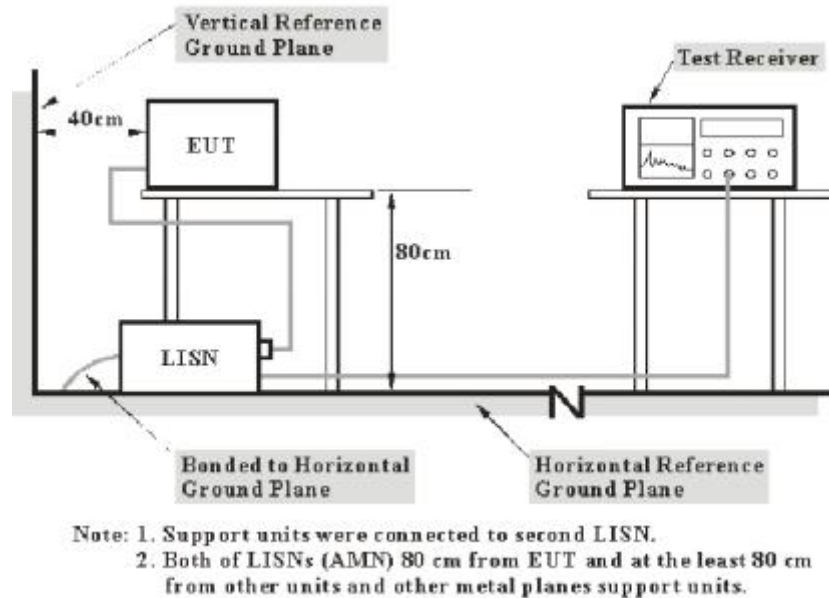
4.5.2 Measuring Instruments

The section 3.3 of List of Measuring Equipment of this test report is used for test.

4.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth =9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.5.4 Test Setup



4.5.5 Uncertainty Measurement

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT. The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

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

CASE	Uncertainty
Continuous Emission (AC port)	2.92 dB

4.5.6 Test Result

Remark: The product is DC powered, this test item is not applicable.

4.6 Antenna Requirements

4.6.1 Standard Applicable

15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.6.2 Antenna Anti-Replacement Construction

The antenna is Internal on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.00dBi.

----- THE END -----

ANNEX A: Test Results of Conducted Test

Test Result

For detailed test data, please refer to the original report number which is issued separately.

Test Report No.	Original Report No.
PD20250012-R3D	FR3N1003D

ANNEX B: Test Results of Radiated Test

B.1 Unwanted Emissions

Test Result_Band Edges

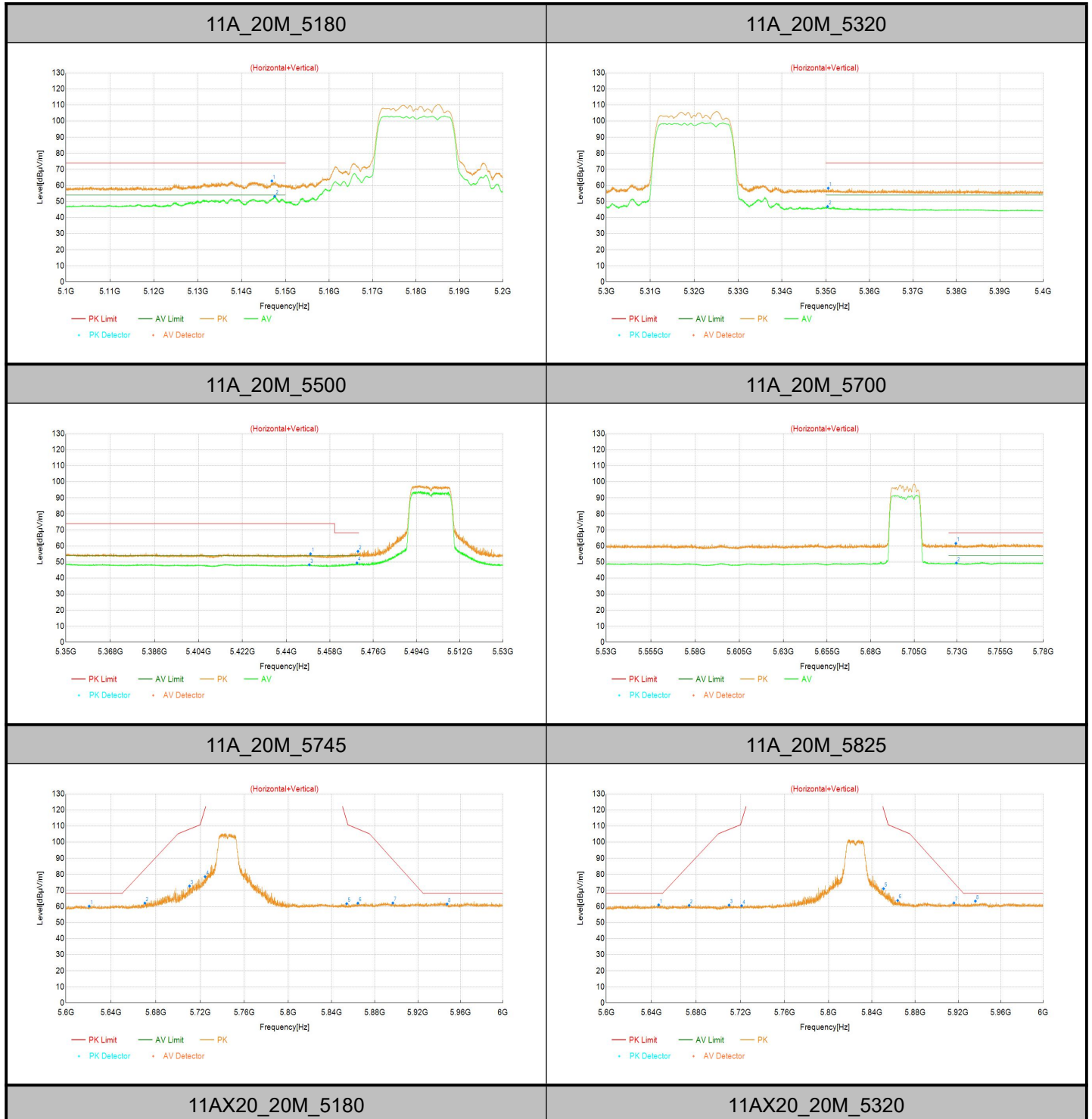
Note:Both vertical and horizontal polarities have been evaluated, and the test data only shows the worst-case.
Level=Reading+Factor; Margin=Limit-Level; V=Vertical , H=Horizontal.

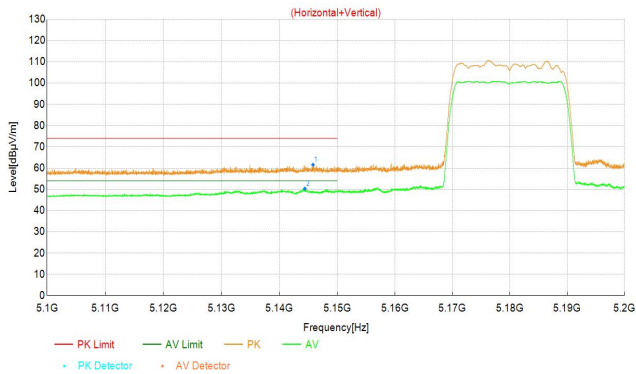
Data List								
Test Mode	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Pol.	Det
11A_20M_5180	5146.9	43.96	62.79	18.83	74.00	11.21	H	PK
	5147.55	34.47	53.26	18.79	54.00	0.74	H	AV
11A_20M_5320	5350.583333	37.56	58.29	20.73	74.00	15.71	H	PK
	5350.433333	26.14	46.88	20.74	54.00	7.12	H	AV
11A_20M_5500	5450.05	35.31	55.11	19.80	74.00	18.89	H	PK
	5469.67	36.84	56.67	19.83	68.20	11.53	H	PK
	5449.54	28.54	48.35	19.81	54.00	5.65	H	AV
	5469.25	29.67	49.46	19.79	54.00	4.54	H	AV
11A_20M_5700	5729.166667	41.38	61.63	20.25	68.20	6.57	H	PK
	5729.5	29.18	49.43	20.25	54.00	4.57	H	AV
11A_20M_5745	5620.6	40.52	60.16	19.64	68.20	8.04	H	PK
	5670.266667	42.15	62.06	19.91	83.24	21.18	H	PK
	5710.4	52.50	72.71	20.21	108.11	35.40	H	PK
	5724.466667	58.33	78.52	20.19	120.98	42.46	H	PK
	5853.933333	41.18	61.70	20.52	113.23	51.53	V	PK
	5864.266667	40.83	62.04	21.21	108.20	46.16	V	PK
	5896.733333	41.08	62.13	21.05	89.08	26.95	V	PK
	5947.4	40.68	61.52	20.84	68.20	6.68	H	PK
11A_20M_5825	5646.533333	40.81	60.95	20.14	68.20	7.25	H	PK
	5673.8	40.57	60.72	20.15	85.85	25.13	H	PK
	5709.666667	40.66	60.85	20.19	107.91	47.06	H	PK
	5721	40.31	60.47	20.16	113.08	52.61	H	PK

	5850.666667	50.36	71.07	20.71	120.68	49.61	H	PK
	5863.733333	42.56	63.72	21.16	108.35	44.63	H	PK
	5916.133333	41.13	62.17	21.04	74.74	12.57	H	PK
	5936.133333	42.19	63.35	21.16	68.20	4.85	H	PK
11AX20_20M_5180	5145.816667	42.68	61.58	18.90	74.00	12.42	H	PK
	5144.4	31.41	50.33	18.92	54.00	3.67	H	AV
11AX20_20M_5320	5350.533333	48.60	69.34	20.74	74.00	4.66	H	PK
	5350.85	30.19	50.90	20.71	54.00	3.10	H	AV
11AX20_20M_5500	5449.15	34.73	54.55	19.82	74.00	19.45	V	PK
	5469.67	38.08	57.91	19.83	68.20	10.29	H	PK
	5448.61	28.59	48.41	19.82	54.00	5.59	H	AV
	5468.62	29.27	49.01	19.74	54.00	4.99	H	AV
11AX20_20M_5700	5731.25	41.29	61.46	20.17	68.20	6.74	H	PK
	5730.875	29.37	49.57	20.20	54.00	4.43	V	AV
11AX20_20M_5745	5623.466667	40.63	60.50	19.87	68.20	7.70	H	PK
	5659.8	40.59	60.71	20.12	75.48	14.77	V	PK
	5708.266667	51.39	71.47	20.08	107.52	36.05	H	PK
	5722.466667	59.64	79.81	20.17	116.43	36.62	H	PK
	5851.8	40.62	61.27	20.65	118.09	56.82	H	PK
	5863.8	40.62	61.79	21.17	108.33	46.54	H	PK
	5903.533333	40.92	61.65	20.73	84.05	22.40	V	PK
	5953.4	41.12	61.77	20.65	68.20	6.43	V	PK
11AX20_20M_5825	5621.266667	40.41	60.11	19.70	68.20	8.09	H	PK
	5659.8	40.74	60.86	20.12	75.48	14.62	V	PK
	5704.733333	40.44	60.26	19.82	106.53	46.27	V	PK
	5722.466667	41.00	61.17	20.17	116.43	55.26	H	PK
	5852.8	48.25	68.84	20.59	115.81	46.97	H	PK
	5862.666667	46.73	67.80	21.07	108.65	40.85	H	PK
	5899.2	40.83	61.66	20.83	87.25	25.59	V	PK

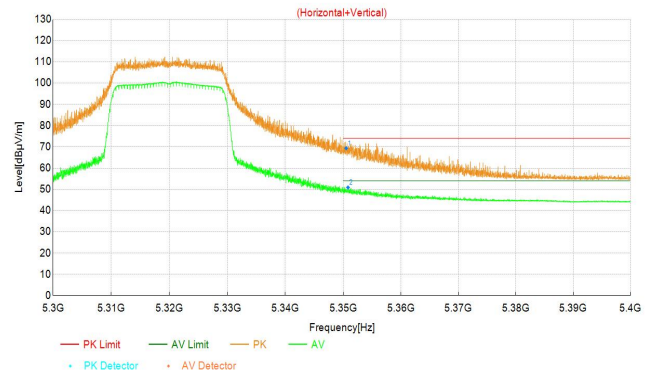
	5945.466667	42.68	63.93	21.25	68.20	4.27	V	PK
11AX40_40M_5190	5146.7	50.03	68.87	18.84	74.00	5.13	H	PK
	5148.666667	33.40	52.13	18.73	54.00	1.87	H	AV
11AX40_40M_5310	5351.35	47.62	68.29	20.67	74.00	5.71	H	PK
	5350.7	31.11	51.83	20.72	54.00	2.17	H	AV
11AX40_40M_5510	5448.61	34.58	54.40	19.82	74.00	19.60	H	PK
	5467.66	35.66	55.32	19.66	68.20	12.88	H	PK
	5448.25	28.42	48.24	19.82	54.00	5.76	H	AV
	5467.54	28.97	48.62	19.65	54.00	5.38	H	AV
11AX40_40M_5670	5727.458333	42.18	62.40	20.22	68.20	5.80	H	PK
	5728.666667	29.35	49.59	20.24	54.00	4.41	H	AV
11AX40_40M_5755	5624.933333	40.70	60.68	19.98	68.20	7.52	V	PK
	5661.6	46.49	66.54	20.05	76.81	10.27	H	PK
	5709.666667	55.89	76.08	20.19	107.91	31.83	H	PK
	5722.133333	57.40	77.57	20.17	115.67	38.10	H	PK
	5851.2	41.17	61.85	20.68	119.46	57.61	H	PK
	5868.666667	40.63	61.80	21.17	106.97	45.17	V	PK
	5893.8	40.60	61.88	21.28	91.25	29.37	H	PK
	5946.6	40.59	61.60	21.01	68.20	6.60	H	PK
11AX40_40M_5795	5643.8	40.82	60.86	20.04	68.20	7.34	H	PK
	5663.4	40.49	60.43	19.94	78.15	17.72	H	PK
	5706.8	45.52	65.50	19.98	107.11	41.61	H	PK
	5721.666667	48.20	68.36	20.16	114.60	46.24	H	PK
	5853.733333	48.45	68.98	20.53	113.69	44.71	H	PK
	5869.466667	44.92	66.07	21.15	106.75	40.68	H	PK
	5890.8	41.14	62.59	21.45	93.47	30.88	H	PK
	5943.266667	40.94	62.26	21.32	68.20	5.94	V	PK

Test Graphs_Band Edges

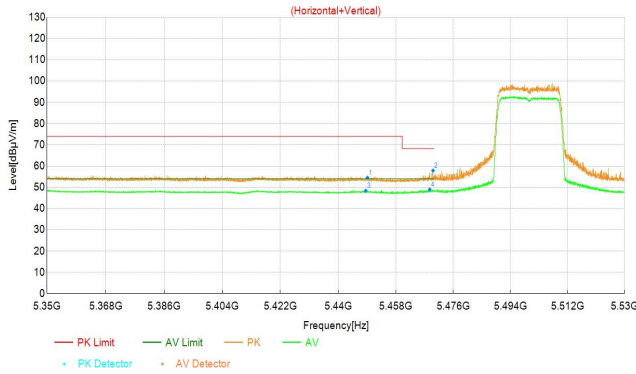




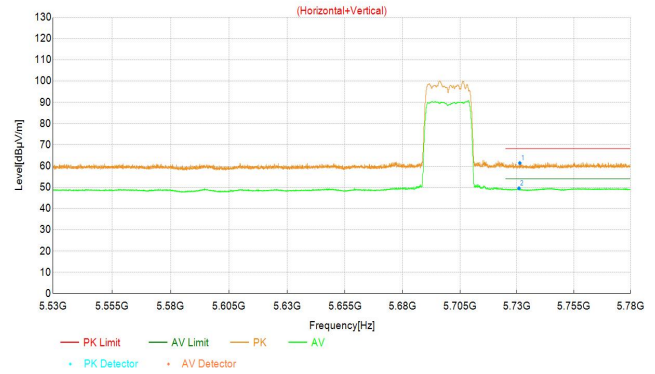
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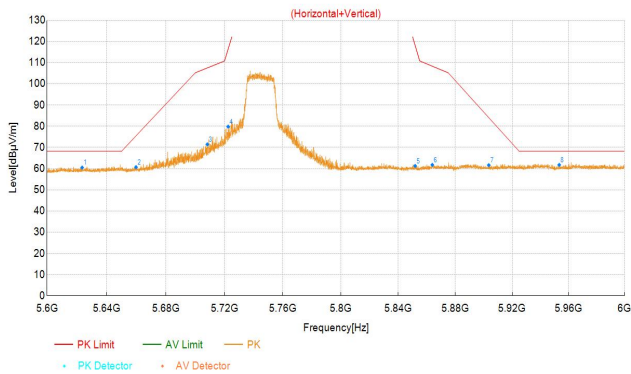
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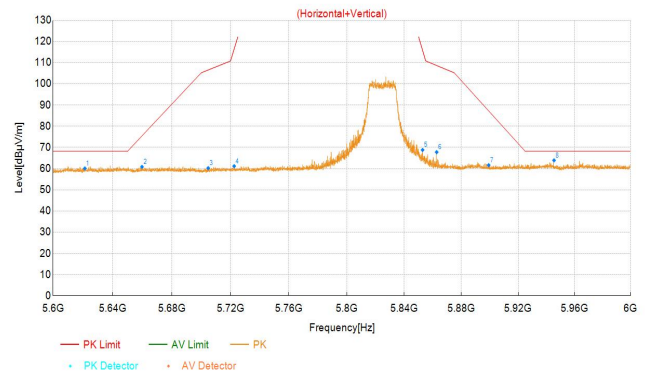
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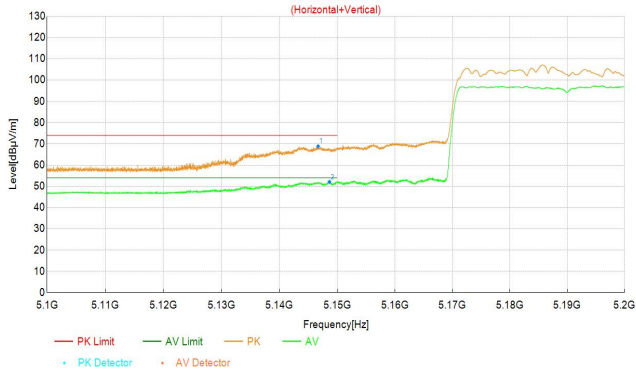
11AX20_20M_5825



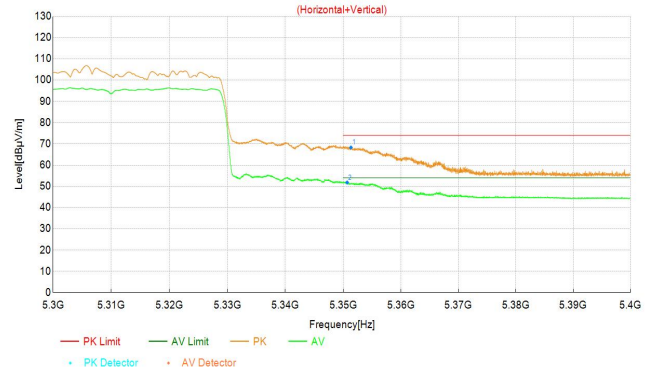
11AX40_40M_5190



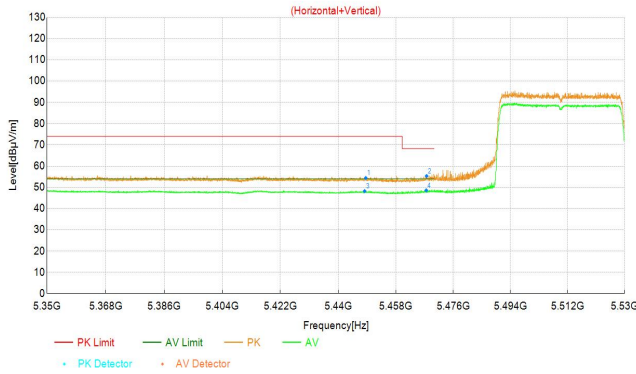
11AX40_40M_5310



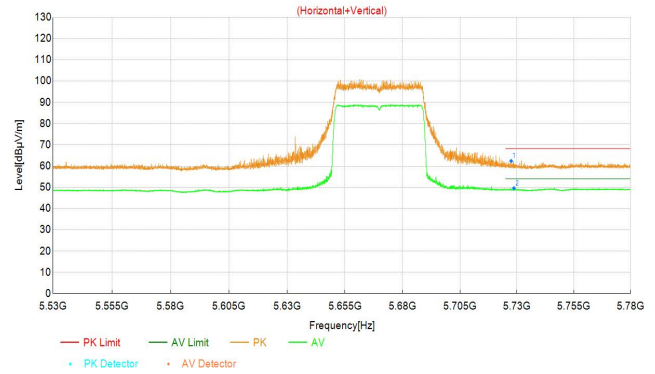
11AX40_40M_5510



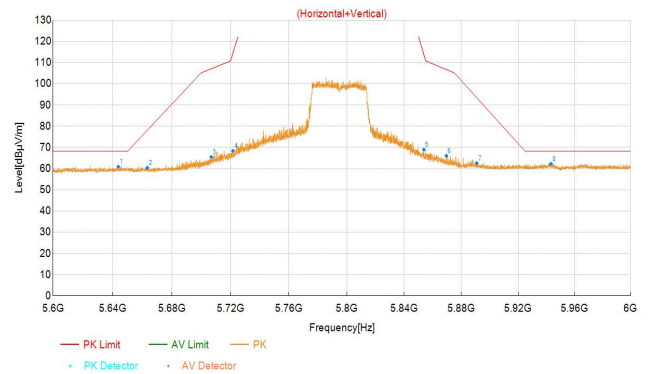
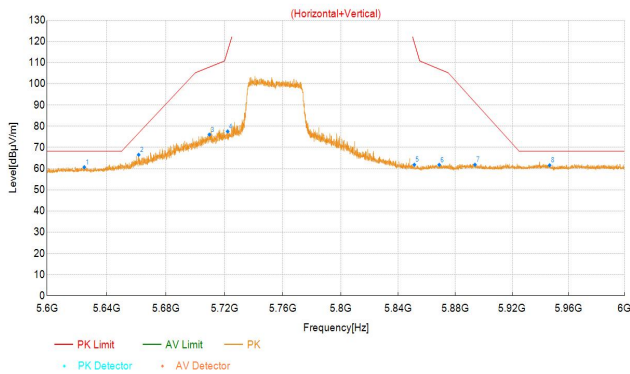
11AX40_40M_5670



11AX40_40M_5755



11AX40_40M_5795



Test Result_Spurious Emission

Note1: Test result Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier the Emissions in the frequency band 9kHz-30MHz and 18GHz-26.5GHz are more than 20dB below the limit are not reported.

Note2: Both vertical and horizontal polarities have been evaluated, and the test data only shows the worst-case. Level=Reading+Factor; Margin=Limit-Level; V=Vertical , H=Horizontal.

Data List

Test Mode	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Pol.	Det
11A_20M_5180	10360	37.15	52.56	15.41	68.20	15.64	V	PK
	15540	33.60	53.58	19.98	74.00	20.42	H	PK
	10360	27.27	42.68	15.41	--	--	H	AV
	15540	23.83	43.81	19.98	54.00	10.19	H	AV
11A_20M_5220	4175.666667	52.12	58.35	6.23	74.00	15.65	H	PK
	10440	35.31	50.85	15.54	68.20	17.35	V	PK
	15660	34.03	54.16	20.13	74.00	19.84	H	PK
	4175.666667	37.72	43.95	6.23	54.00	10.05	H	AV
	10440	25.70	41.24	15.54	--	--	V	AV
	15660	24.15	44.28	20.13	54.00	9.72	H	AV
11A_20M_5240	4192	50.43	56.55	6.12	74.00	17.45	H	PK
	10480	36.65	52.37	15.72	68.20	15.83	V	PK
	15720	33.95	54.30	20.35	74.00	19.70	H	PK
	4180.333333	34.62	41.25	6.63	54.00	12.75	V	AV
	10480	25.21	40.93	15.72	--	--	V	AV
	15720	22.91	43.26	20.35	54.00	10.74	H	AV
11A_20M_5260	4208.333333	48.24	54.65	6.41	74.00	19.35	H	PK
	10520	34.93	50.79	15.86	68.20	17.41	V	PK
	15780	33.06	53.81	20.75	74.00	20.19	H	PK
	4208.333333	36.70	43.11	6.41	54.00	10.89	H	AV
	10520	24.11	39.97	15.86	--	--	V	AV

	15780	23.68	44.43	20.75	54.00	9.57	H	AV
11A_20M_5300	10600	34.67	50.66	15.99	68.20	17.54	V	PK
	15900	33.40	54.32	20.92	74.00	19.68	H	PK
	10600	24.26	40.25	15.99	--	--	V	AV
	15900	23.45	44.37	20.92	54.00	9.63	H	AV
11A_20M_5320	10640	34.89	50.62	15.73	74.00	23.38	H	PK
	15960	33.71	54.77	21.06	74.00	19.23	H	PK
	10640	24.32	40.05	15.73	54.00	13.95	V	AV
	15960	24.36	45.42	21.06	54.00	8.58	H	AV
11A_20M_5500	11000	37.74	53.15	15.41	74.00	20.85	H	PK
	16500	34.03	56.07	22.04	68.20	12.13	V	PK
	11000	28.86	44.27	15.41	54.00	9.73	H	AV
	16500	22.69	44.73	22.04	--	--	H	AV
11A_20M_5580	11160	40.25	55.61	15.36	74.00	18.39	H	PK
	16740	33.64	56.52	22.88	68.20	11.68	V	PK
	11160	28.74	44.10	15.36	54.00	9.90	V	AV
	16740	22.88	45.76	22.88	--	--	H	AV
11A_20M_5700	11400	36.16	52.12	15.96	74.00	21.88	H	PK
	17100	33.61	58.07	24.46	68.20	10.13	H	PK
	11400	26.48	42.44	15.96	54.00	11.56	H	AV
	17100	21.59	46.05	24.46	--	--	V	AV
11A_20M_5745	11490	44.96	60.33	15.37	74.00	13.67	H	PK
	17235	32.95	56.96	24.01	68.20	11.24	V	PK
	11488.33333 3	35.67	51.05	15.38	54.00	2.95	H	AV
	17235	22.29	46.30	24.01	--	--	H	AV
11A_20M_5785	11570	43.30	58.74	15.44	74.00	15.26	H	PK
	17355	32.35	57.12	24.77	68.20	11.08	H	PK
	11570	34.34	49.78	15.44	54.00	4.22	H	AV
	17355	22.01	46.78	24.77	--	--	H	AV

11A_20M_5825	11650	43.54	59.08	15.54	74.00	14.92	H	PK
	17475	33.61	58.49	24.88	68.20	9.71	H	PK
	11650	35.80	51.34	15.54	54.00	2.66	H	AV
	17475	22.86	47.74	24.88	--	--	H	AV
11AX20_20M_5180	10360	41.00	56.41	15.41	68.20	11.79	V	PK
	15540	34.35	54.33	19.98	74.00	19.67	V	PK
	10360	29.09	44.50	15.41	--	--	V	AV
	15540	22.74	42.72	19.98	54.00	11.28	H	AV
11AX20_20M_5220	10440	36.47	52.01	15.54	68.20	16.19	V	PK
	15660	33.47	53.60	20.13	74.00	20.40	H	PK
	10440	26.21	41.75	15.54	--	--	V	AV
	15660	23.64	43.77	20.13	54.00	10.23	H	AV
11AX20_20M_5240	10480	35.54	51.26	15.72	68.20	16.94	V	PK
	15720	33.75	54.10	20.35	74.00	19.90	H	PK
	10480	25.35	41.07	15.72	--	--	V	AV
	15720	23.49	43.84	20.35	54.00	10.16	H	AV
11AX20_20M_5260	10520	36.25	52.11	15.86	68.20	16.09	V	PK
	15780	33.91	54.66	20.75	74.00	19.34	H	PK
	10520	25.36	41.22	15.86	--	--	V	AV
	15780	24.70	45.45	20.75	54.00	8.55	H	AV
11AX20_20M_5300	10600	35.38	51.37	15.99	68.20	16.83	V	PK
	15900	35.77	56.69	20.92	74.00	17.31	H	PK
	10600	24.74	40.73	15.99	--	--	V	AV
	15900	24.20	45.12	20.92	54.00	8.88	H	AV
11AX20_20M_5320	10640	35.03	50.76	15.73	74.00	23.24	V	PK
	15960	33.98	55.04	21.06	74.00	18.96	V	PK
	10640	25.64	41.37	15.73	54.00	12.63	V	AV
	15960	23.26	44.32	21.06	54.00	9.68	H	AV
11AX20_20M_5500	11000	39.15	54.56	15.41	74.00	19.44	H	PK

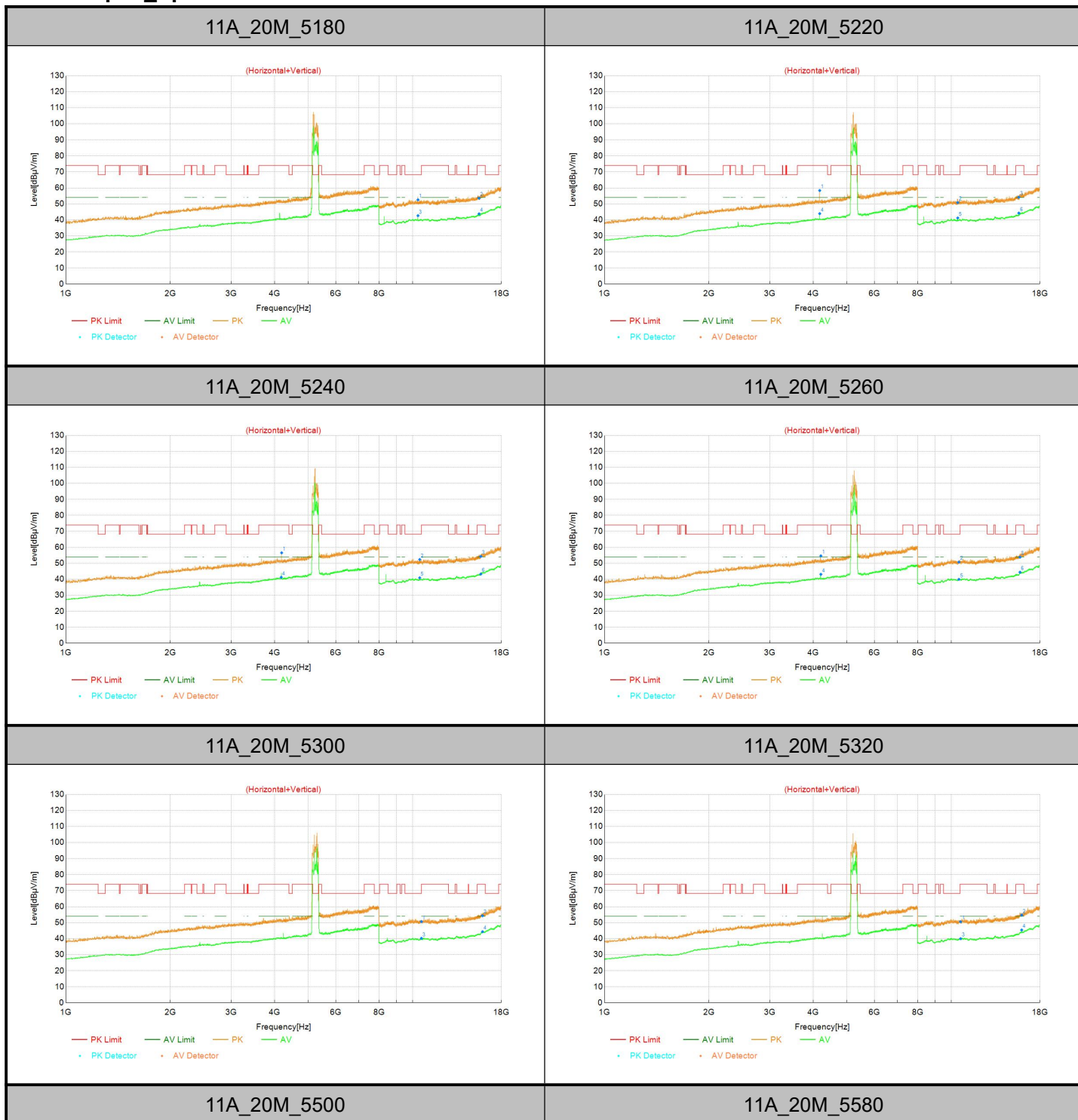
	16500	34.17	56.21	22.04	68.20	11.99	H	PK
	11000	29.84	45.25	15.41	54.00	8.75	H	AV
	16500	23.00	45.04	22.04	--	--	H	AV
11AX20_20M_5580	11160	38.39	53.75	15.36	74.00	20.25	H	PK
	16740	33.81	56.69	22.88	68.20	11.51	H	PK
	11160	28.19	43.55	15.36	54.00	10.45	H	AV
	16740	22.94	45.82	22.88	--	--	V	AV
11AX20_20M_5700	11400	38.78	54.74	15.96	74.00	19.26	H	PK
	17100	32.01	56.47	24.46	68.20	11.73	V	PK
	11400	30.05	46.01	15.96	54.00	7.99	H	AV
	17100	21.83	46.29	24.46	--	--	V	AV
11AX20_20M_5745	11490	43.17	58.54	15.37	74.00	15.46	H	PK
	17230	32.92	56.90	23.98	68.20	11.30	V	PK
	11490	33.83	49.20	15.37	54.00	4.80	H	AV
	17235	22.38	46.39	24.01	--	--	H	AV
11AX20_20M_5785	11570	46.65	62.09	15.44	74.00	11.91	H	PK
	17355	32.56	57.33	24.77	68.20	10.87	H	PK
	11570	36.43	51.87	15.44	54.00	2.13	H	AV
	17355	22.13	46.90	24.77	--	--	H	AV
11AX20_20M_5825	11650	46.85	62.39	15.54	74.00	11.61	H	PK
	17475	32.85	57.73	24.88	68.20	10.47	H	PK
	11650	34.56	50.10	15.54	54.00	3.90	H	AV
	17475	22.45	47.33	24.88	--	--	H	AV
11AX40_40M_5190	10380	37.76	53.14	15.38	68.20	15.06	V	PK
	15570	33.79	53.79	20.00	74.00	20.21	H	PK
	10380	27.16	42.54	15.38	--	--	V	AV
	15570	22.80	42.80	20.00	54.00	11.20	V	AV
11AX40_40M_5230	10460	35.32	50.95	15.63	68.20	17.25	V	PK
	15690	33.51	53.70	20.19	74.00	20.30	V	PK

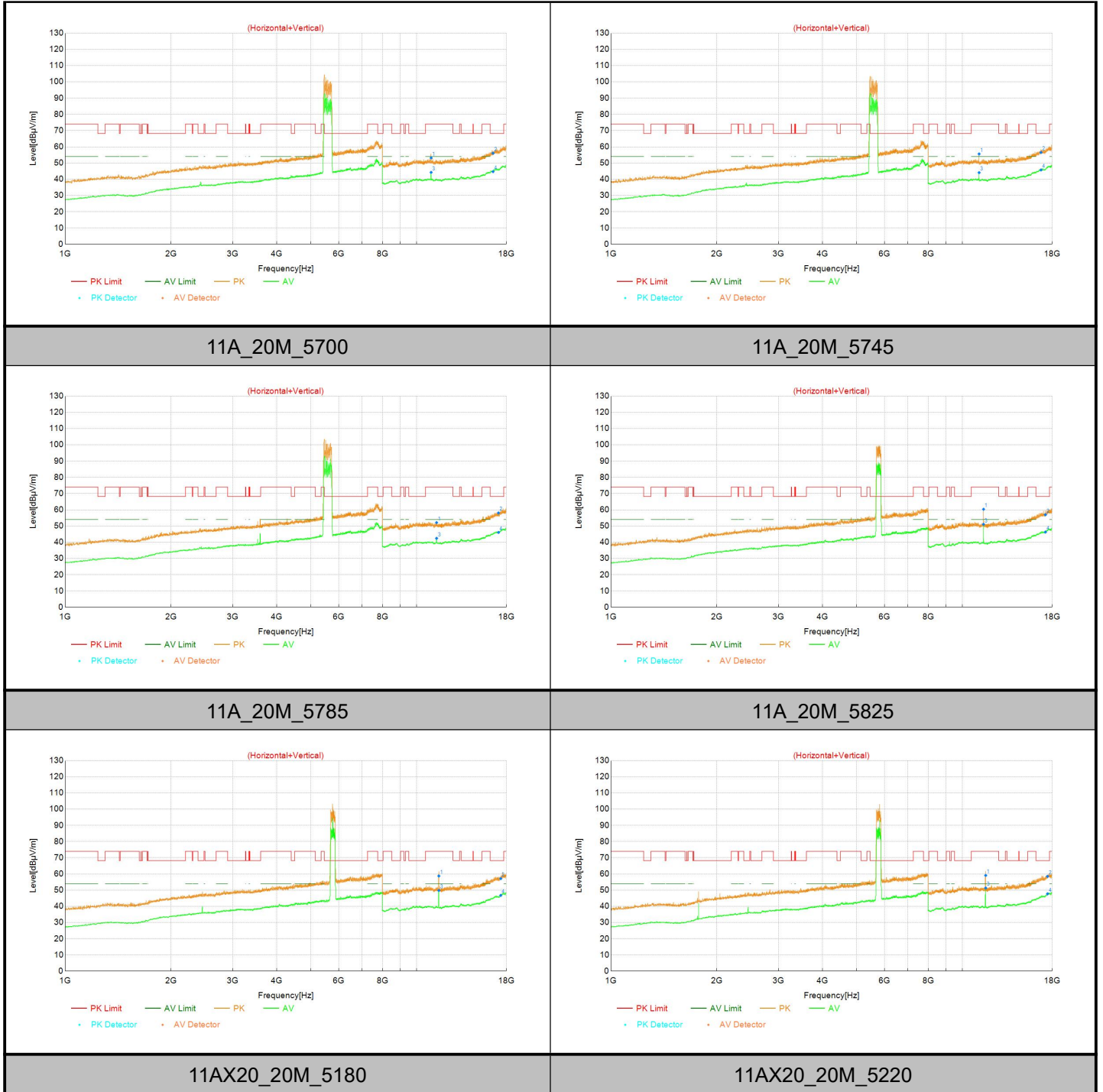
	10460	24.02	39.65	15.63	--	--	V	AV
	15690	22.56	42.75	20.19	54.00	11.25	V	AV
11AX40_40M_5270	10540	34.71	50.60	15.89	68.20	17.60	V	PK
	15810	34.19	55.08	20.89	74.00	18.92	H	PK
	10540	23.95	39.84	15.89	--	--	V	AV
	15810	23.99	44.88	20.89	54.00	9.12	H	AV
11AX40_40M_5310	10620	34.83	50.69	15.86	74.00	23.31	V	PK
	15930	33.44	54.44	21.00	74.00	19.56	H	PK
	10620	24.73	40.59	15.86	54.00	13.41	V	AV
	15930	23.52	44.52	21.00	54.00	9.48	H	AV
11AX40_40M_5510	11020	39.04	54.54	15.50	74.00	19.46	V	PK
	16530	33.49	55.67	22.18	68.20	12.53	H	PK
	11020	28.44	43.94	15.50	54.00	10.06	V	AV
	16530	23.25	45.43	22.18	--	--	V	AV
11AX40_40M_5550	11100	37.70	53.56	15.86	74.00	20.44	V	PK
	16650	33.91	56.49	22.58	68.20	11.71	V	PK
	11100	27.93	43.79	15.86	54.00	10.21	V	AV
	16650	23.00	45.58	22.58	--	--	H	AV
11AX40_40M_5670	11340	35.34	50.85	15.51	74.00	23.15	H	PK
	17010	31.88	56.60	24.72	68.20	11.60	H	PK
	11340	26.09	41.60	15.51	54.00	12.40	H	AV
	17010	21.82	46.54	24.72	--	--	V	AV
11AX40_40M_5755	11510	41.23	56.56	15.33	74.00	17.44	H	PK
	17265	33.42	57.60	24.18	68.20	10.60	H	PK
	11513.333333 3	32.80	48.13	15.33	54.00	5.87	H	AV
	17265	22.64	46.82	24.18	--	--	H	AV
11AX40_40M_5795	11590	42.24	57.71	15.47	74.00	16.29	H	PK
	17385	32.99	57.99	25.00	68.20	10.21	V	PK

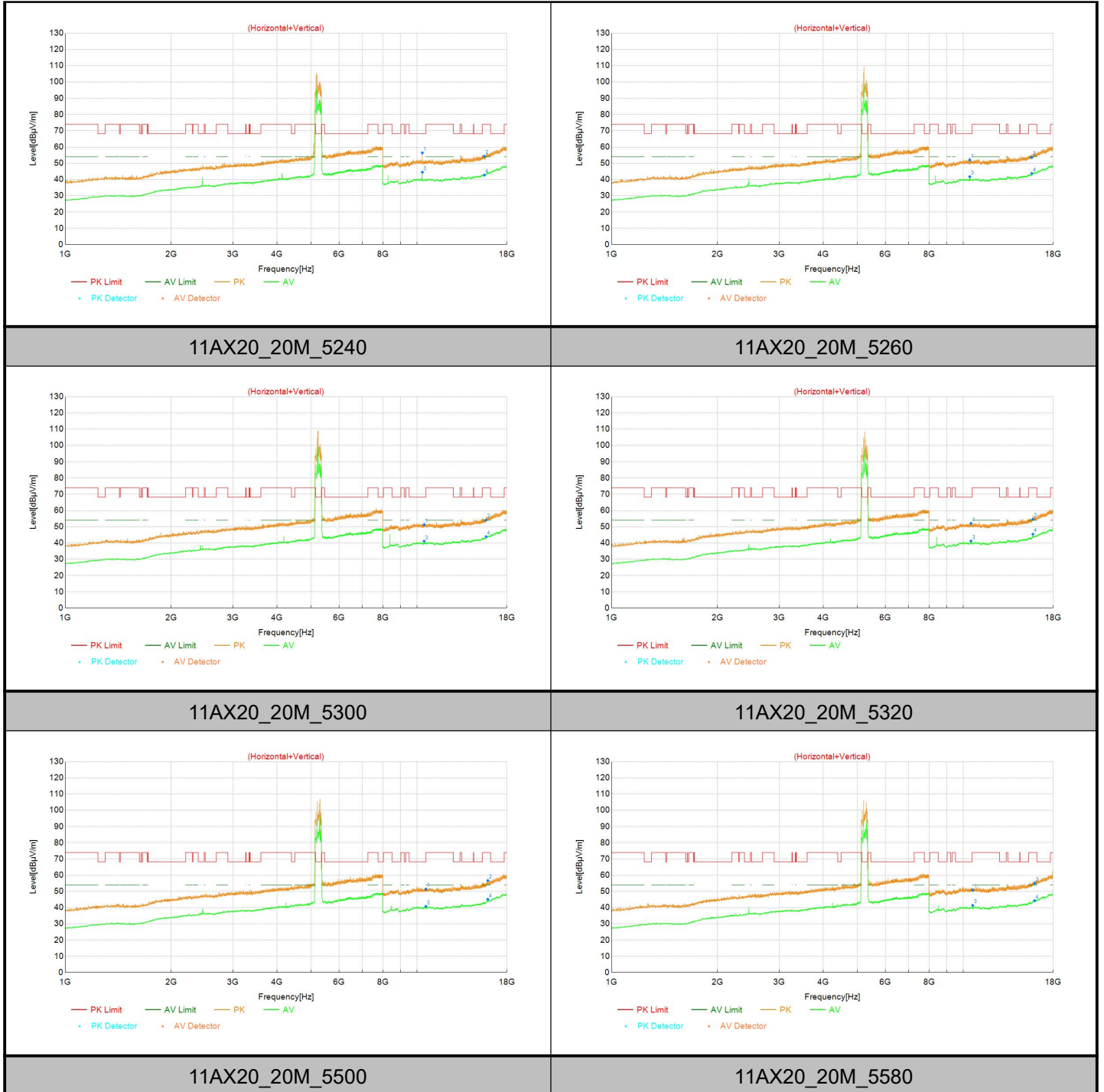
	11601.66666 7	36.14	51.63	15.49	54.00	2.37	H	AV
	17385	22.43	47.43	25.00	--	--	V	AV

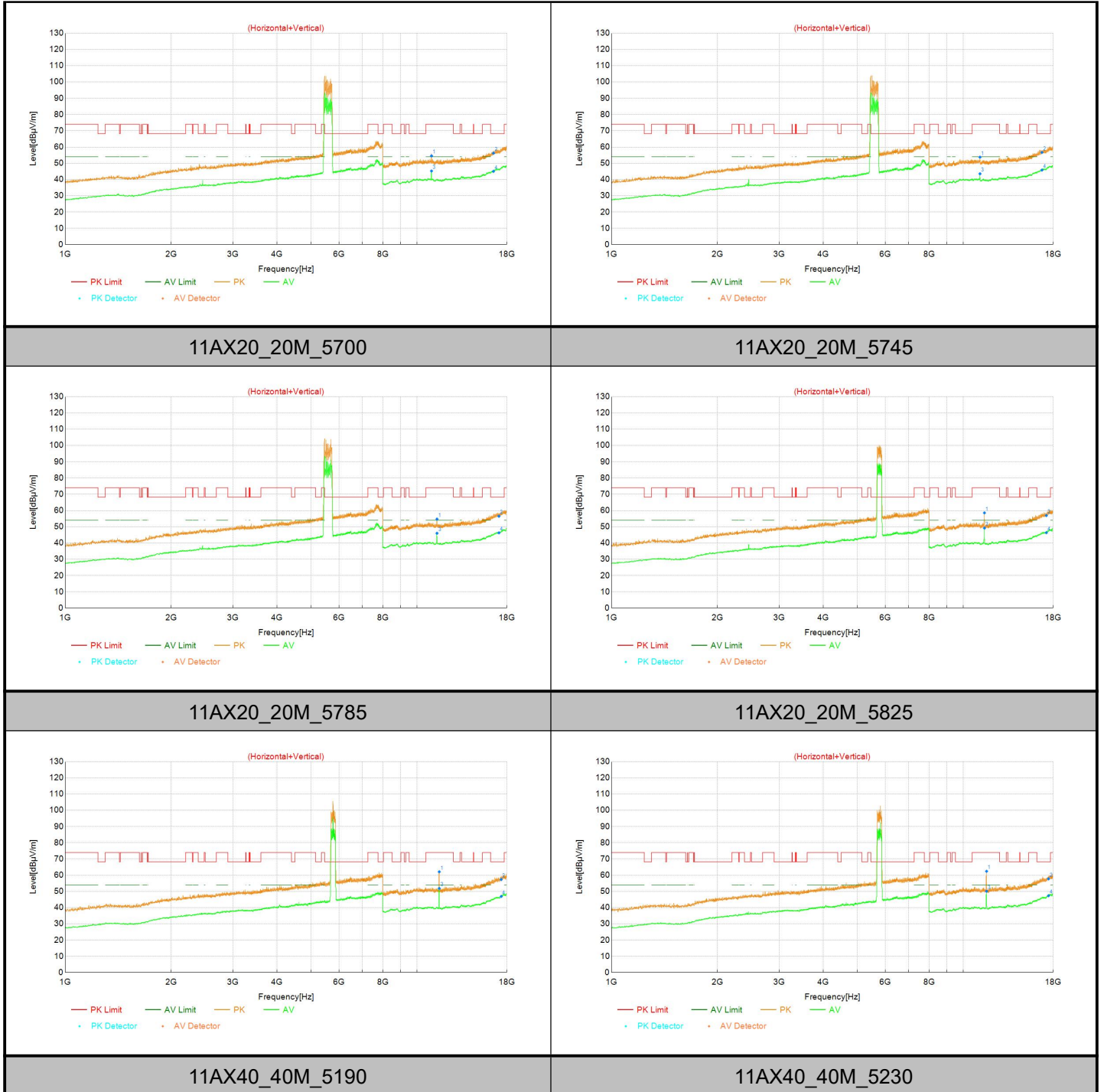
Data List								
Test Mode	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Pol.	Det
11AX20_20M_5240	34.195691	33.40	15.50	-17.90	40.00	24.50	V	QP
	52.280254	39.07	23.93	-15.14	40.00	16.07	V	QP
	139.264674	33.11	12.99	-20.12	43.50	30.51	V	QP
	364.94721	24.72	12.56	-12.16	46.00	33.44	H	QP
	552.764022	25.29	15.53	-9.76	46.00	30.47	V	QP
	919.667065	23.72	21.35	-2.37	46.00	24.65	V	QP

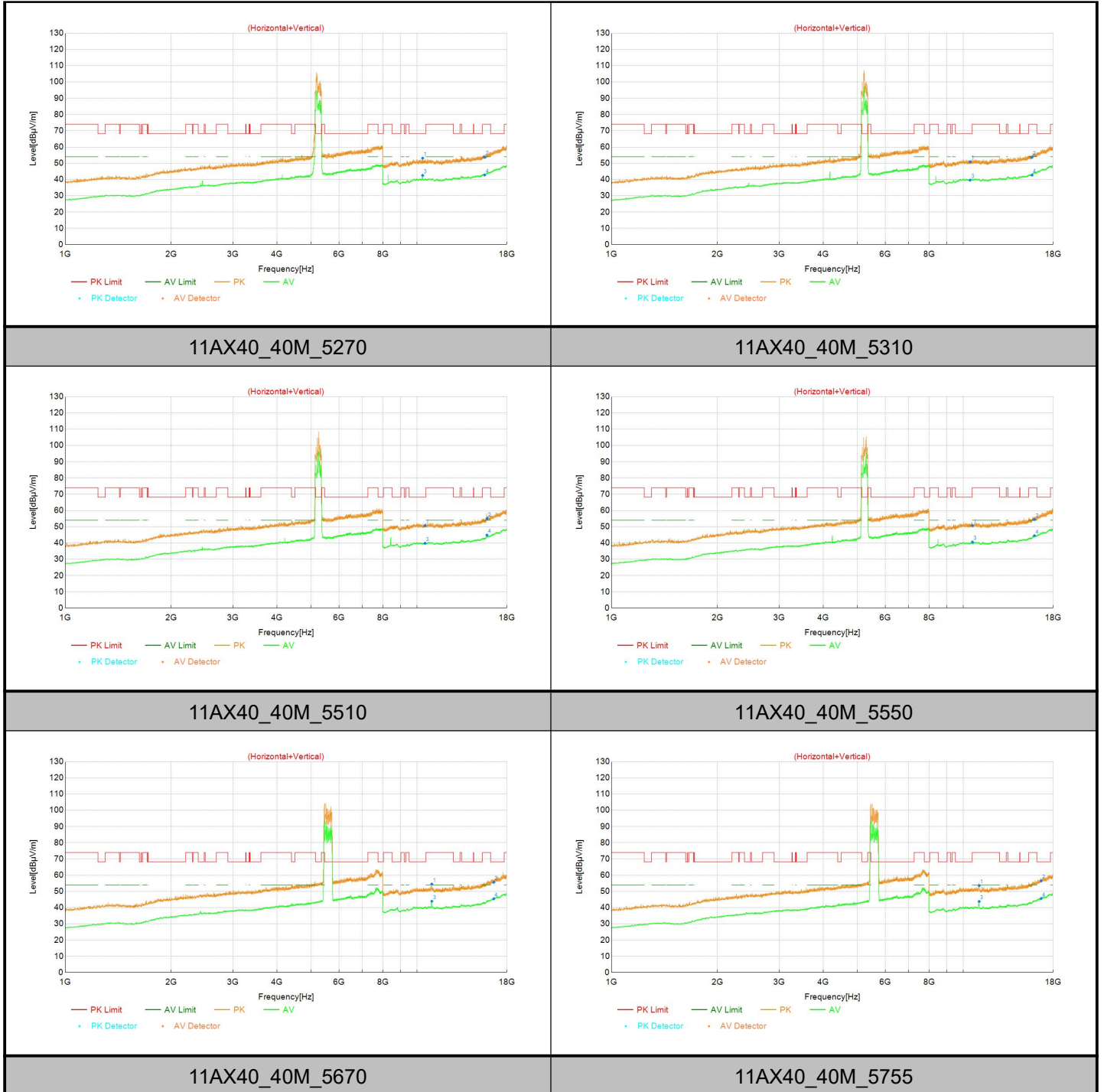
Test Graphs_Spurious Emission

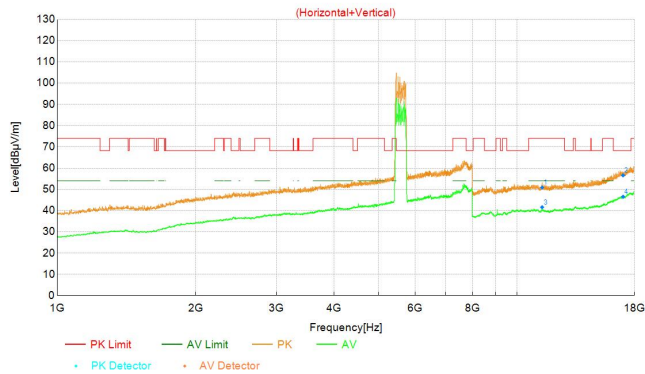




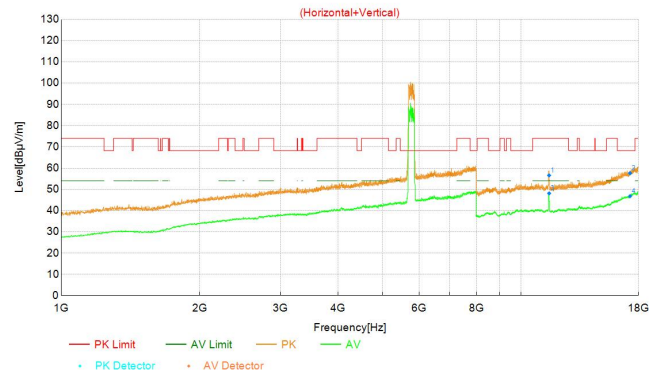




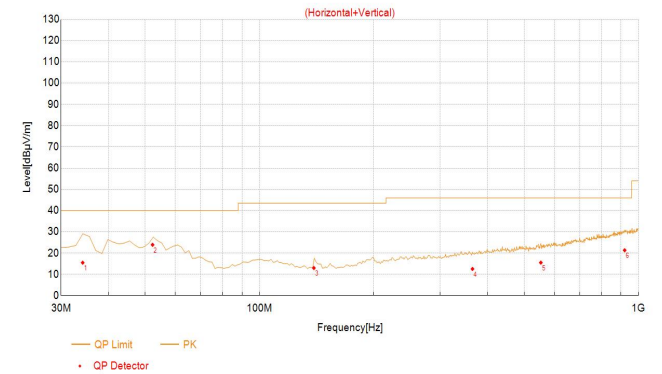
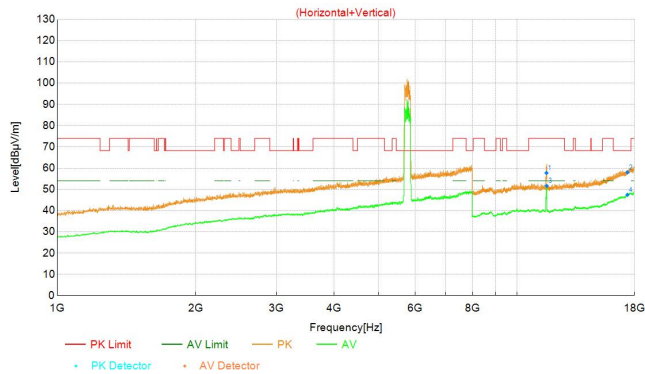




11AX40_40M_5795



11AX20_20M_5240



ANNEX C: The EUT Appearance

The EUT Appearance (internal and external photographs) are submitted separately.

ANNEX D: Test Setup Photograph

The Test Setup Photographs are submitted separately.