TEST REPORT

Applicant:	Sony Corporation
EUT Description:	GSM/WCDMA/LTE/NR Phone with BT, DTS/UNII a/b/g/n/ac/ax/be, NFC, GNSS and WPT
Brand:	Sony
FCC ID:	PY7-50337X
Standards:	FCC 47 CFR Part 15 Subpart C
Date of Receipt:	2024/12/01
Date of Test:	2024/12/01 to 2025/02/14
Date of Issue:	2025/02/14

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.

ACCREDITED
CERTIFICATE #7088.01

Huang Kun
Approved By:

Chen Chengfu
Reviewed By:

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Revision History

Rev.	Issue Date	Description	Revised by
01	2025/02/14	Original	Chen Chengfu

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Summary of Test Results

Clause	FCC Part	Test Items	Result
4.1	§15.203	Antenna Requirement	PASS
4.2	§15.207	AC Power Line Conducted Emission	PASS
4.3	§15.215 (c)	20dB Bandwidth	PASS
4.4	§15.225(e)	Frequency Stability	PASS
4.5	§15.225(a)(b)(c)	In-Band Emissions	PASS
4.6	§15.225(d) §15.209	Radiated Spurious Emissions	PASS
Test Method: ANSI C63.10:2020. Remark: Pass is EUT meets standard requirements.			

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1 General Description

1.1 Lab Information

1.1.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3rd Road, Bao'an District, Shenzhen, China. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014
Tel.: +86-755-27212361
Contact Email: info@towewireless.com

1.1.2 Test Facility / Accreditations

A2LA (Certificate Number: 7088.01)
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

FCC Designation No.: CN1353
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized as an accredited testing laboratory. Designation Number: CN1353.

ISED CAB identifier: CN0152
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0152
Company Number: 31000

1.2 Client Information

1.2.1 Applicant

Applicant:	Sony Corporation
Address:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

1.2.2 Manufacturer

Manufacturer:	Sony Corporation
Address:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

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1.3 Product Information

EUT Description:	GSM/WCDMA/LTE/NR Phone with BT, DTS/UNII a/b/g/n/ac/ax/be, NFC, GNSS and WPT			
Brand:	Sony			
Hardware Version:	A			
Software Version:	0.401			
SN.:	RF Conducted	HQ64B1018A		
	RSE & AC power line	HQ64B100D8 HQ64B60230		
Support Type:	☒Type A	☒Type B	☒Type F	☒Type V
Modulation Type:	ASK			
Frequency Range:	13.553~13.567MHz			
Channel Frequency:	13.56MHz			
Channel Number:	1			
Remark: The above EUT's information was declared by applicant, please refer to the specifications or user manual for more detailed description.				

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2 Test Configuration

2.1 Worst-case configuration and Mode

Support Type:	Type A	Type B	Type F	Type V
With ANT mode:	Working with antenna mode			
ANT Port Terminated mode:	Working without antenna mode			
Remark:	The AC conduction emissions data only reflect the worst Type			

Radiated Configuration:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 300 m open area test site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788 D01.

2.2 Support Unit used in test

Description	Manufacturer	Model	Serial Number
NFC A IC CARD	Tiananxin	T1TOP	14443-3A
NFC B IC CARD	Tiananxin	T4TOP	14443-4B
NFC F IC CARD	Tiananxin	T3TOP	X6319-3F
NFC V IC CARD	Tiananxin	T5TOP	15693-5V

2.3 Test Environment

Temperature:	Normal: 15℃ ~ 35℃
Humidity:	45-56 % RH Ambient
Voltage:	DC 3.89V
AC Voltage	AC 120V/60Hz
Remark: The testing environment is within the scope of the EUT user manual and meets the requirements of the standard testing environment.	

2.4 Test RF Cable

For all conducted test items: The offset level is set spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor

2.5 Modifications

No modifications were made during testing.

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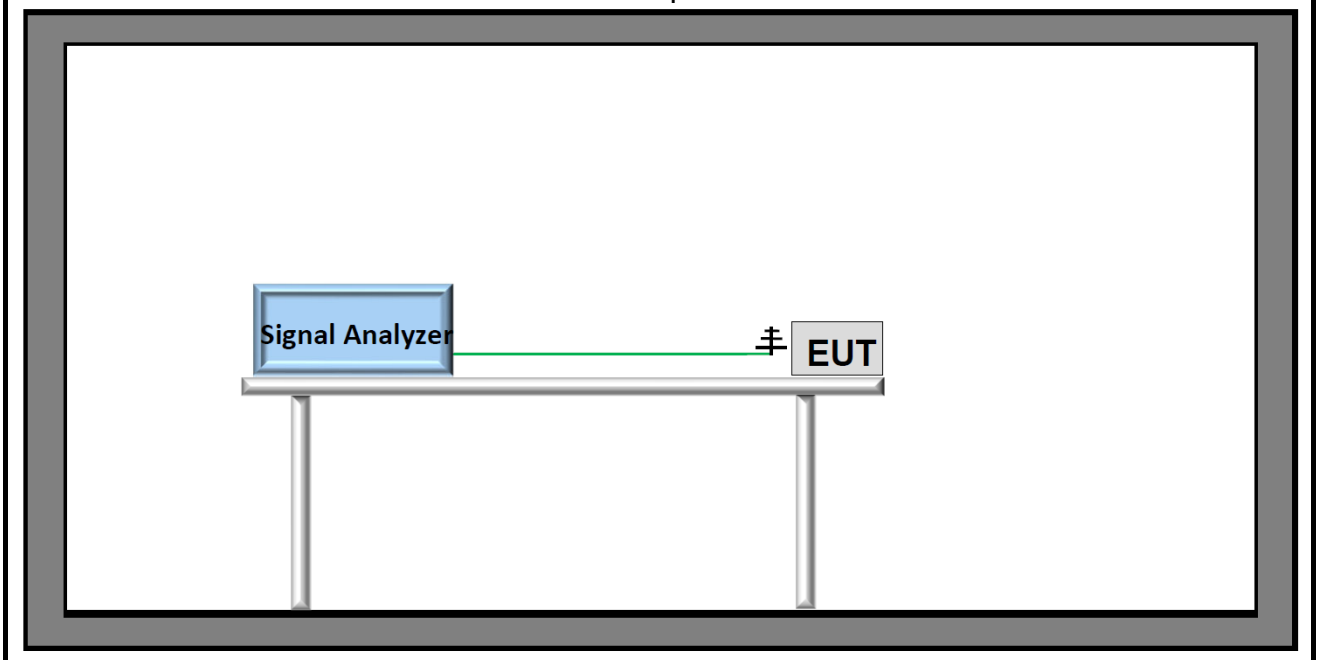
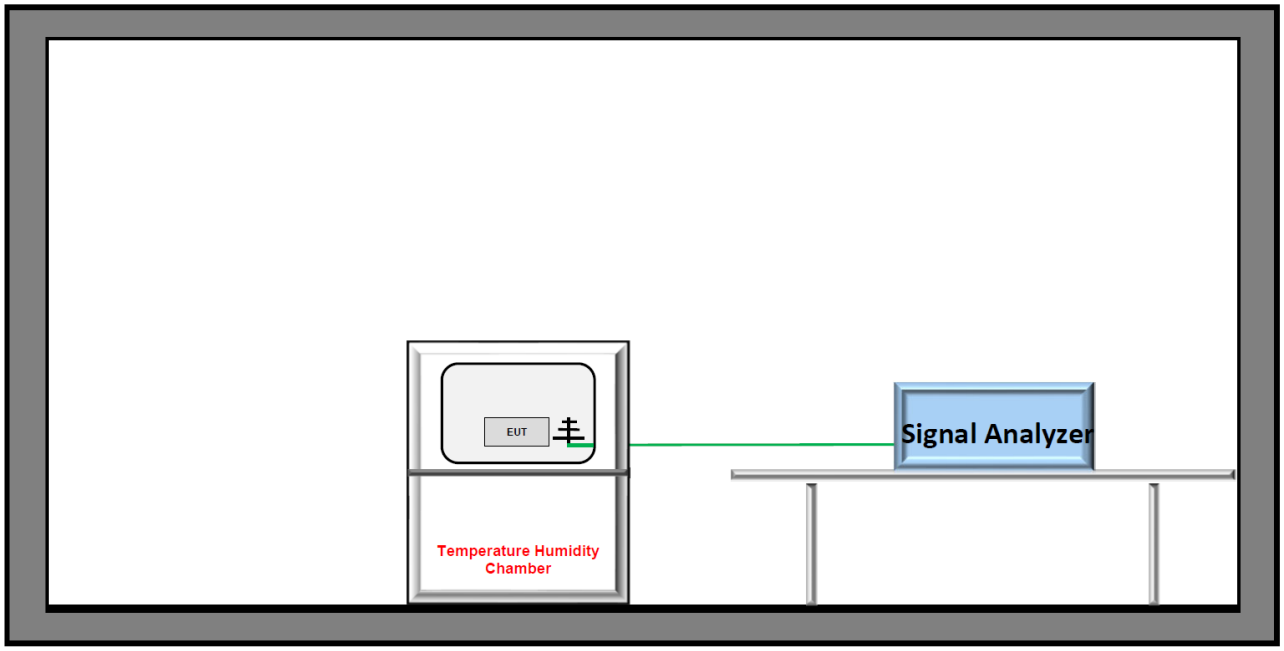
2.6 Test Setup Diagram

2.6.1 Conducted Configuration

Setup 1



Setup 2



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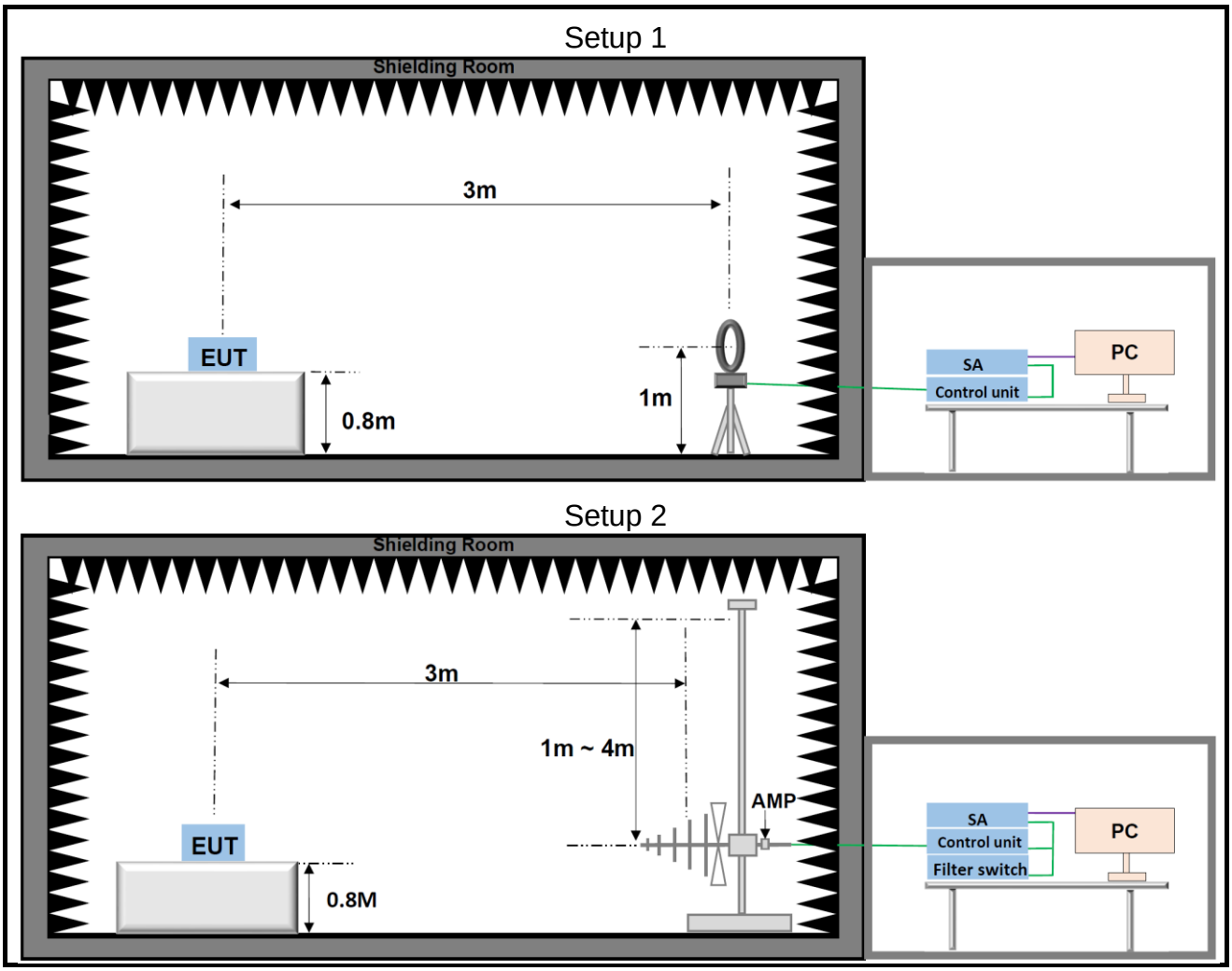
2.6.2 Radiated Configuration



2.7 Accessory

Name	Model	Length (cm)	Shielded (Y/N)	Manufacturer
Adapter	XQZ-UC1	/	/	Sony Corporation
USB Cable	XQZ-UB1	100	Y	Sony Corporation
Earphone	MDR-EX15AP	125	/	Sony Corporation

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3 Equipment and Measurement Uncertainty

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, whichever is less, and where applicable is traceable to recognized national standards.

3.1 Test Equipment List

RF 07					
Description	**Manufacturer**	**Model**	**SN**	**Last Due**	**Cal Due**
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY63440541	2024/05/30	2025/05/29
Mini type temperature chamber	ESPEC	GSU-24V	0060-001323	2024/06/19	2025/06/18

Radiated Emission					
Description	**Manufacturer**	**Model**	**S.N.**	**Last Due**	**Cal Due**
Loop Antenna	Schwarzbeck	FMZB 1519C	1519C-028	2023/06/29	2025/06/28
Biconic Logarithmic Periodic Antennas	Schwarzbeck	VULB9163	1643	2023/06/25	2025/06/24
Signal Analyzer	Keysight	N9020A	MY49100252	2024/03/25	2025/03/24
EMI Tester Receiver	Rohde & Schwarz	ESR7	102719	2024/05/31	2025/05/30
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	150645	2024/03/25	2025/03/24
Low Noise Amplifier	Tonscend	TAP9K3G40	AP23A8060273	2023/04/08	2025/04/07
Low Noise Amplifier	Tonscend	TAP01018050	AP22G806258	2023/04/08	2025/04/07
Band Reject Filter Group	Townshend	JS0806-F	23A806F0652	N/A	N/A
Test Software	Tonscend	TS+	Version: 5.0.0	N/A	N/A

Conducted Emission					
Description	**Manufacturer**	**Model**	**S.N.**	**Last Due**	**Cal Due**
EMI Tester Receiver	Rohde & Schwarz	ESR3	103108	2024/05/31	2025/05/30
LISN	Rohde & Schwarz	ENV 216	102836	2024/01/10	2025/01/09
				2025/01/04	2026/01/03
Test software	Rohde & Schwarz	ELEKTRA v4.61	N/A	N/A	N/A

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3.2 Measurement Uncertainty

Parameter	U_{lab}
Frequency Error	679.98Hz
Output Power	0.76dB
Conducted Emissions(150KHz~30MHz)	2.43dB
Radiated Emissions(9kHz~30MHz)	2.40dB
Radiated Emissions(30MHz~1000MHz)	4.66dB

Uncertainty figures are valid to a confidence level of 95%

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4 Test Results

4.1 Antenna Requirement

Standard Applicable:	47 CFR Part 15C Section 15.203
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.	
The antenna gain and type as provided by the manufacturer are as follows: The antenna Type is LOOP Antenna. Antenna Anti-Replacement Construction: An embedded-in antenna design is used.	

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4.2 AC Power Line Conducted Emissions

Limits

Frequency range (MHz)	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.		

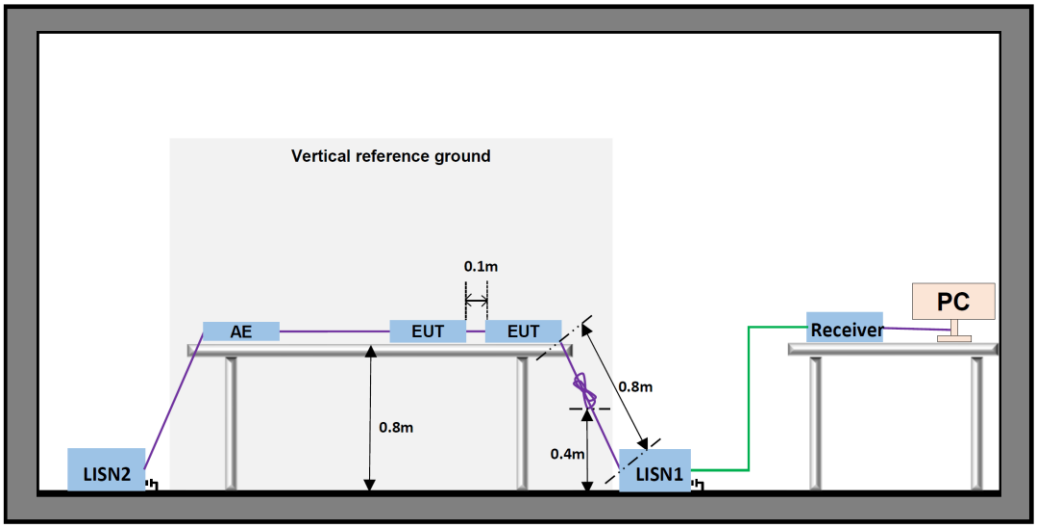
Test Procedure

C63.10:2020, Section 6.2.

Test Settings

1. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
2. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
3. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
4. Set the test-receiver system to Peak detect function and specified bandwidth (if bandwidth =9kHz) with maximum hod mode. Then measurement is also conducted by average detector and Quasi-Peak detector function respectively.
5. Both sides of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Test Setup



Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

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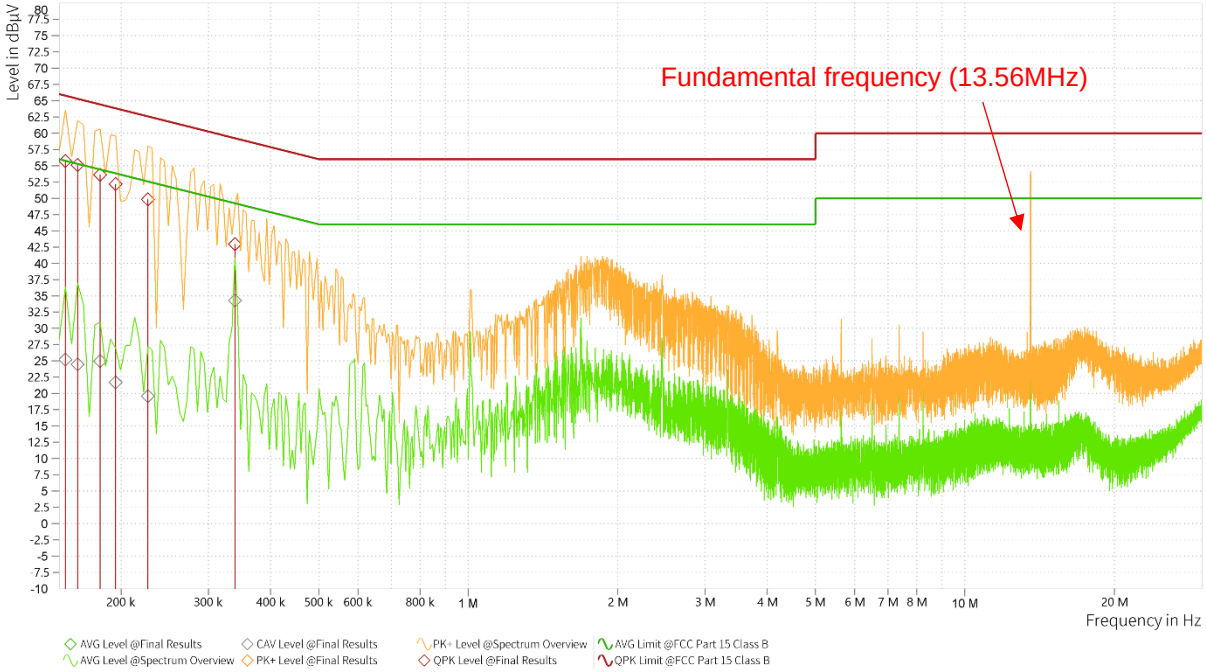
Test Result

Test mode:	NFC Type F (With ANT)		
Test Voltage:	AC 120V / 60Hz	Phase:	Line



Rg	Frequency [MHz]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	Correction [dB]	Line
1	0.155	25.21	55.75	30.54	14.76	55.73	65.75	10.02	45.28	10.45	L1
1	0.164	24.48	55.28	30.80	14.03	55.10	65.28	10.18	44.65	10.45	L1
1	0.182	24.98	54.42	29.43	14.52	53.60	64.42	10.82	43.14	10.46	L1
1	0.195	21.71	53.82	32.11	11.25	52.18	63.82	11.64	41.72	10.46	L1
1	0.227	19.61	52.58	32.97	9.05	49.83	62.58	12.75	39.27	10.56	L1
1	0.339	34.28	49.23	14.95	23.39	42.96	59.23	16.27	32.07	10.89	L1

Note:
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Value =Reading[dBµV] + Factor(LISN factor[dB] + Cable loss[dB]).

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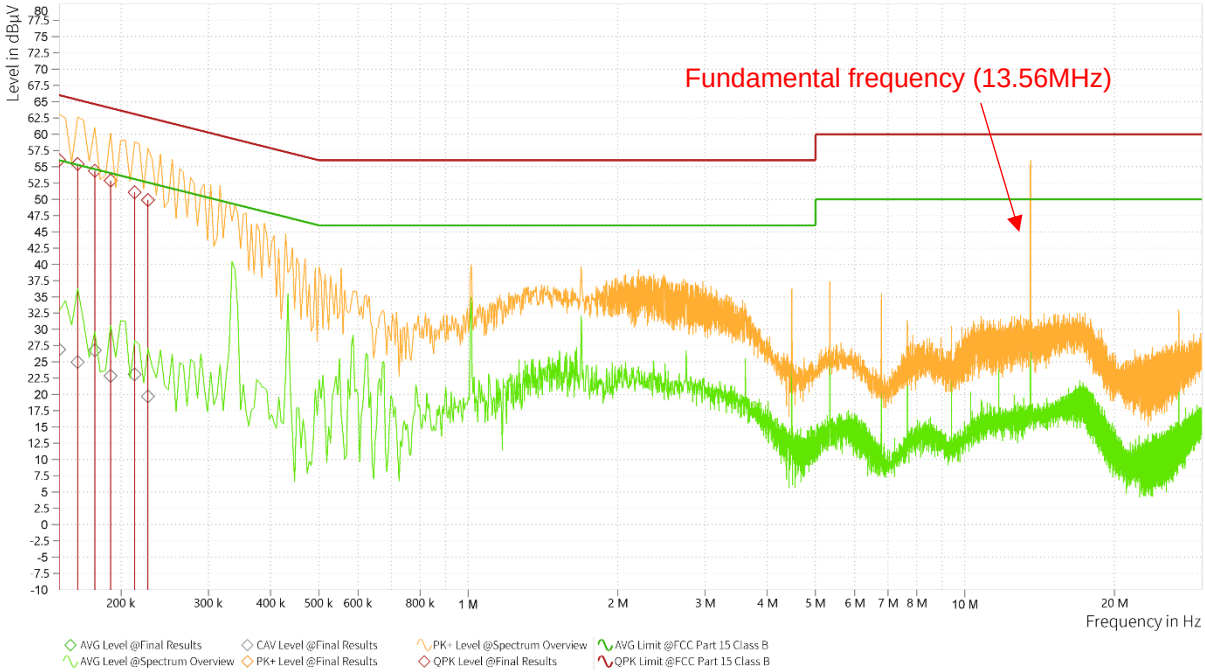
Test mode:	NFC Type F (With ANT)		
Test Voltage:	AC 120V / 60Hz	Phase:	Neutral



Rg	Frequency [MHz]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	Correction [dB]	Line
1	0.150	26.91	56.00	29.09	16.27	56.05	66.00	9.95	45.41	10.64	N
1	0.164	24.98	55.28	30.31	14.32	55.40	65.28	9.89	44.74	10.65	N
1	0.177	26.79	54.63	27.84	16.11	54.38	64.63	10.25	43.70	10.68	N
1	0.191	22.85	54.01	31.17	12.16	52.86	64.01	11.16	42.17	10.68	N
1	0.213	23.08	53.09	30.01	12.39	51.05	63.09	12.04	40.36	10.69	N
1	0.227	19.72	52.58	32.86	9.03	49.87	62.58	12.71	39.17	10.69	N

Note:
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Value =Reading[dBµV] + Factor(LISN factor[dB] + Cable loss[dB]).

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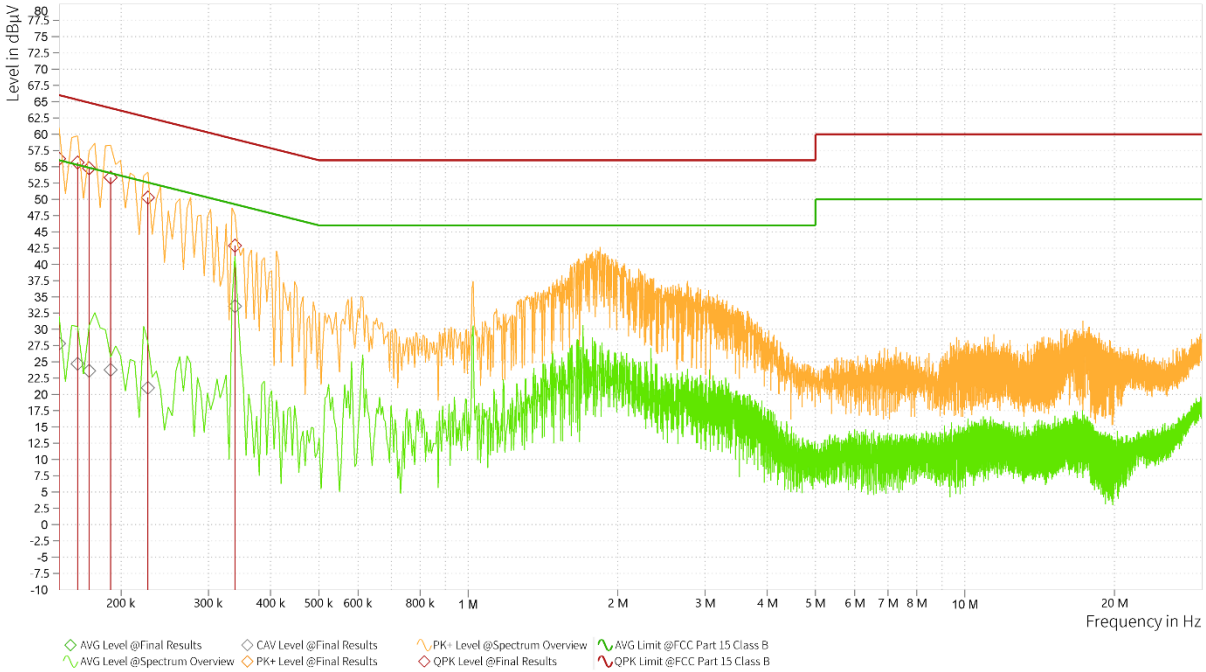
Test mode:	NFC Type V (normal operation with antenna port terminated)		
Test Voltage:	AC 120V / 60Hz	Phase:	Line



Rg	Frequency [MHz]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	Correction [dB]	Line
1	0.150	27.84	56.00	28.16	17.39	56.22	66.00	9.78	45.77	10.45	L1
1	0.164	24.72	55.28	30.56	14.27	55.64	65.28	9.64	45.19	10.45	L1
1	0.173	23.65	54.84	31.19	13.18	54.76	64.84	10.07	44.30	10.46	L1
1	0.191	23.77	54.01	30.24	13.31	53.32	64.01	10.70	42.86	10.46	L1
1	0.227	21.02	52.58	31.56	10.46	50.27	62.58	12.31	39.71	10.56	L1
1	0.339	33.54	49.23	15.69	22.65	42.88	59.23	16.35	31.99	10.89	L1

Note:
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Value =Reading[dBµV] + Factor(LISN factor[dB] + Cable loss[dB]).

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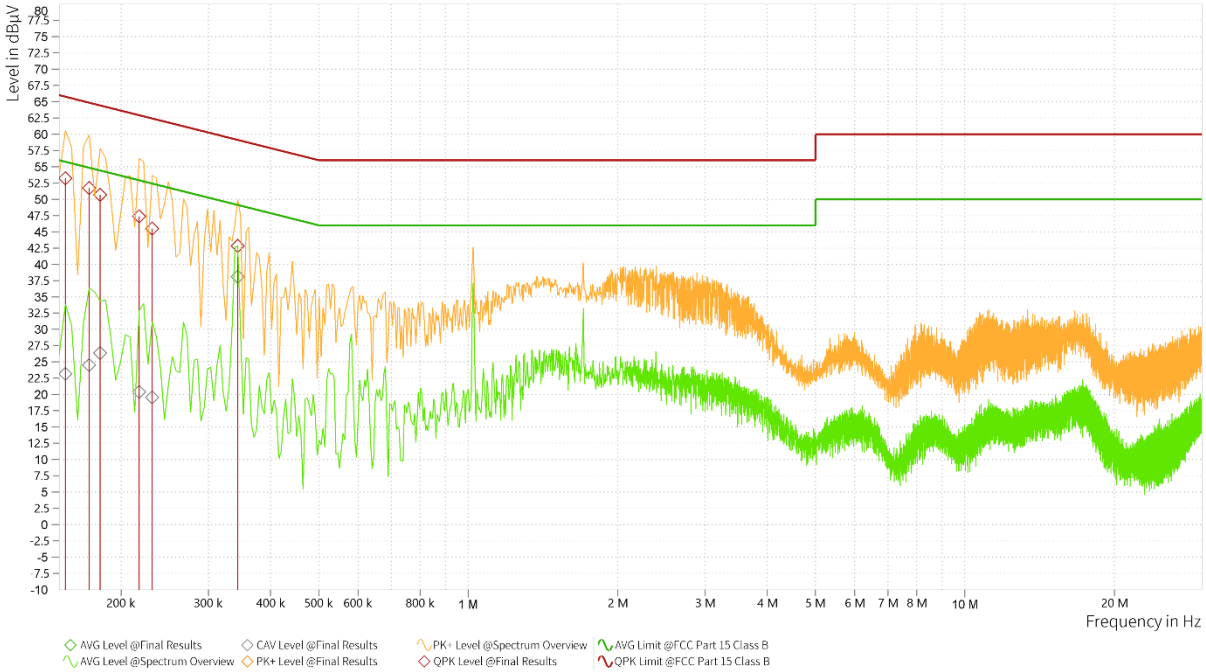
Test mode:	NFC Type V (normal operation with antenna port terminated)		
Test Voltage:	AC 120V / 60Hz	Phase:	Neutral



Rg	Frequency [MHz]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	Correction [dB]	Line
1	0.155	23.17	55.75	32.58	12.52	53.24	65.75	12.52	42.59	10.64	N
1	0.173	24.53	54.84	30.31	13.85	51.72	64.84	13.12	41.05	10.67	N
1	0.182	26.35	54.42	28.07	15.67	50.67	64.42	13.74	40.00	10.68	N
1	0.218	20.41	52.91	32.50	9.72	47.38	62.91	15.53	36.69	10.69	N
1	0.231	19.56	52.41	32.85	8.87	45.47	62.41	16.94	34.78	10.69	N
1	0.344	38.09	49.12	11.03	27.38	42.85	59.12	16.27	32.13	10.71	N

Note:
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Value =Reading[dBµV] + Factor(LISN factor[dB] + Cable loss[dB]).

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4.3 20dB Bandwidth

Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

ANSI C63.10:2020 and 6.9.3

Test Settings

1. Set to the maximum power setting and enable the EUT transmit continuously.
2. The transmitter output is connected to a spectrum analyzer:
   RBW = 1~5% of the 20dB bandwidth.
   VBW = 3 times the RBW.
   Span = Approximately 2 to 5times the 20dB bandwidth.
   Sweep = Auto.
   Detector = Peak.
   Trace = Max hold.
3. Measure and record the results in the test report.

Test Notes

Because the measured signal is CW-like, adjusting the RBW per C63.10would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

Test Setup

Refer to section 2.6.1- Setup 1 for details.

Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

Test Result

The detailed test data see: **Appendix.**

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4.4 Frequency Stability

Limits

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Procedure

ANSI C63.10:2020 Section 6.8

Test Settings

1. Set to the maximum power setting and enable the EUT transmit continuously.
2. The transmitter output is connected to a spectrum analyzer:
   RBW = 1kHz.
   VBW = 3 times the RBW.
   The fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc * 10^6 ppm and the limit is less than ± 100ppm.
3. Measure and record the results in the test report.

Test Setup

Refer to section 2.6.1- Setup 2 for details.

Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

Test Result

The detailed test data see: **Appendix.**

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4.5 In-Band Emissions

Limits

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

Test Procedure

ANSI C63.10:2020 Section 6.4.7

Test Settings

1. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 SAC camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And find the worst-case axis positioning record in the report.
3. For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for Quasi-peak detection measurements in the 30~1000MHz range, 9kHz for Peak and/or Quasi-peak detection measurements in the 150kHz~30MHz range and 200Hz for Peak and/or Quasi-peak detection measurements in the 9~150kHz range, Peak detection is used unless otherwise noted as Quasi-peak or average(9~90kHz and 110~490kHz).
4. Measurements were performed at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40dB/decade) as specified in &15.31(f)(2). Extrapolation Factor $20\log_{10}(30/3)^2$=40dB.
5. Measure and record the results in the test report.

Test Setup

Refer to section 2.6.2- Setup 1 for details.

Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

Test Result

The detailed test data see: **Appendix.**

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4.6 Radiated Spurious Emissions

Limits

The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

Frequency	Field strength (μV/m)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Test Procedure

ANSI C63.10:2020 Section 6.5.4.

Test Settings

1. For radiated emissions measurements performed at frequencies less than or equal to 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the reference ground plane.
2. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1m to 4m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e, field strength or received power), when orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25cm.
3. For each suspected emission, the EUT was ranged its worst case and then tune the antenna tower(from 1~4m) and turntable(from 0~360°) find the maximum reading. Preamplifier and a high pass filter are used for the test in order get better signal level comply with the guidelines.
4. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. spectrum analyzer setting:
   Measurements Below 30MHz: RBW = 9 kHz; VBW ≥ 30 kHz; Detector = Peak
   Measurements 30 ~ 1000MHz: RBW = 120 kHz; VBW ≥ 300 kHz; Detector = Peak
7. The field strength is calculated by adding the Antenna Factor, Cable Factor. The basic equation with a sample calculation is as follows:
   Level = Reading(dBμV) + AF(dB/m) + Factor(dB):
   AF = Antenna Factor(dB/m)
   Factor = Cable Factor(dB) - Preamplifier gain(dB)
   Margin = Limit(dBμV/m) – Level(dBμV/m)
8. Repeat above procedures until all frequencies measured was complete.
9. Measure and record the results in the test report.

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Test Notes

1. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported for frequency range below 1GHz.
2. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Test Setup

Refer to section 2.6.2 for details.

Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

Test Result

The detailed test data see: **Appendix.**

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5 Test Setup Photos

The detailed test data see: **Appendix A - NFC Setup Photos**

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Appendix

20dB Bandwidth

Test Result

TestMode	Frequency[MHz]	20dB EBW[kHz]	Limit[MHz]	Verdict
Type-A	13.56	2.843	---	---
Type-B	13.56	2.842	---	---
Type-F	13.56	2.843	---	---
Type-V	13.56	2.845	---	---

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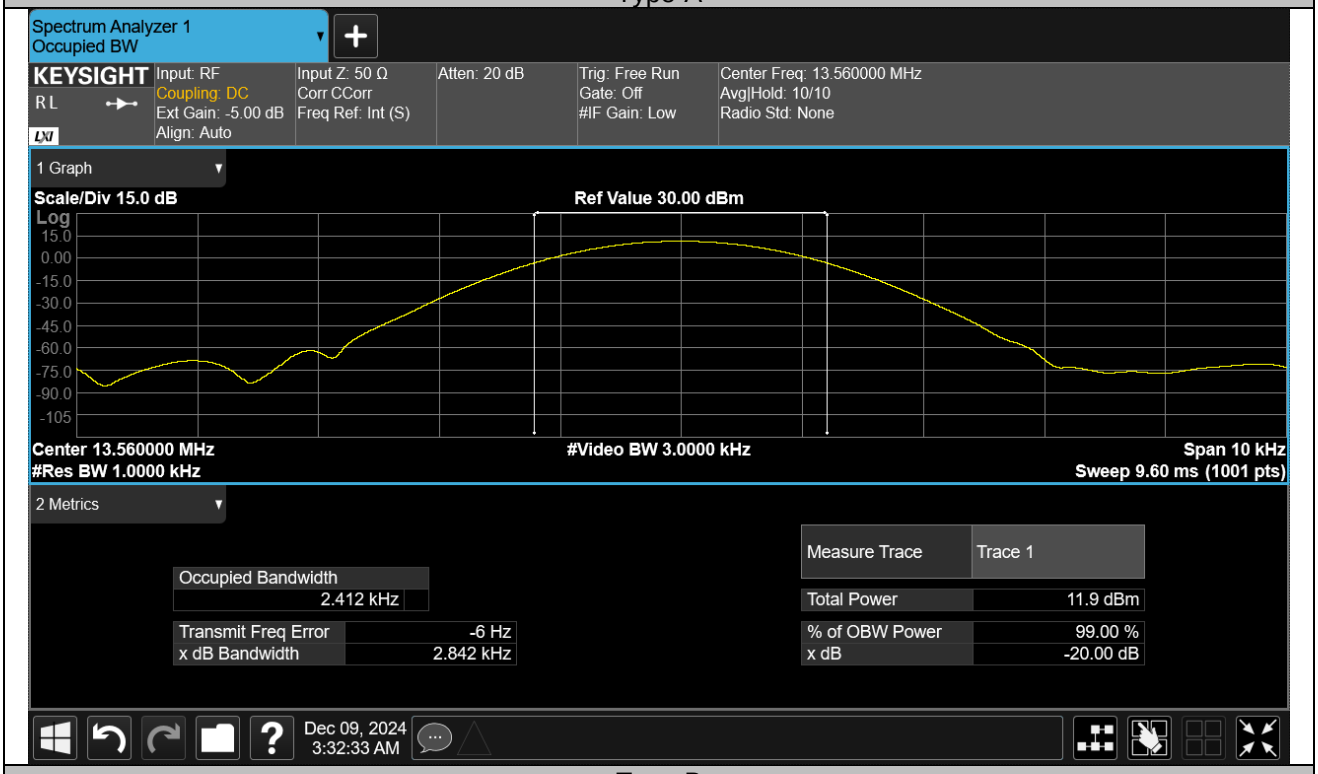
Test Graphs

Type-A



Type-B

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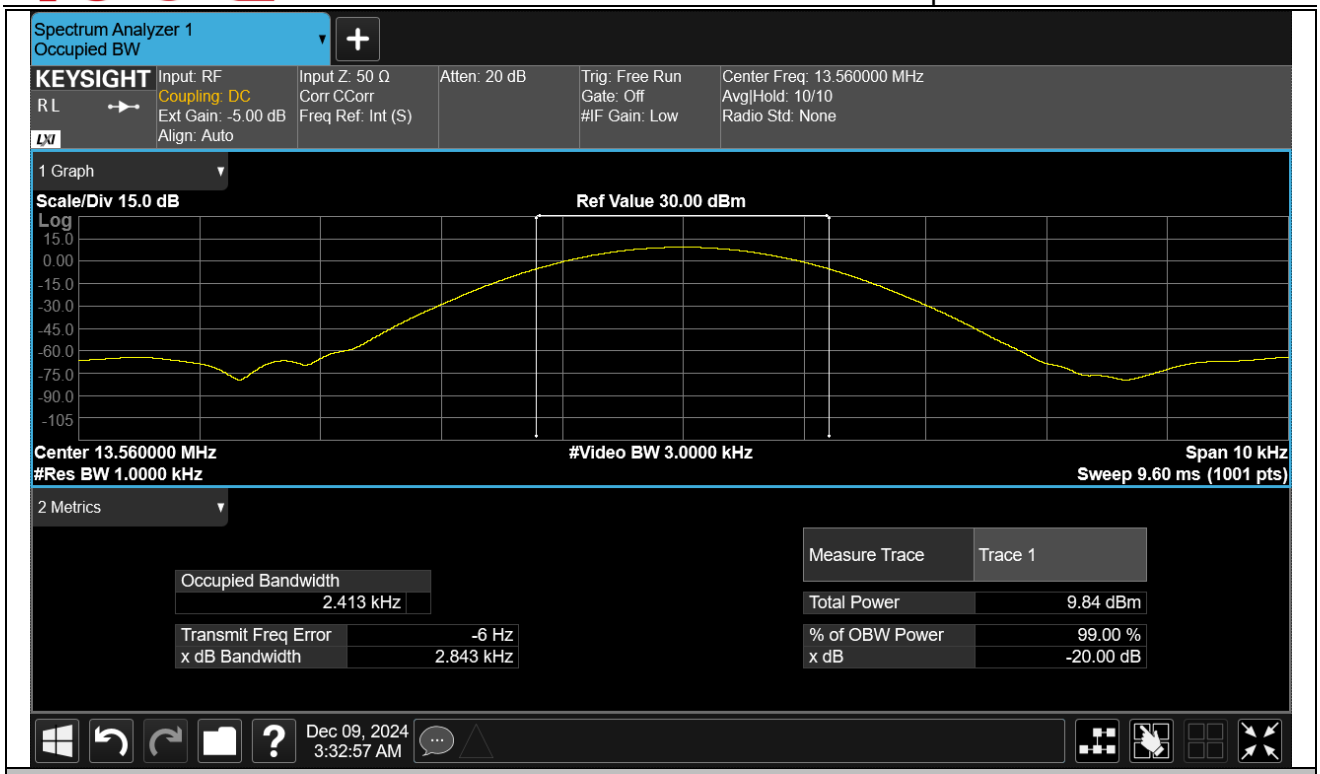
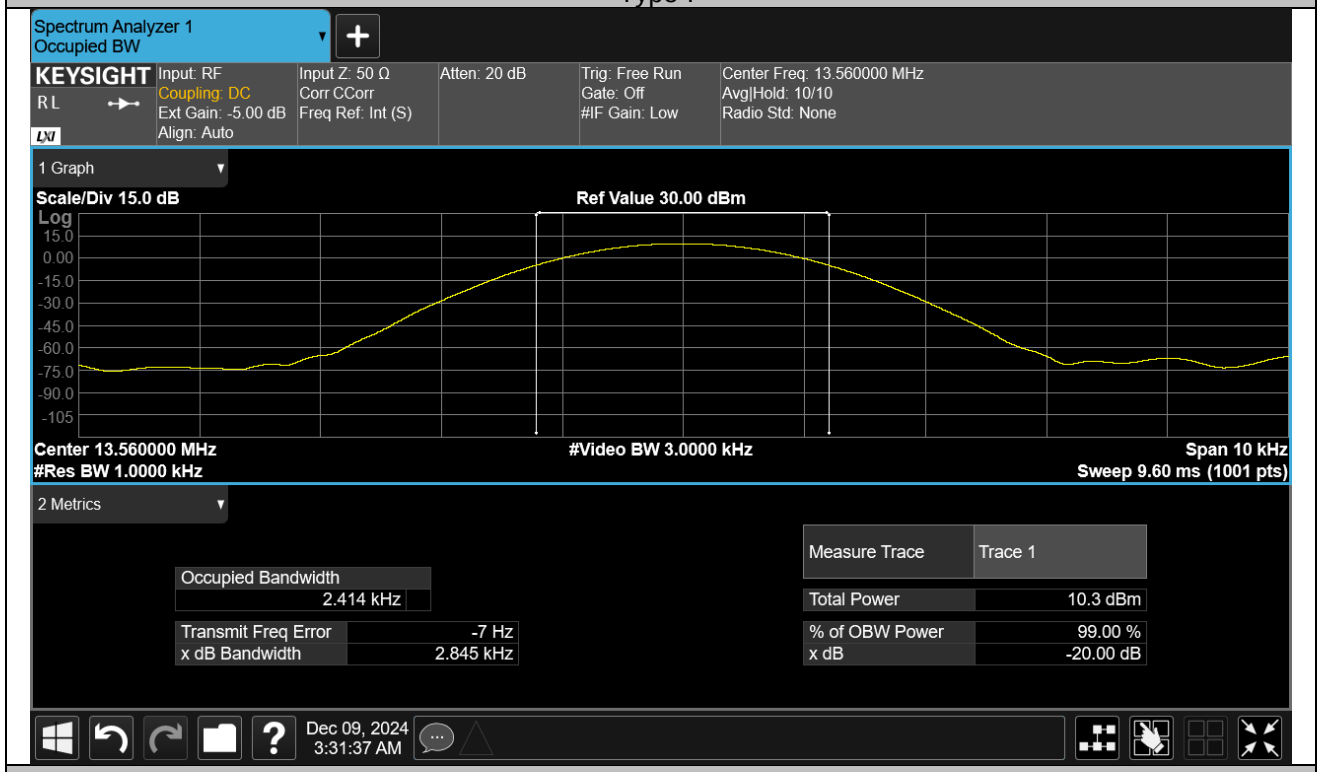


Type-F



Type-V

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Frequency Stability

Test Result

Voltage											
Type	VDC	(℃)	Startup	Deviation	2mins	Deviation	5mins	Deviation	10mins	Deviation	Limit
			(MHz)	(ppm)	(MHz)	(ppm)	(MHz)	(ppm)	(MHz)	(ppm)	(ppm)
V	4.28	20	13.560003	0.22	13.560004	0.29	13.560002	0.15	13.560002	0.15	±100
	3.5	20	13.559996	-0.29	13.559993	-0.52	13.559996	-0.29	13.559992	-0.59	±100

Temperature											
Type	VDC	(℃)	Startup	Deviation	2mins	Deviation	5mins	Deviation	10mins	Deviation	Limit
			(MHz)	(ppm)	(MHz)	(ppm)	(MHz)	(ppm)	(MHz)	(ppm)	(ppm)
V	3.89	50	13.560013	0.96	13.560011	0.81	13.56	0.00	13.560001	0.07	±100
	3.89	40	13.560011	0.81	13.560006	0.44	13.559997	-0.22	13.560003	0.22	±100
	3.89	30	13.560009	0.66	13.560006	0.44	13.560004	0.29	13.559999	-0.07	±100
	3.89	20	13.559995	-0.37	13.560004	0.29	13.560001	0.07	13.559997	-0.22	±100
	3.89	10	13.559996	-0.29	13.559998	-0.15	13.559998	-0.15	13.560004	0.29	±100
	3.89	0	13.560002	0.15	13.559997	-0.22	13.559996	-0.29	13.559997	-0.22	±100
	3.89	-10	13.559997	-0.22	13.560003	0.22	13.559995	-0.37	13.56	0.00	±100
	3.89	-20	13.559996	-0.29	13.560005	0.37	13.559998	-0.15	13.559995	-0.37	±100

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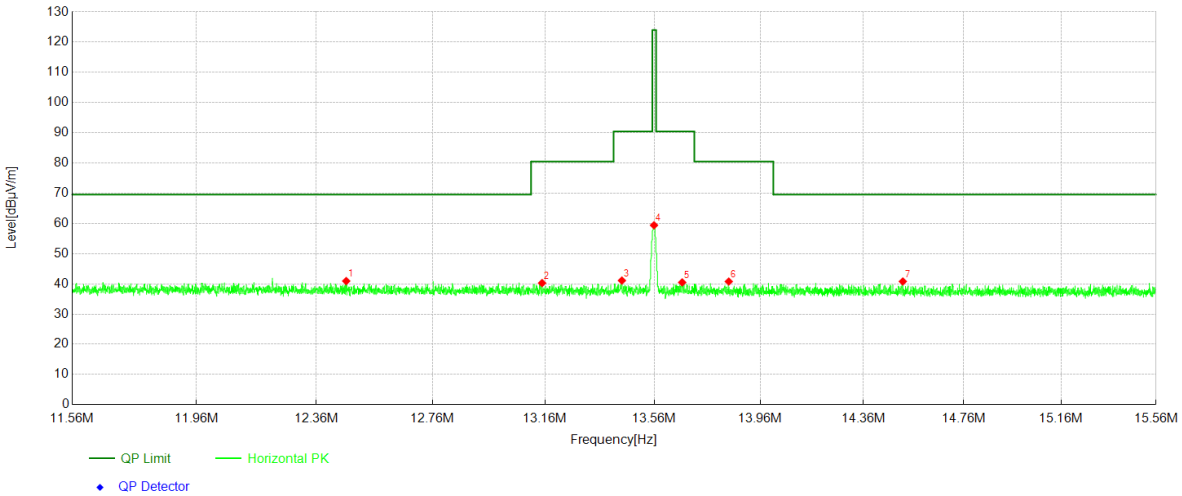
In-Band Emissions

Test Result

Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type A Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	12.46	19.78	21.15	40.93	69.54	28.61	Horizontal	PASS
2	13.15	19.15	21.12	40.27	80.51	40.24	Horizontal	PASS
3	13.44	20.01	21.09	41.10	90.47	49.37	Horizontal	PASS
4	13.56	38.32	21.08	59.40	124.00	64.60	Horizontal	PASS
5	13.66	19.42	21.07	40.49	90.47	49.98	Horizontal	PASS
6	13.84	19.70	21.06	40.76	80.51	39.75	Horizontal	PASS
7	14.52	19.79	21.00	40.79	69.54	28.75	Horizontal	PASS

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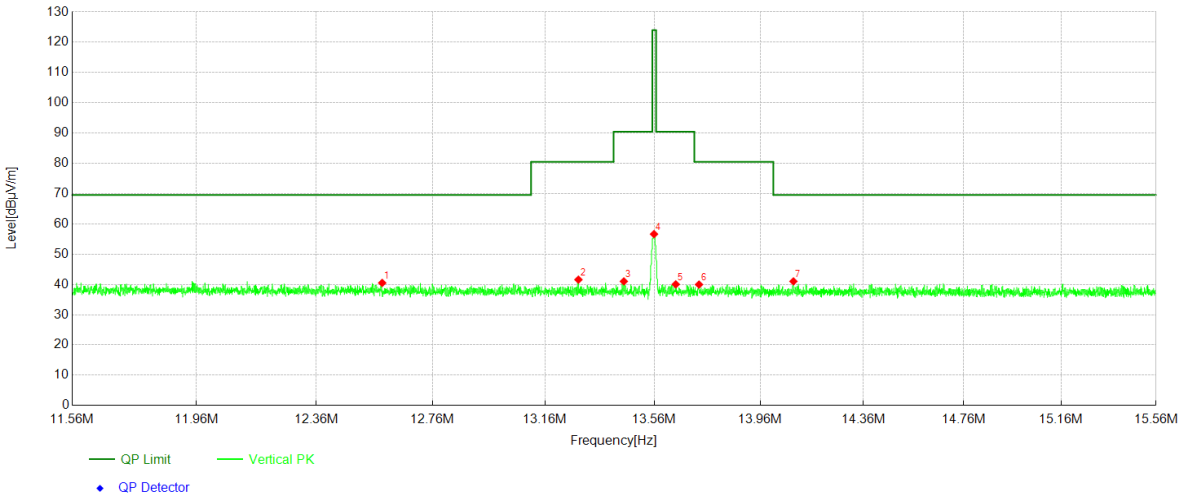
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type A Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	12.59	19.35	21.15	40.50	69.54	29.04	Vertical	PASS
2	13.28	20.47	21.10	41.57	80.51	38.94	Vertical	PASS
3	13.45	19.92	21.09	41.01	90.47	49.46	Vertical	PASS
4	13.56	35.55	21.08	56.63	124.00	67.37	Vertical	PASS
5	13.64	18.95	21.08	40.03	90.47	50.44	Vertical	PASS
6	13.73	18.88	21.07	39.95	80.51	40.56	Vertical	PASS
7	14.09	19.98	21.03	41.01	69.54	28.53	Vertical	PASS

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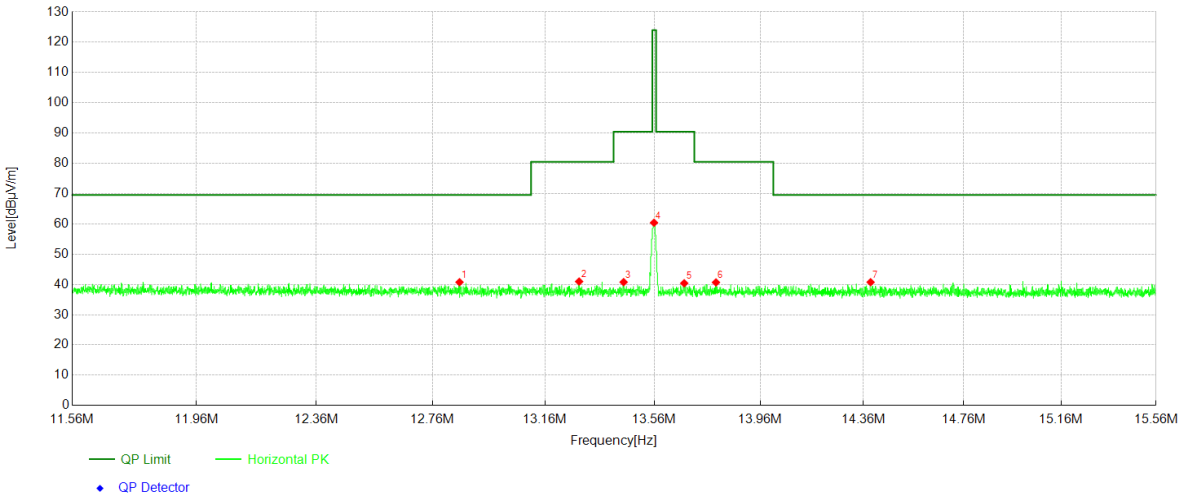
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type F Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	12.86	19.60	21.14	40.74	69.54	28.80	Horizontal	PASS
2	13.28	19.87	21.10	40.97	80.51	39.54	Horizontal	PASS
3	13.45	19.68	21.09	40.77	90.47	49.70	Horizontal	PASS
4	13.56	39.30	21.08	60.38	124.00	63.62	Horizontal	PASS
5	13.67	19.32	21.07	40.39	90.47	50.08	Horizontal	PASS
6	13.79	19.61	21.06	40.67	80.51	39.84	Horizontal	PASS
7	14.39	19.74	21.00	40.74	69.54	28.80	Horizontal	PASS

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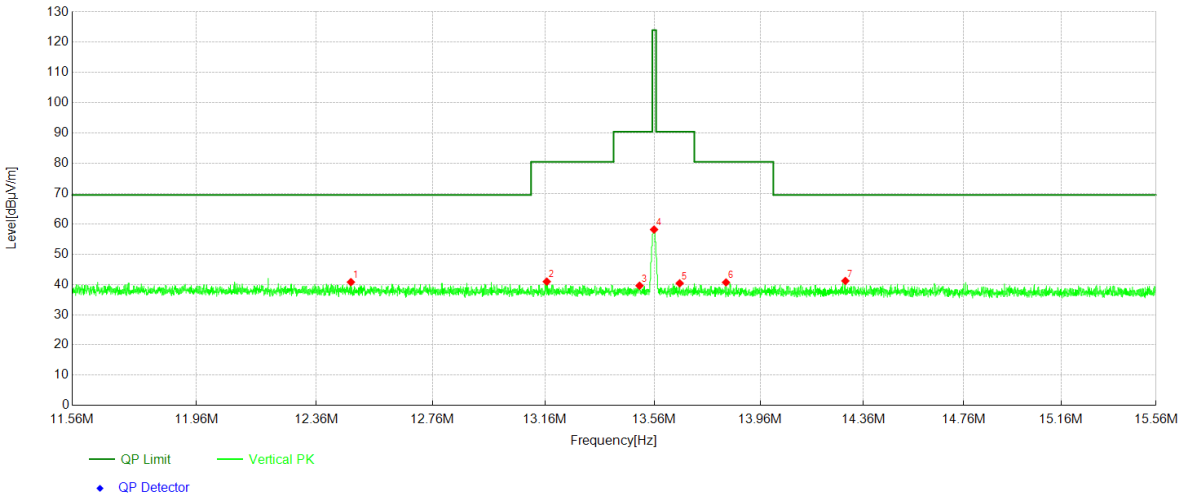
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type F Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	12.48	19.61	21.15	40.76	69.54	28.78	Vertical	PASS
2	13.17	19.82	21.11	40.93	80.51	39.58	Vertical	PASS
3	13.51	18.48	21.09	39.57	90.47	50.90	Vertical	PASS
4	13.56	37.05	21.08	58.13	124.00	65.87	Vertical	PASS
5	13.66	19.30	21.07	40.37	90.47	50.10	Vertical	PASS
6	13.83	19.61	21.06	40.67	80.51	39.84	Vertical	PASS
7	14.29	20.15	21.01	41.16	69.54	28.38	Vertical	PASS

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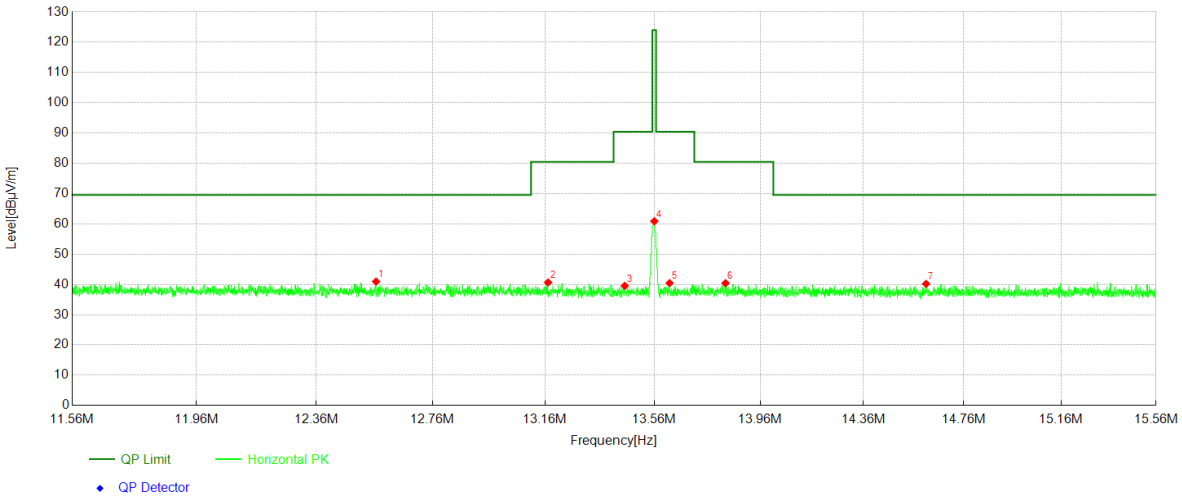
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type B Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	12.56	19.81	21.15	40.96	69.54	28.58	Horizontal	PASS
2	13.17	19.54	21.11	40.65	80.51	39.86	Horizontal	PASS
3	13.45	18.47	21.08	39.55	90.47	50.92	Horizontal	PASS
4	13.56	39.80	21.08	60.88	124.00	63.12	Horizontal	PASS
5	13.62	19.36	21.08	40.44	90.47	50.03	Horizontal	PASS
6	13.83	19.36	21.06	40.42	80.51	40.09	Horizontal	PASS
7	14.61	19.21	20.99	40.20	69.54	29.34	Horizontal	PASS

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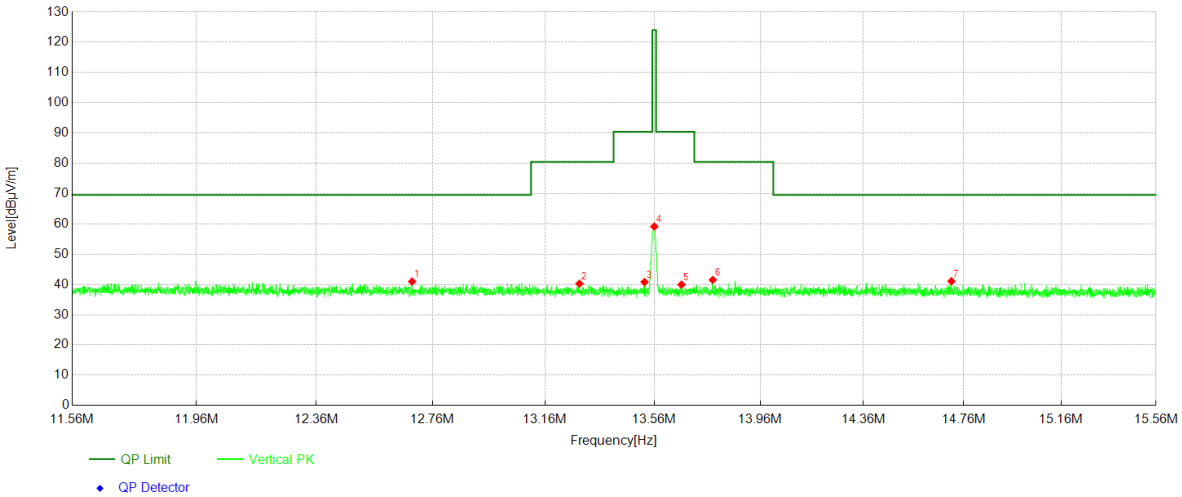
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type B Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	12.69	19.81	21.15	40.96	69.54	28.58	Vertical	PASS
2	13.28	19.14	21.10	40.24	80.51	40.27	Vertical	PASS
3	13.52	19.72	21.09	40.81	90.47	49.66	Vertical	PASS
4	13.56	38.05	21.08	59.13	124.00	64.87	Vertical	PASS
5	13.66	18.87	21.07	39.94	90.47	50.53	Vertical	PASS
6	13.78	20.44	21.06	41.50	80.51	39.01	Vertical	PASS
7	14.71	20.09	20.98	41.07	69.54	28.47	Vertical	PASS

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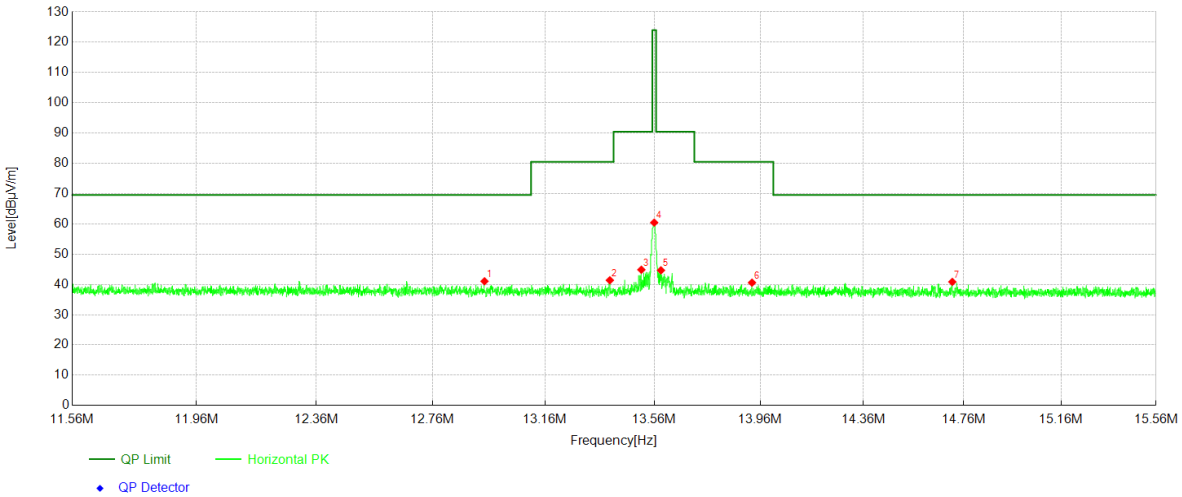
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type V Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	12.94	19.91	21.13	41.04	69.54	28.50	Horizontal	PASS
2	13.40	20.28	21.09	41.37	80.51	39.14	Horizontal	PASS
3	13.51	23.76	21.09	44.85	90.47	45.62	Horizontal	PASS
4	13.56	39.35	21.08	60.43	124.00	63.57	Horizontal	PASS
5	13.59	23.58	21.08	44.66	90.47	45.81	Horizontal	PASS
6	13.93	19.54	21.05	40.59	80.51	39.92	Horizontal	PASS
7	14.71	19.87	20.98	40.85	69.54	28.69	Horizontal	PASS

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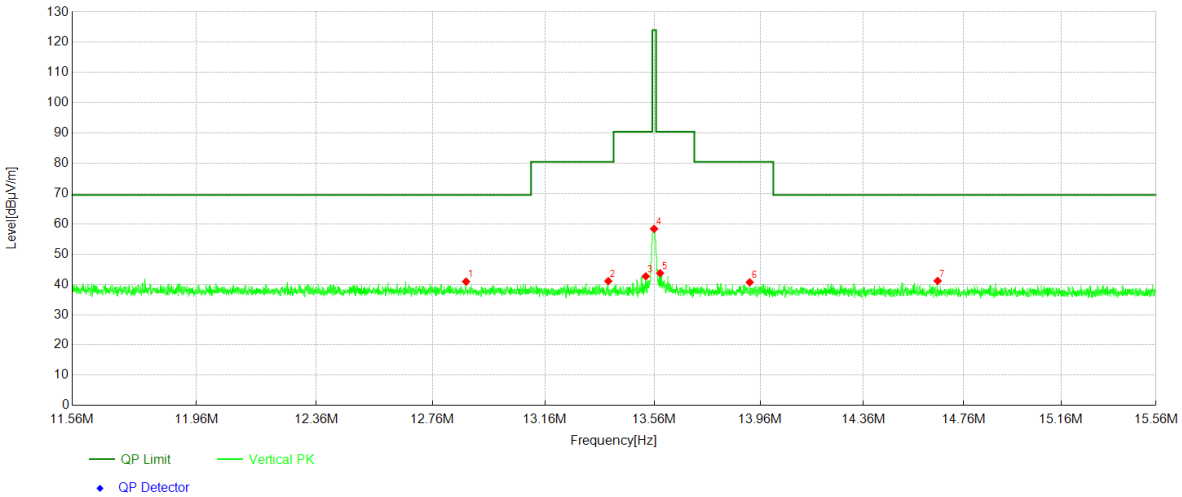
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type V Polarity: X		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	12.88	19.79	21.14	40.93	69.54	28.61	Vertical	PASS
2	13.39	20.00	21.09	41.09	80.51	39.42	Vertical	PASS
3	13.53	21.59	21.09	42.68	90.47	47.79	Vertical	PASS
4	13.56	37.28	21.08	58.36	124.00	65.64	Vertical	PASS
5	13.58	22.64	21.08	43.72	90.47	46.75	Vertical	PASS
6	13.92	19.66	21.05	40.71	80.51	39.80	Vertical	PASS
7	14.66	20.17	20.98	41.15	69.54	28.39	Vertical	PASS

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Radiated Spurious Emissions

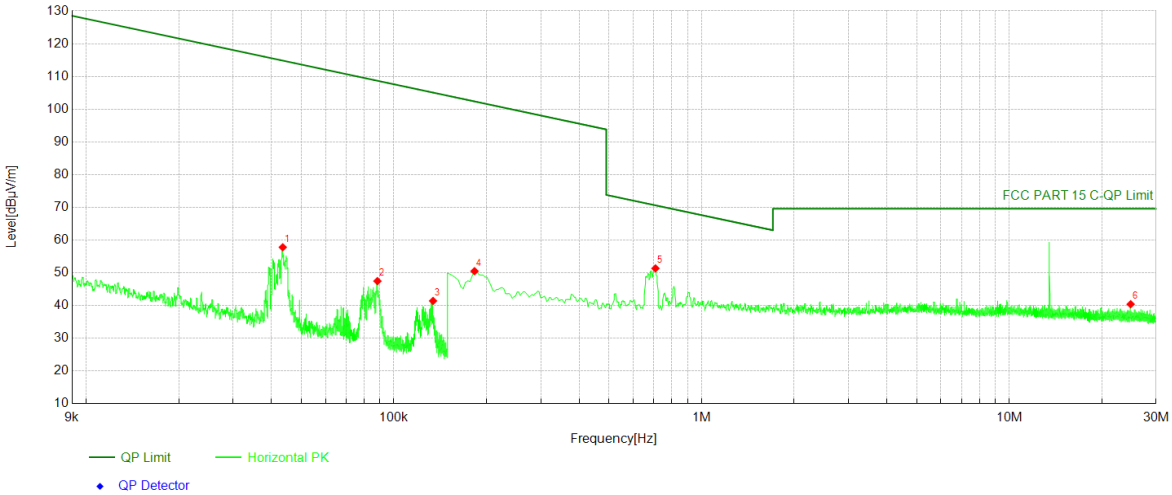
Test Result

9kHz ~ 30MHz

Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type A Polarity: X		

Start of test:2024-12-18 14:03:46

Test Graph



Data List								
NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	37.12	20.67	57.79	114.83	57.04	Horizontal	PASS
2	0.09	26.50	20.95	47.45	108.68	61.23	Horizontal	PASS
3	0.13	20.53	20.87	41.40	105.06	63.66	Horizontal	PASS
4	0.18	29.59	20.90	50.49	102.36	51.87	Horizontal	PASS
5	0.71	30.38	20.96	51.34	70.61	19.27	Horizontal	PASS
6	24.81	18.95	21.44	40.39	69.54	29.15	Horizontal	PASS

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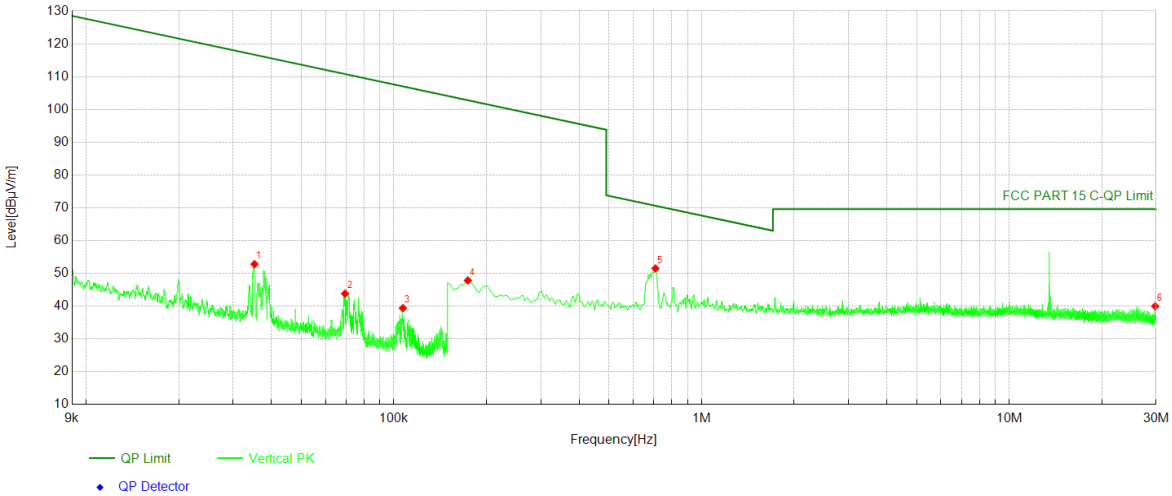
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type A Polarity: X		

Start of test:2024-12-18 14:21:14

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	32.14	20.66	52.80	116.67	63.87	Vertical	PASS
2	0.07	23.17	20.63	43.80	110.78	66.98	Vertical	PASS
3	0.11	18.45	20.93	39.38	107.02	67.64	Vertical	PASS
4	0.17	26.93	20.90	47.83	102.80	54.97	Vertical	PASS
5	0.71	30.54	20.96	51.50	70.61	19.11	Vertical	PASS
6	29.81	18.43	21.56	39.99	69.54	29.55	Vertical	PASS

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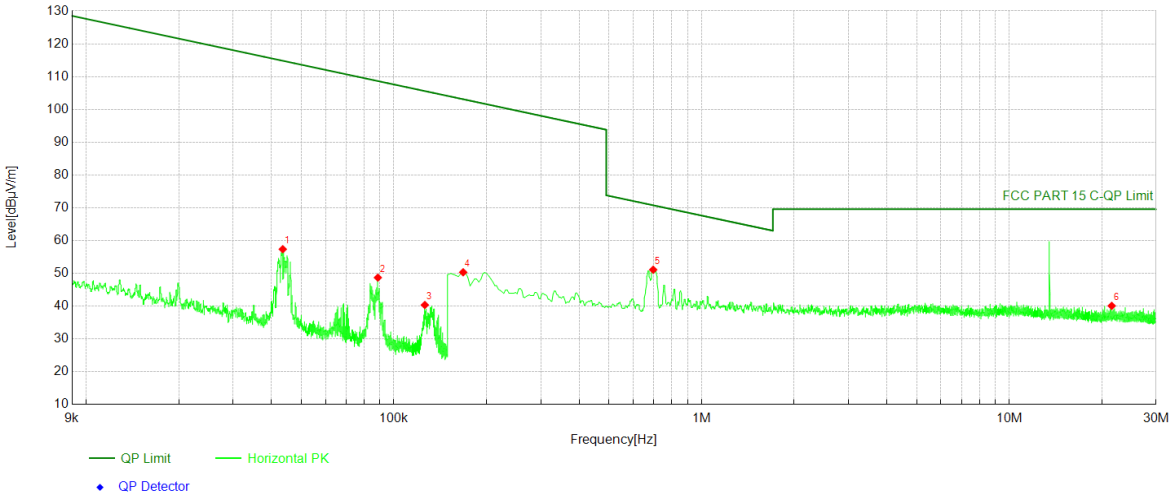
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type F Polarity: X		

Start of test:2024-12-18 13:59:37

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	36.69	20.67	57.36	114.83	57.47	Horizontal	PASS
2	0.09	27.74	20.95	48.69	108.65	59.96	Horizontal	PASS
3	0.13	19.48	20.87	40.35	105.59	65.24	Horizontal	PASS
4	0.17	29.43	20.90	50.33	103.10	52.77	Horizontal	PASS
5	0.70	30.15	20.95	51.10	70.76	19.66	Horizontal	PASS
6	21.53	18.98	21.10	40.08	69.54	29.46	Horizontal	PASS

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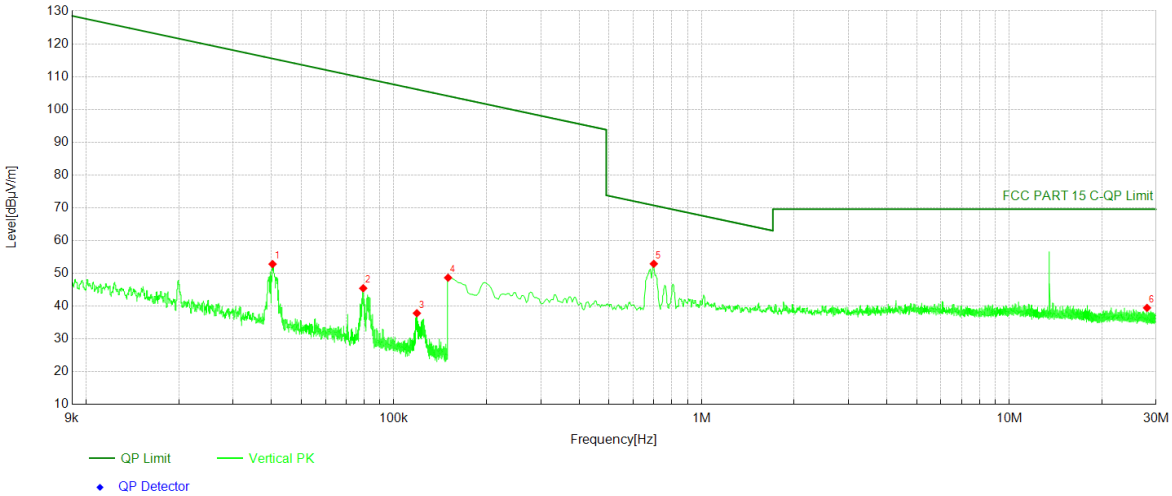
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type F Polarity: X		

Start of test:2024-12-18 12:08:40

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	32.15	20.67	52.82	115.49	62.67	Vertical	PASS
2	0.08	24.65	20.79	45.44	109.60	64.16	Vertical	PASS
3	0.12	16.95	20.89	37.84	106.11	68.27	Vertical	PASS
4	0.15	27.77	20.90	48.67	104.08	55.41	Vertical	PASS
5	0.70	31.95	20.95	52.90	70.72	17.82	Vertical	PASS
6	28.05	18.09	21.38	39.47	69.54	30.07	Vertical	PASS

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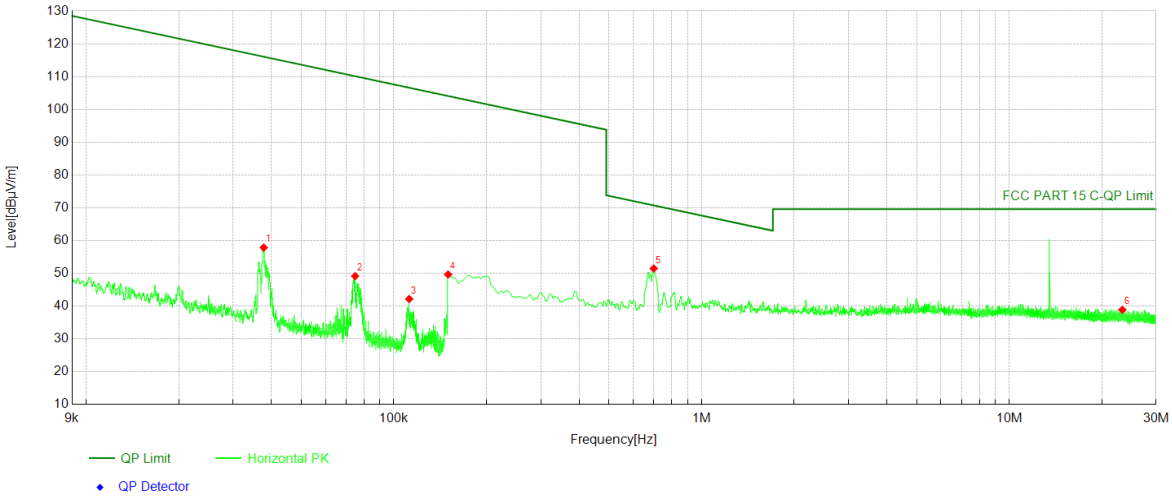
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type B Polarity: X		

Start of test:2024-12-18 14:08:09

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	37.19	20.66	57.85	116.07	58.22	Horizontal	PASS
2	0.07	28.43	20.71	49.14	110.13	60.99	Horizontal	PASS
3	0.11	21.27	20.91	42.18	106.61	64.43	Horizontal	PASS
4	0.15	28.75	20.90	49.65	104.08	54.43	Horizontal	PASS
5	0.70	30.52	20.95	51.47	70.72	19.25	Horizontal	PASS
6	23.32	17.52	21.35	38.87	69.54	30.67	Horizontal	PASS

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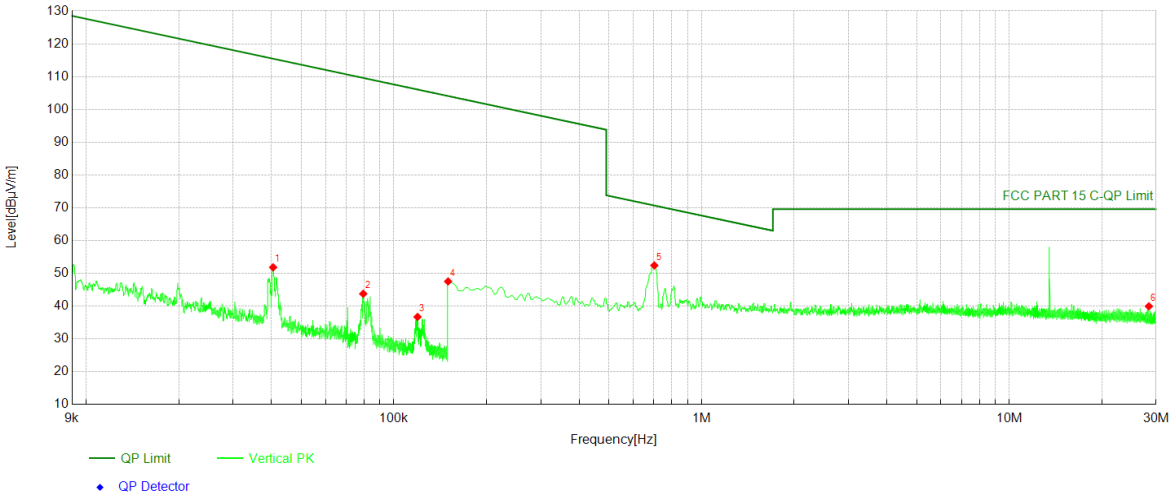
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type B Polarity: X		

Start of test:2024-12-18 12:12:30

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	31.16	20.67	51.83	115.46	63.63	Vertical	PASS
2	0.08	22.98	20.79	43.77	109.60	65.83	Vertical	PASS
3	0.12	15.83	20.88	36.71	106.07	69.36	Vertical	PASS
4	0.15	26.64	20.90	47.54	104.08	56.54	Vertical	PASS
5	0.70	31.47	20.95	52.42	70.68	18.26	Vertical	PASS
6	28.43	18.57	21.38	39.95	69.54	29.59	Vertical	PASS

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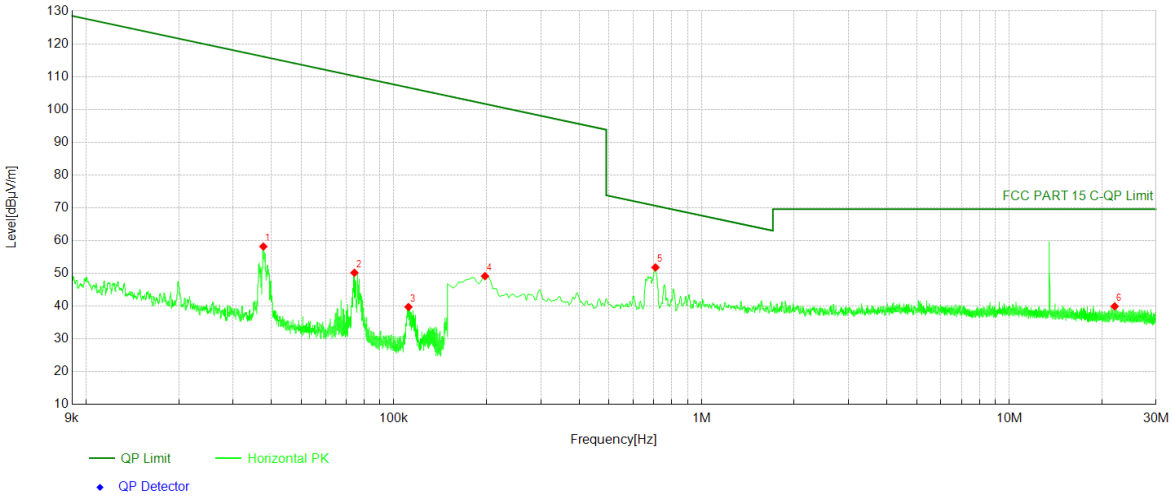
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type V Polarity: X		

Start of test:2024-12-18 14:12:13

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	37.51	20.66	58.17	116.09	57.92	Horizontal	PASS
2	0.07	29.46	20.71	50.17	110.17	60.00	Horizontal	PASS
3	0.11	18.83	20.91	39.74	106.66	66.92	Horizontal	PASS
4	0.20	28.23	20.91	49.14	101.68	52.54	Horizontal	PASS
5	0.71	30.84	20.96	51.80	70.61	18.81	Horizontal	PASS
6	22.01	18.77	21.17	39.94	69.54	29.60	Horizontal	PASS

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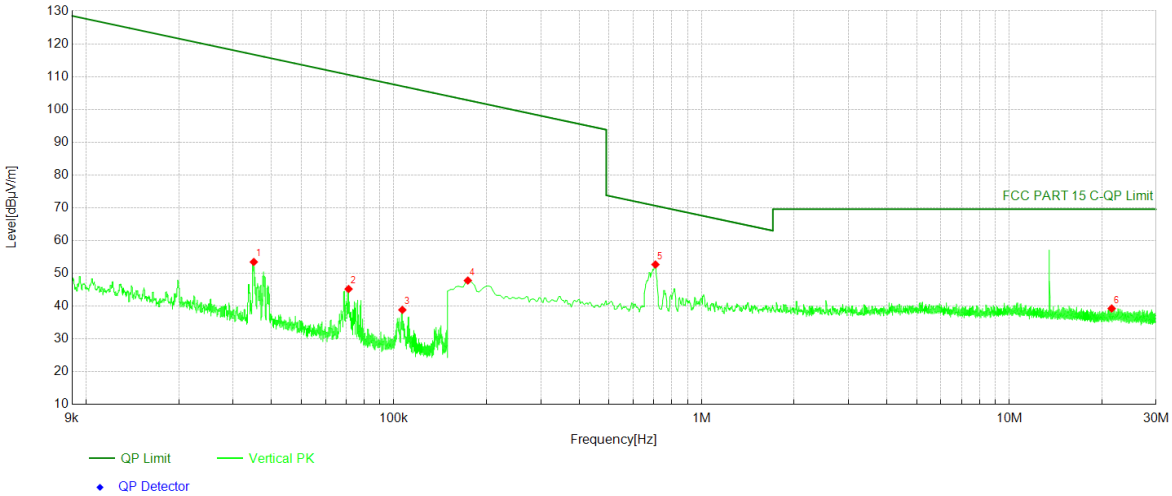
Project Information			
Mode:	NFC	Voltage:	120V 60HZ
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	Type V Polarity: X		

Start of test:2024-12-18 14:17:07

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	0.04	32.81	20.66	53.47	116.71	63.24	Vertical	PASS
2	0.07	24.57	20.65	45.22	110.55	65.33	Vertical	PASS
3	0.11	17.92	20.93	38.85	107.06	68.21	Vertical	PASS
4	0.17	26.90	20.90	47.80	102.80	55.00	Vertical	PASS
5	0.71	31.73	20.96	52.69	70.61	17.92	Vertical	PASS
6	21.53	18.18	21.10	39.28	69.54	30.26	Vertical	PASS

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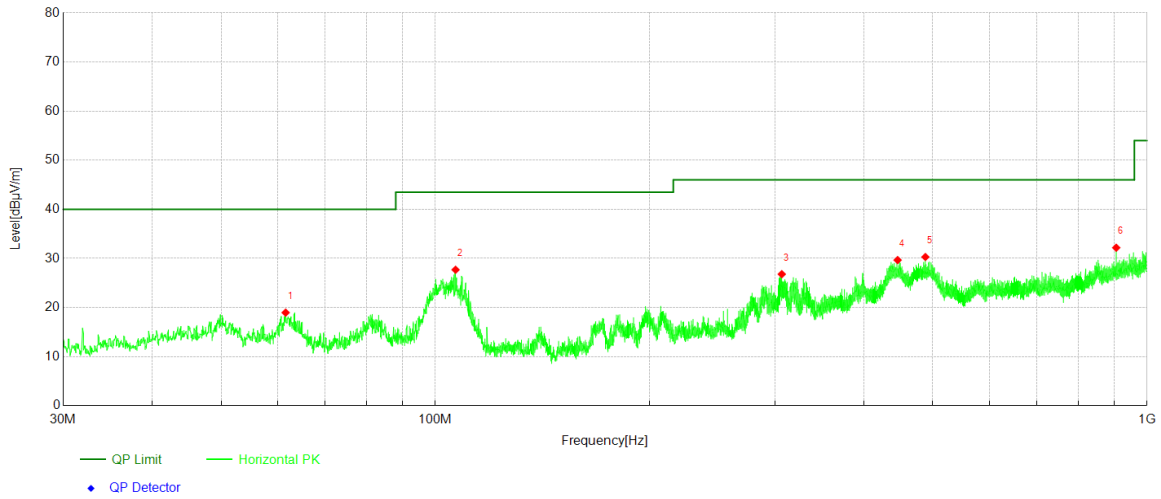
30MHz ~ 1000MHz

Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type A		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	61.62	41.79	-22.83	18.96	40.00	21.04	Horizontal	PASS
2	106.78	50.55	-22.86	27.69	43.50	15.81	Horizontal	PASS
3	306.74	46.03	-19.24	26.79	46.00	19.21	Horizontal	PASS
4	446.23	38.43	-8.77	29.66	46.00	16.34	Horizontal	PASS
5	488.18	38.69	-8.40	30.29	46.00	15.71	Horizontal	PASS
6	905.23	39.55	-7.37	32.18	46.00	13.82	Horizontal	PASS

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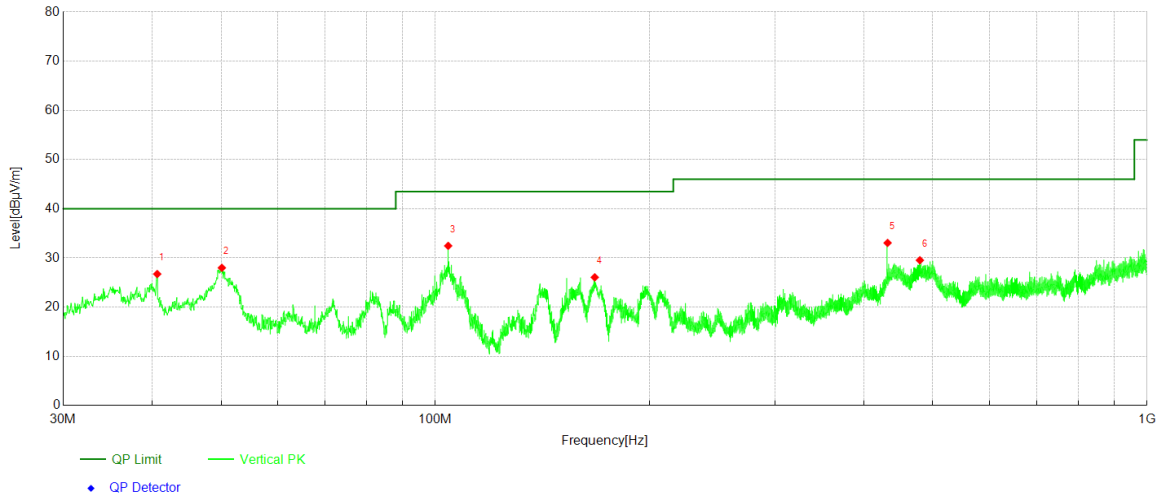
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type A		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	40.67	50.01	-23.28	26.73	40.00	13.27	Vertical	PASS
2	50.13	50.09	-22.10	27.99	40.00	12.01	Vertical	PASS
3	104.25	56.00	-23.54	32.46	43.50	11.04	Vertical	PASS
4	167.50	50.84	-24.78	26.06	43.50	17.44	Vertical	PASS
5	432.02	43.72	-10.66	33.06	46.00	12.94	Vertical	PASS
6	479.50	37.92	-8.39	29.53	46.00	16.47	Vertical	PASS

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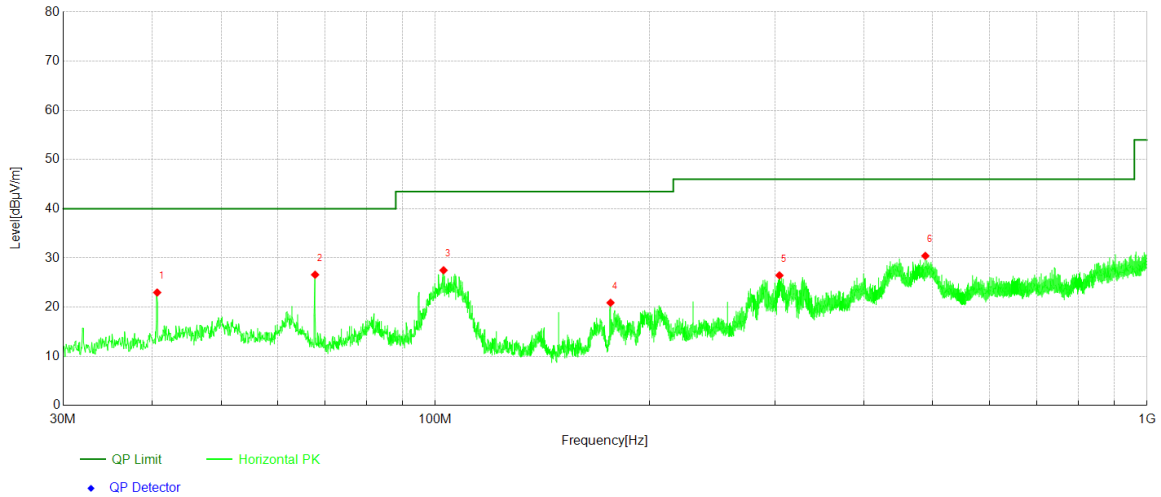
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type B		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	40.67	46.65	-23.68	22.97	40.00	17.03	Horizontal	PASS
2	67.78	51.92	-25.33	26.59	40.00	13.41	Horizontal	PASS
3	102.70	50.81	-23.32	27.49	43.50	16.01	Horizontal	PASS
4	176.28	44.85	-23.96	20.89	43.50	22.61	Horizontal	PASS
5	304.46	45.64	-19.19	26.45	46.00	19.55	Horizontal	PASS
6	488.13	38.82	-8.40	30.42	46.00	15.58	Horizontal	PASS

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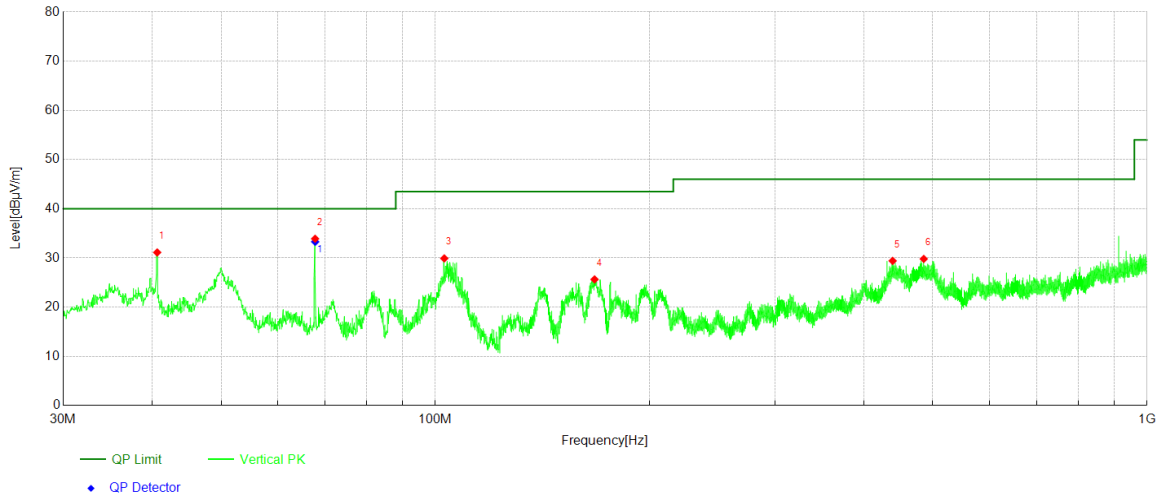
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type B		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	40.67	54.40	-23.28	31.12	40.00	8.88	Vertical	PASS
2	67.78	58.90	-25.00	33.90	40.00	6.10	Vertical	PASS
3	102.94	53.77	-23.86	29.91	43.50	13.59	Vertical	PASS
4	167.40	50.51	-24.88	25.63	43.50	17.87	Vertical	PASS
5	439.10	38.29	-8.89	29.40	46.00	16.60	Vertical	PASS
6	485.61	38.30	-8.50	29.80	46.00	16.20	Vertical	PASS

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	67.799152	58.28	33.28	40.00	6.72	108.7	288.2	Vertical	PASS

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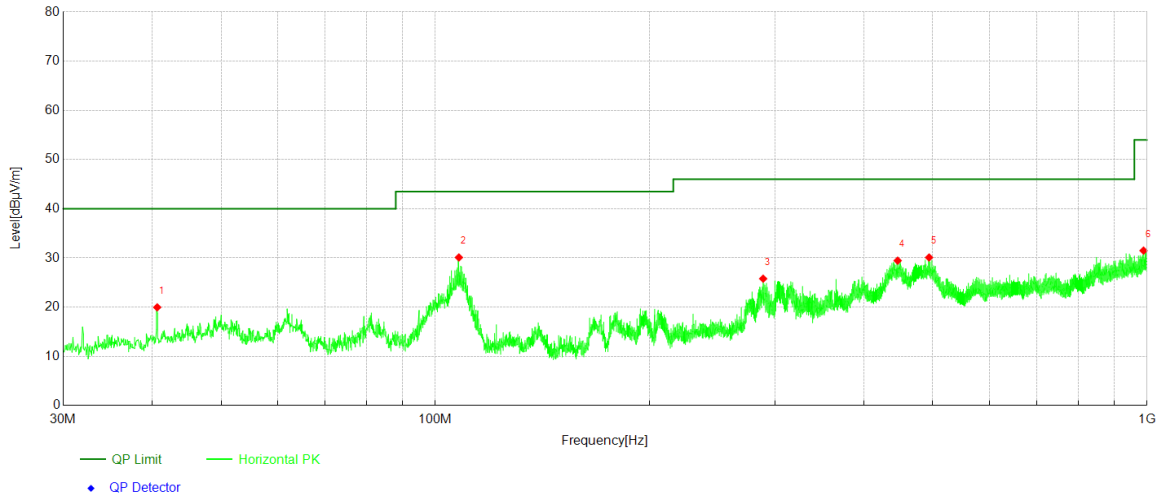
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type F		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	40.67	43.64	-23.68	19.96	40.00	20.04	Horizontal	PASS
2	107.94	52.88	-22.78	30.10	43.50	13.40	Horizontal	PASS
3	288.84	45.36	-19.58	25.78	46.00	20.22	Horizontal	PASS
4	446.32	38.22	-8.77	29.45	46.00	16.55	Horizontal	PASS
5	494.05	38.29	-8.20	30.09	46.00	15.91	Horizontal	PASS
6	988.85	37.61	-6.12	31.49	54.00	22.51	Horizontal	PASS

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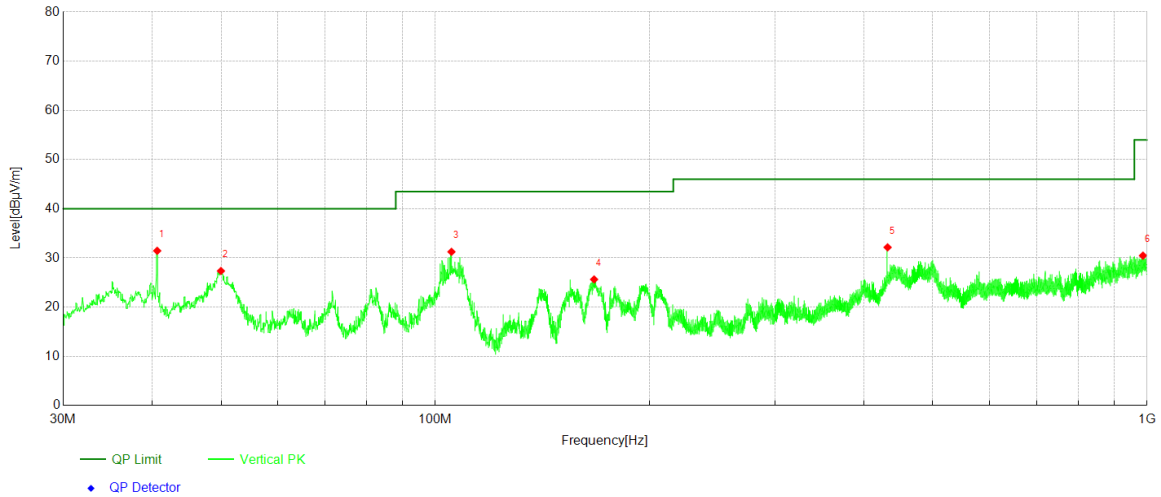
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type F		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Verdict
1	40.67	54.73	-23.28	31.45	40.00	8.55	Vertical	PASS
2	49.98	49.26	-21.91	27.35	40.00	12.65	Vertical	PASS
3	105.37	54.57	-23.32	31.25	43.50	12.25	Vertical	PASS
4	167.16	50.74	-25.11	25.63	43.50	17.87	Vertical	PASS
5	432.02	42.81	-10.66	32.15	46.00	13.85	Vertical	PASS
6	986.95	36.81	-6.35	30.46	54.00	23.54	Vertical	PASS

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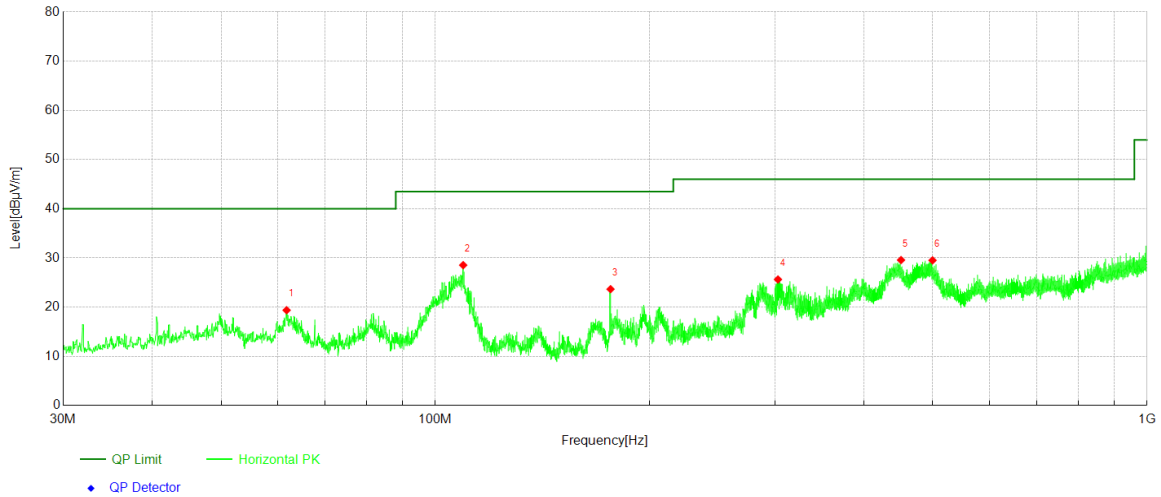
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type V		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	61.82	42.06	-22.69	19.37	40.00	20.63	Horizontal	PASS
2	109.44	50.91	-22.37	28.54	43.50	14.96	Horizontal	PASS
3	176.28	47.61	-23.96	23.65	43.50	19.85	Horizontal	PASS
4	303.01	44.87	-19.25	25.62	46.00	20.38	Horizontal	PASS
5	451.13	38.46	-8.89	29.57	46.00	16.43	Horizontal	PASS
6	499.63	38.02	-8.51	29.51	46.00	16.49	Horizontal	PASS

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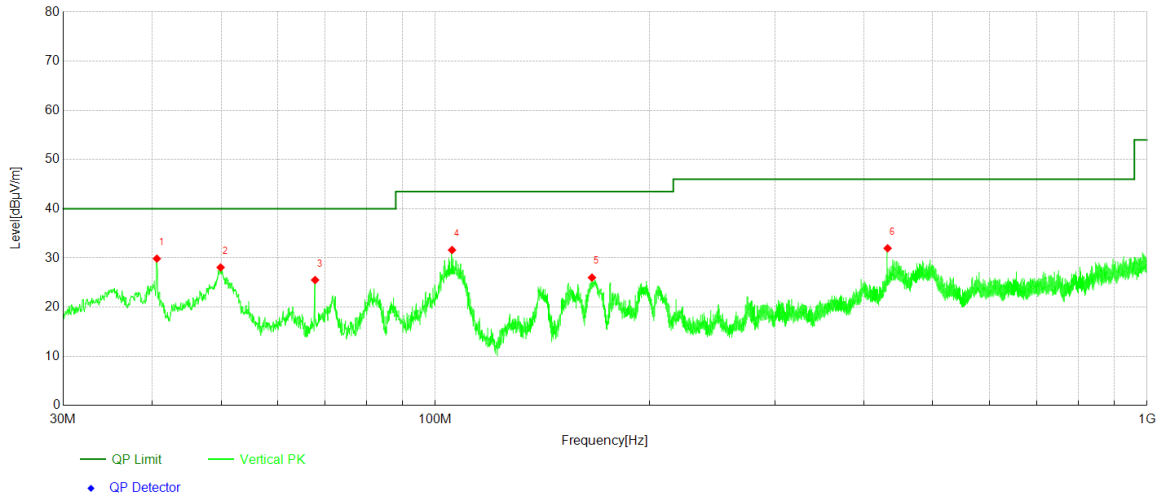
Project Information			
Mode:	NFC	Band:	-
Bandwidth	-	Channel	-
SN:	HQ64B100D8	Engineer:	Shen Zhuang
Remark:	X; Type V		

Test Graph



Data List

NO.	Freq. [MHz]	Reading [dBuV]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	40.62	53.15	-23.29	29.86	40.00	10.14	Vertical	PASS
2	49.93	50.07	-22.00	28.07	40.00	11.93	Vertical	PASS
3	67.78	50.51	-25.00	25.51	40.00	14.49	Vertical	PASS
4	105.56	54.90	-23.29	31.61	43.50	11.89	Vertical	PASS
5	165.99	51.14	-25.13	26.01	43.50	17.49	Vertical	PASS
6	432.02	42.62	-10.66	31.96	46.00	14.04	Vertical	PASS

~The End~

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