



FCC RADIO TEST REPORT

FCC ID : 2AEIM-17355113
Equipment : Mobile Connector Gen 3
Brand Name : Tesla
Model Name : 1937825-XX-Y
Applicant : Tesla, Inc.
3500 DEER CREEK ROAD PALO ALTO, CA 94304
Manufacturer : Tesla, Inc.
3500 DEER CREEK ROAD PALO ALTO, CA 94304
Standard : FCC Part 15 Subpart C §15.231

The product was received on Dec. 11, 2024, and testing was performed from Feb. 13, 2025 to Feb. 25, 2025. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Approved by: Neil Kao

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035



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History of this test report

Report No.	Version	Description	Issue Date
FR241204001B	01	Initial issue of report	Mar. 18, 2025

Summary of The Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.207	AC Power Line Conducted Emissions	Not Required	See Note
3.1	15.231(a)	Types of Momentary Signals	PASS	-
3.2	15.231(c)	20dB and 99% Occupied Bandwidth	PASS	-
3.3	15.231(b) 15.231(e)	Field Strength of Fundamental and Spurious Emissions	PASS	-

Note: The EUT is powered by DC power source, it does not operate from the AC power lines or contain provisions for operation while connected to the AC power lines, according to 47 CFR § 15.207(c), the conducted emission limits are not applicable to the device hence the test is not performed.

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1. General Information

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Connector Gen 3
Brand Name	Tesla
Model Name	1937825-XX-Y
FCC ID	2AEIM-17355113
EUT supports Radios application	Bluetooth – LE UHF 315 MHz

Remark: The above EUT's information was declared by manufacturer.

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency Range	315 MHz
Antenna Type	PCB Antenna
Type of Modulation	OOK

Remark: The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	Sporton Site No. 03CH02-CA

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: US1250

1.5 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.231
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

Remark: All the test items were validated and recorded in accordance with the standards without any modification during the testing.



2. Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Investigation has been done on all the possible configurations for searching the worst cases.

The following table is a list of the test modes shown in this test report.

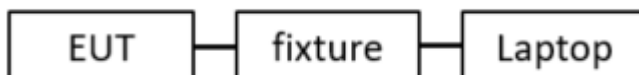
The measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.

Test Items	
Transmission time	
20dB and 99% occupied bandwidth	
Field Strength of Fundamental and Spurious Emissions	

Test Configuration – Radiated measurement	
Mode	Frequency
1	315MHz

2.2 Connection Diagram of Test System

Radiated measurement:



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Acer	N18Q13	PD9AX201NG	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Fixture board	Texas Instruments	CC1352R1	N/A	Unshielded, 1.0 m	N/A

2.4 EUT Operation Test Setup

Connect EUT to Laptop via fixture board. Use the software “SmartRF Studio” to set EUT in continuous transmission mode.

3. Test Results

3.1 Types of Momentarily Operated Devices

3.1.1 Limit

☒	§15.231 (a)(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
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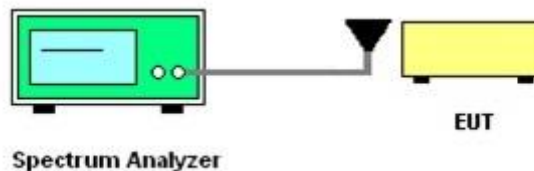
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The antenna is placed 3 meter away from EUT and connected to spectrum analyzer.
2. RBW is set to be greater than EUT bandwidth. $VBW \geq RBW$.
3. Set the spectrum to clear-write and zero span.
4. Measured the transmission time of EUT under specified condition.

3.1.4 Test Setup



3.1.5 Test Result of transmission time

☒

§15.231 (a)(1)

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

KEYSIGHT Spectrum Analyzer 1 Swept SA

Input: RF Coupling: DC Align: Off

Input Z: 50 Ω Corr: CCorr Freq Ref: Int (S)

Atten: 10 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off

Avg Type: Log-Power Trig: Free Run

1 2 3 4 5 6

W W W W W W

P N N N N N

Marker

Select Marker

Marker 2

Marker Time

2.58000 s

Marker Mode

☒ Normal

☐ Delta (Δ)

☐ Fixed

☐ Off

Delta Marker (Reset Delta)

Marker Table

☒ On

☐ Off

Marker Settings Diagram

All Markers Off

Couple Markers

☐ On

☒ Off

1 Spectrum

Scale/Div 10 dB Ref Level 0.00 dBm

Log

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

-90.0

1

2

3

Center 315.000000 MHz #Video BW 1.0 MHz Span 0 Hz

Res BW 1.0 MHz Sweep 10.0 s (1001 pts)

5 Marker Table

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	t	0.000 s	-46.85 dBm			
2	N	1	t	2.580 s	-65.25 dBm			
3	N	1	t	10.00 s	-69.06 dBm			
4								
5								
6								

Mar 04, 2025 2:34:09 PM

Transmission is activated at the same time as marker 1.

The transmission stopped at the same time as marker 2.

Transmission time: 2.58 sec.

3.2 20dB and 99% Occupied Bandwidth Measurement

3.2.1 Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

The 99% bandwidth of momentarily operated devices shall be less or equal to 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz. For devices operating above 900 MHz, the 99% bandwidth shall be less or equal to 0.5% of the centre frequency.

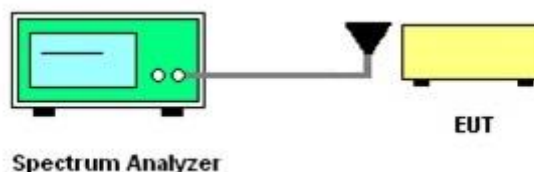
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

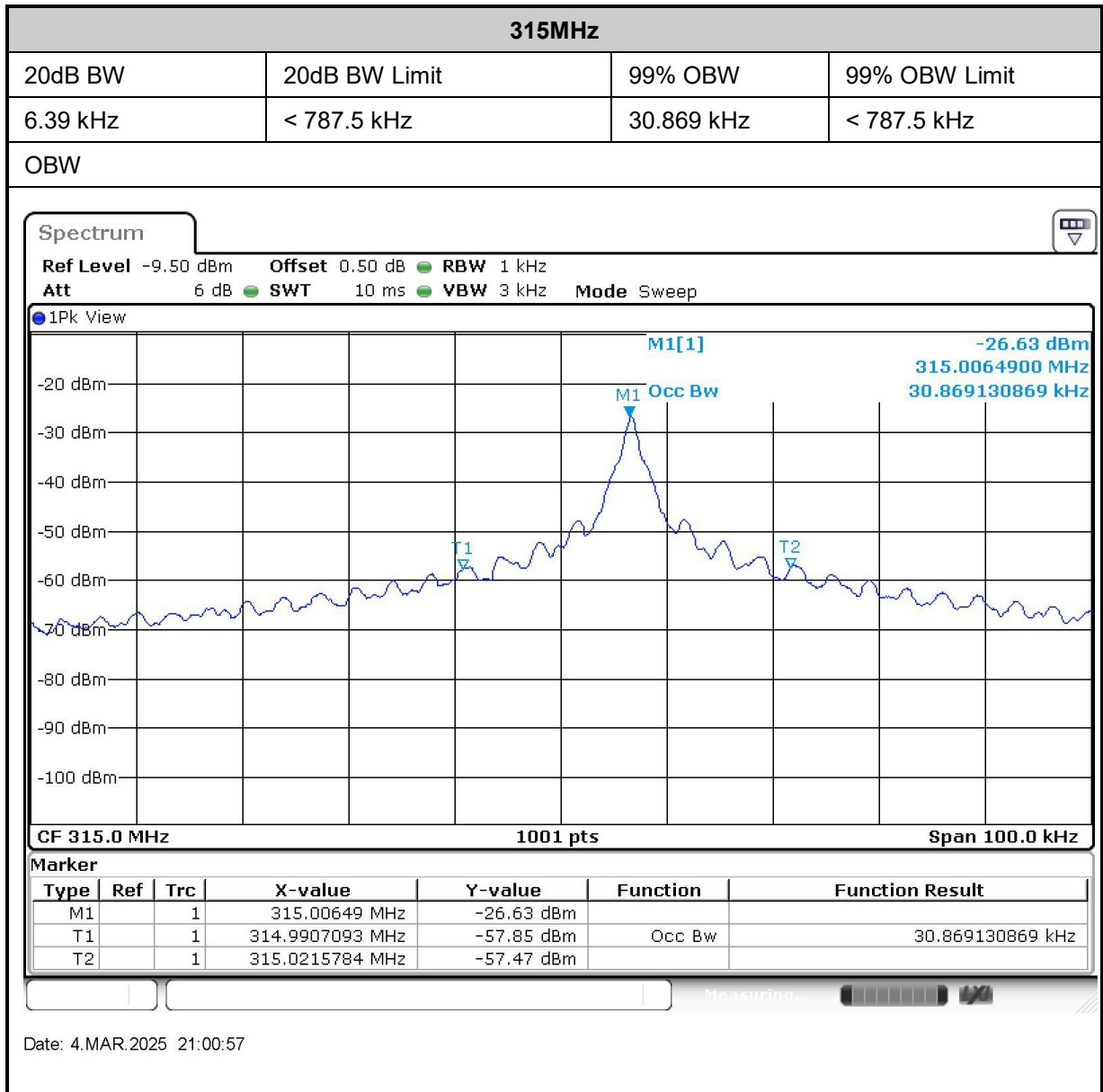
3.2.3 Test Procedures

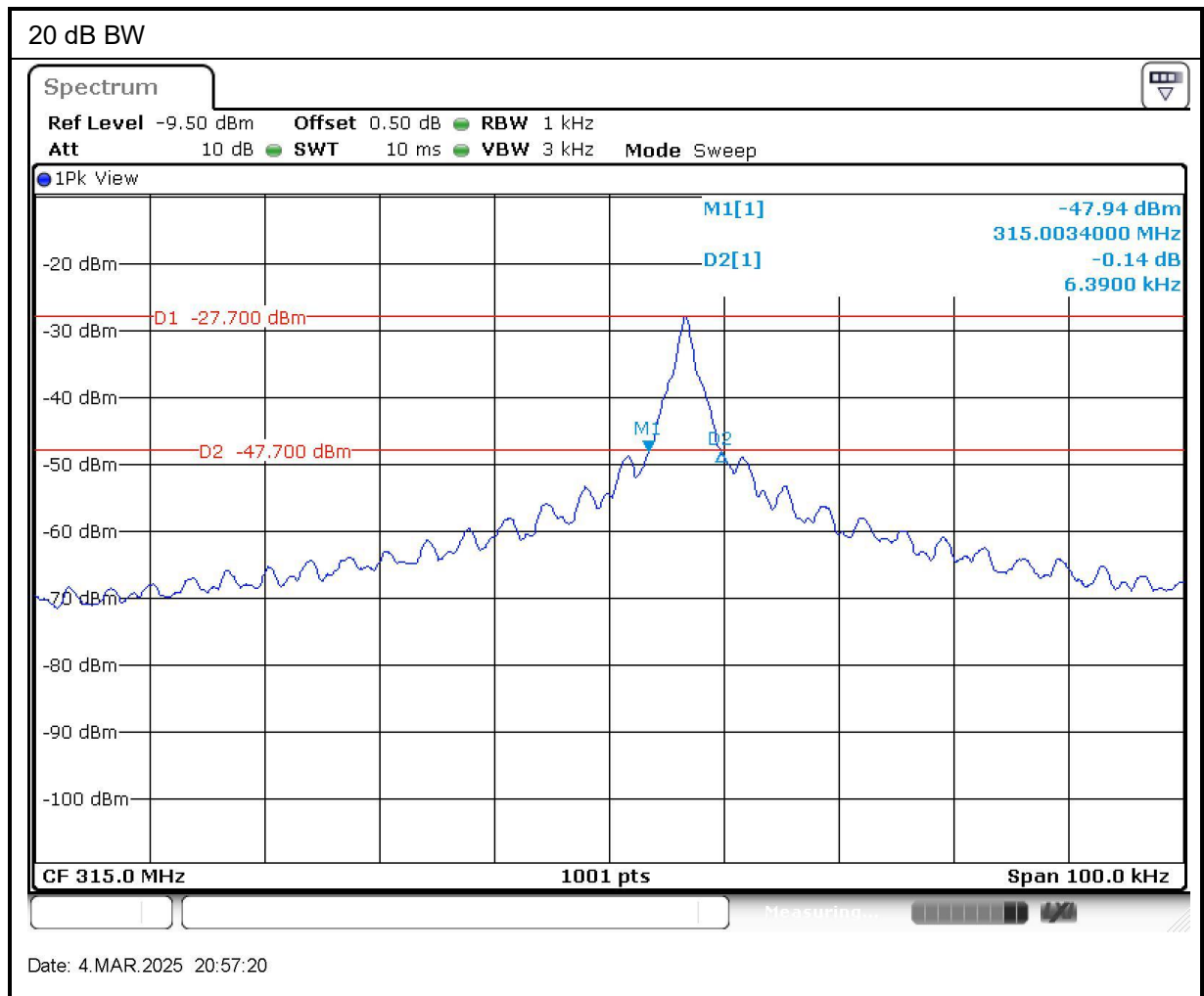
1. The EUT is connected to spectrum analyzer directly.
2. RBW is set to be greater than 1% of OBW but less than 5% of OBW.
3. VBW is set to be $\geq 3 * RBW$
4. Set the spectrum to peak detector and max hold.
5. Measured the 20dB bandwidth.
6. Measured the 99% OBW.

3.2.4 Test Setup



3.2.5 Test Result of 20dB BW and OBW





3.3 Field Strength of Fundamental and Spurious Emissions

3.3.1 Limit

☒

15.231(b)

In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following

From 15.231(b)(3), the limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

Rules and specifications	FCC CFR 47 Part 15 section 15.231	
Fundamental frequency (f) (MHz)	Field strength of fundamental (µV/m) at 3m	Field strength of spurious emissions (dBµV/m) at 3m
40.66 ≤ f ≤ 40.70	2250	225
70 < f ≤ 130	1250	125
130 < f ≤ 174	1250 to 3750*	125 to 375*
174 < f ≤ 260	3750	375
260 < f ≤ 470	3750 to 12500*	375 to 1250*
470 < f	12500	1250

* Linear interpolation with frequency, f, in MHz.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

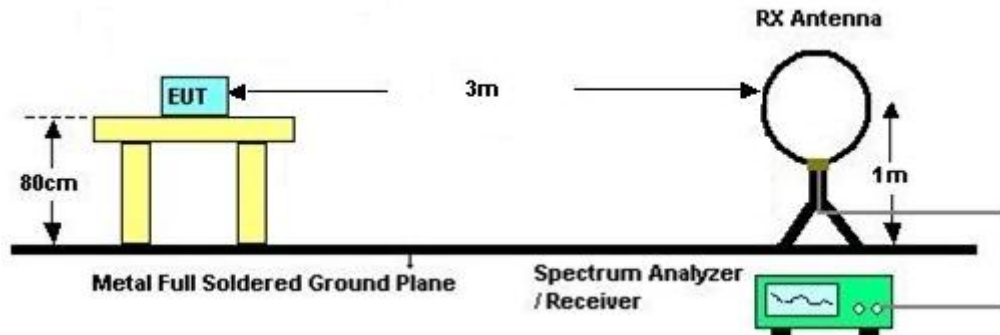
3.3.3 Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. For Fundamental emissions, use the receiver to measure Average reading.
5. For average measurement: use duty cycle correction factor method per 15.35(c).
Duty cycle = On time/one complete pulse train (total time)
$$\text{On time} = N1*L1+N2*L2+...+Nn-1*LNn-1+Nn*Ln$$

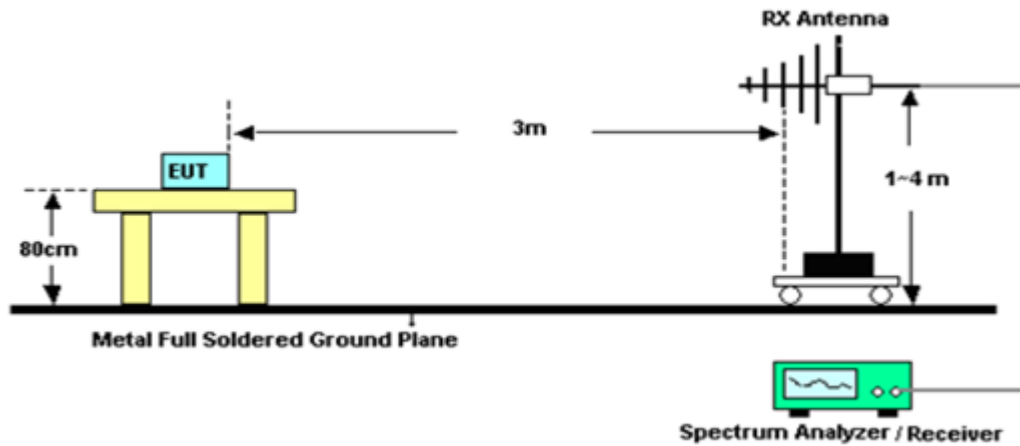
Where N1 is number of type 1 pulses, L1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + 20*log (Duty cycle)
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

3.3.4 Test Setup

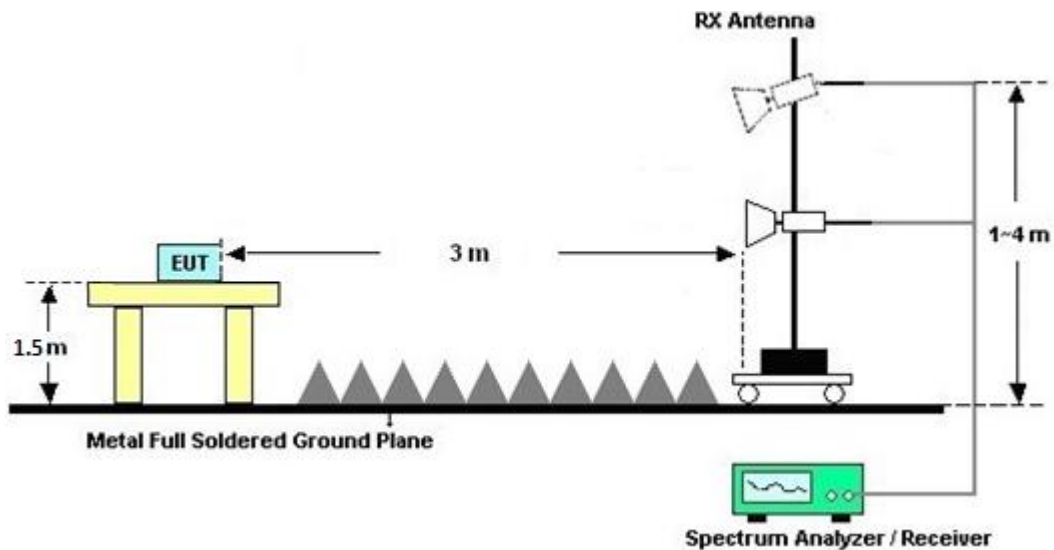
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



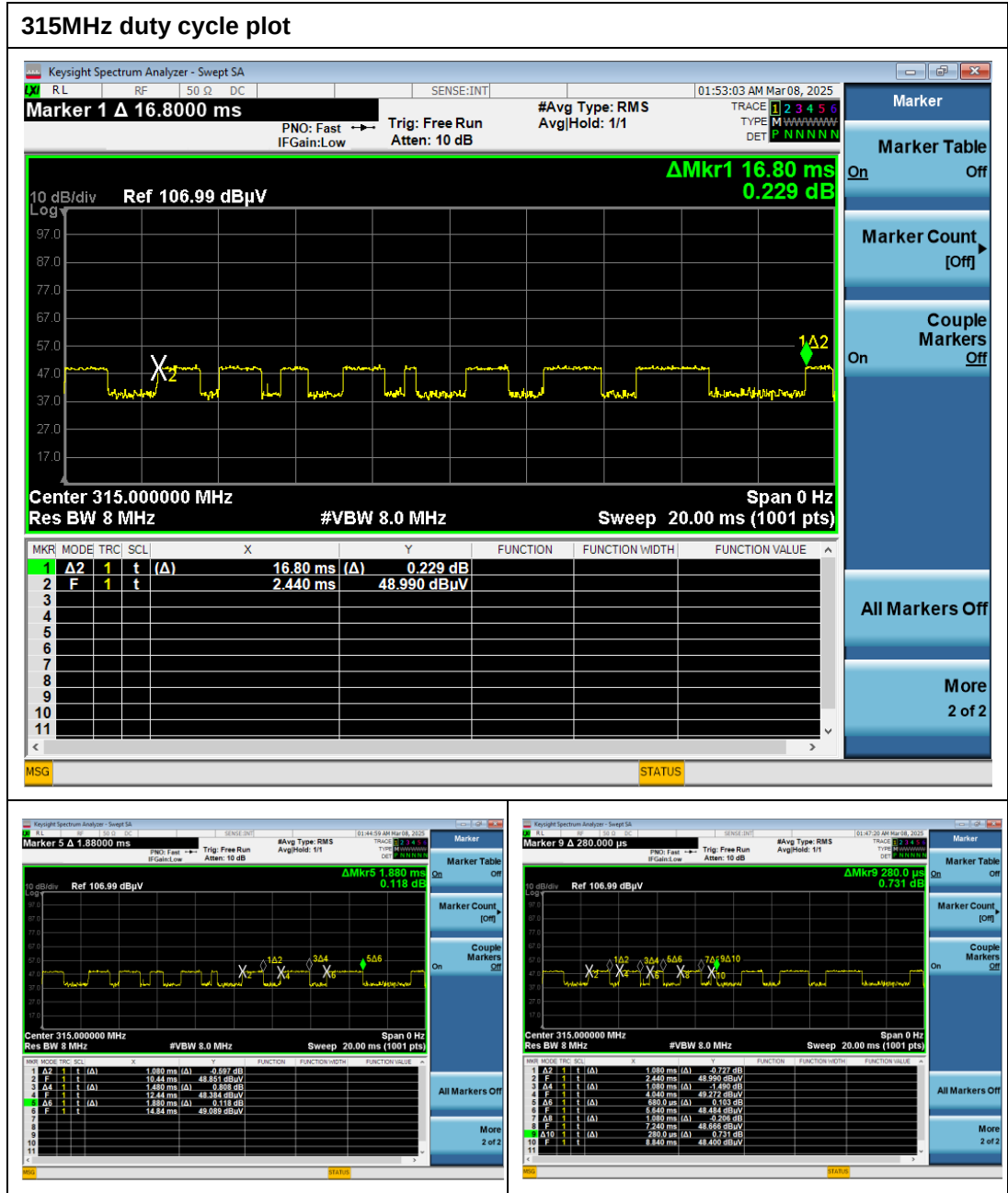


3.3.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

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

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result comes out very similar.

3.3.6 Duty Cycle



Note:

- Max Duty cycle = total on-time/total time = 51.46%
- Duty cycle correction factor = $20 \cdot \log(\text{Duty cycle}) = 5.77 \text{ dB}$

3.3.7 Test Result of Fundamental and Spurious Emissions

Please refer to Appendix A.



4. List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	Aug. 13, 2024	Feb. 13, 2025~ Feb. 25, 2025	Aug. 12, 2025	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	02140	1GHz~18GHz	Feb. 07, 2025	Feb. 13, 2025~ Feb. 25, 2025	Feb. 06, 2026	Radiation (03CH02-CA)
Amplifier	SONOMA	310N	372240	9kHz~1GHz	Apr. 24, 2024	Feb. 13, 2025~ Feb. 25, 2025	Apr. 23, 2025	Radiation (03CH02-CA)
Filter	Wainwright	WHKX12-1080 -1200-15000-6 0ST	SN7	1.2GHz High Pass Filter	Jun. 04, 2024	Feb. 13, 2025~ Feb. 25, 2025	Jun. 03, 2025	Radiation (03CH02-CA)
Filter	Wainwright	WLK7-1600-19 04-9000-40SS	SN1	1.6GHz Low Pass Filter	Jul. 18, 2024	Feb. 13, 2025~ Feb. 25, 2025	Jul. 17, 2025	Radiation (03CH02-CA)
Preamplifier	E-instrument	ERA-100M-18 G-56-01-A70	EC1900251	1GHz~18GHz	Apr. 24, 2024	Feb. 13, 2025~ Feb. 25, 2025	Apr. 23, 2025	Radiation (03CH02-CA)
RF Cable	HUBER+SUHNER	SUCOFLEX 102	804209/2, 802406/2, 802875/2, 802952/2	N/A	Oct. 10, 2024	Feb. 13, 2025~ Feb. 25, 2025	Oct. 09, 2025	Radiation (03CH02-CA)
Hygrometer	TESEO	608-H1	45142602	N/A	Aug. 14, 2024	Feb. 13, 2025~ Feb. 25, 2025	Aug. 13, 2025	Radiation (03CH02-CA)
Controller	Chaintek	EM-1000	060876	Control Turn Table & Antenna Mast	N/A	Feb. 13, 2025~ Feb. 25, 2025	N/A	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Feb. 13, 2025~ Feb. 25, 2025	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Feb. 13, 2025~ Feb. 25, 2025	N/A	Radiation (03CH02-CA)
Test Software	Audix E3	E3	N/A	N/A	N/A	Feb. 13, 2025~ Feb. 25, 2025	N/A	Radiation (03CH02-CA)

5. Measurement Uncertainty

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

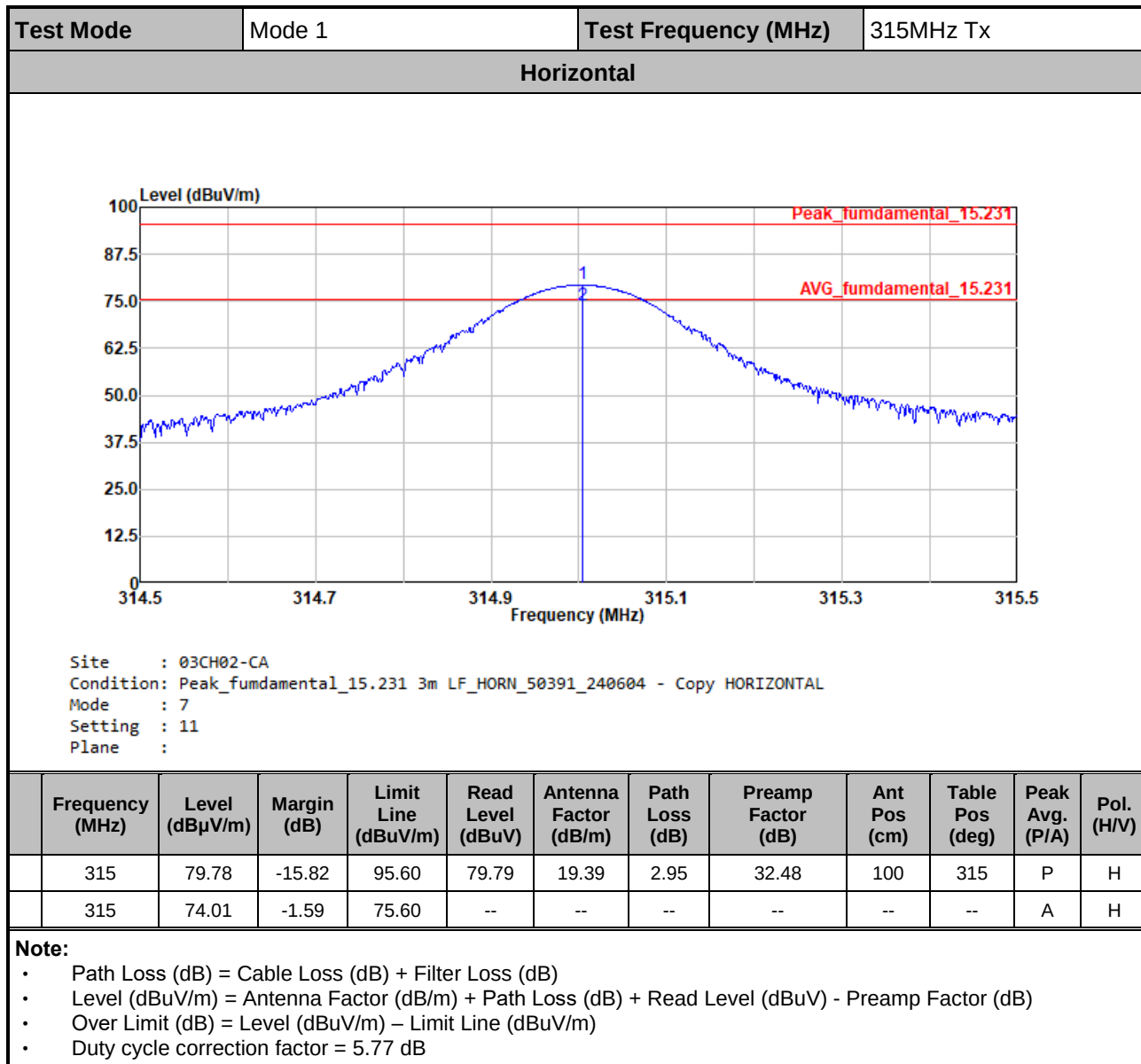
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.0 dB
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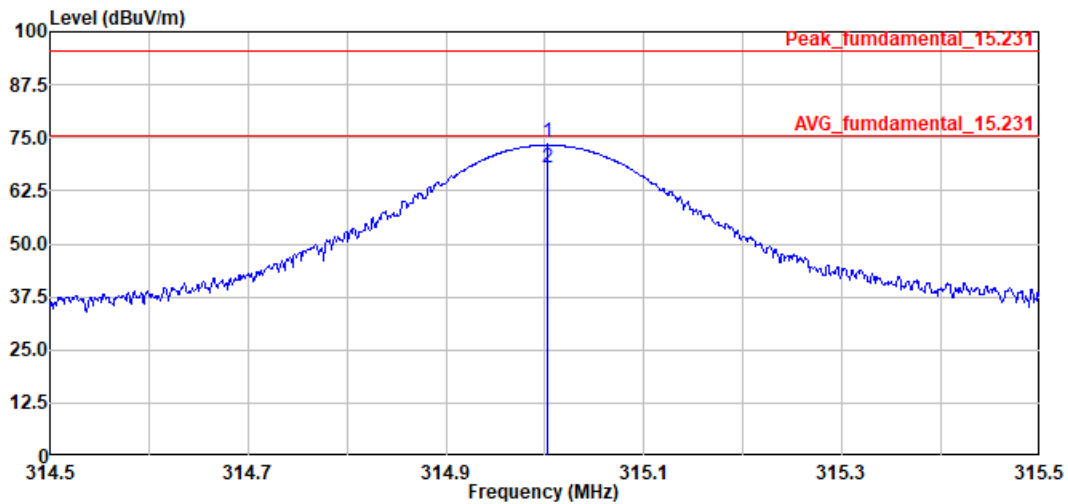
Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.4 dB
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Appendix A. Test Results of Radiated Test Items

A1. Test Result of Field Strength of Fundamental Emissions



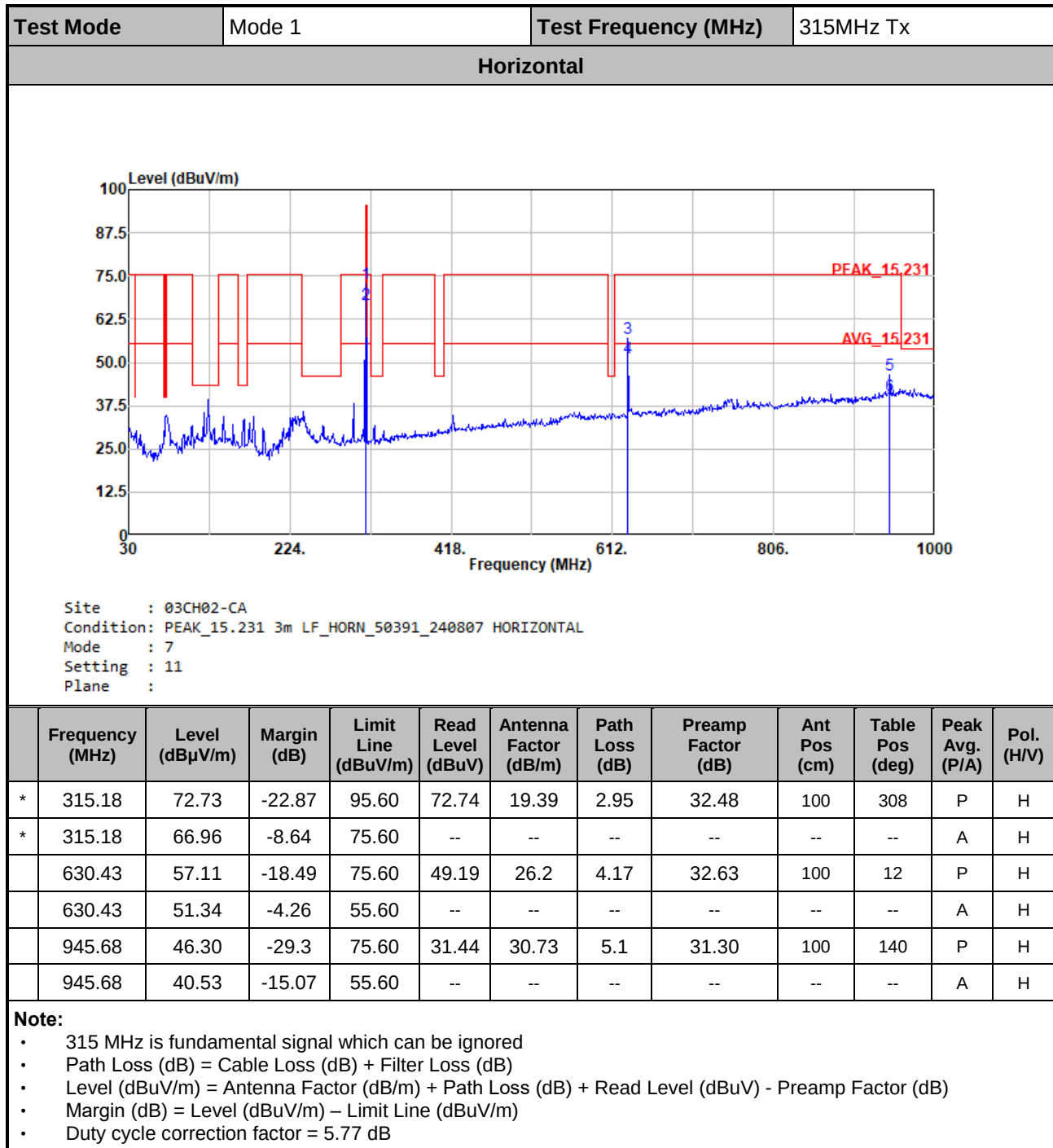
Vertical


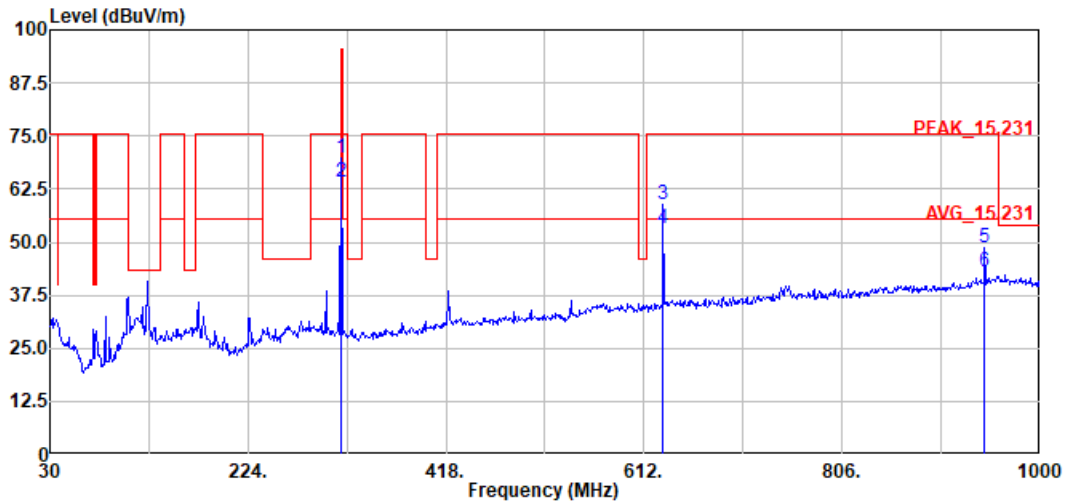
Site : 03CH02-CA
 Condition: Peak_fundamental_15.231 3m LF_HORN_50391_240604 - Copy VERTICAL
 Mode : 7
 Setting : 11
 Plane :

Frequency (MHz)	Level (dBuV/m)	Margin (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
315	73.78	-21.82	95.60	73.79	19.39	2.95	32.48	100	68	P	H
315	68.01	-7.59	75.60	--	--	--	--	--	--	A	H

Note:

- Path Loss (dB) = Cable Loss (dB) + Filter Loss (dB)
- Level (dBuV/m) = Antenna Factor (dB/m) + Path Loss (dB) + Read Level (dBuV) - Preamp Factor (dB)
- Over Limit (dB) = Level (dBuV/m) – Limit Line (dBuV/m)
- Duty cycle correction factor = 5.77 dB

A2. Test Result of Radiated Spurious Emissions (30MHz~1GHz)


Vertical


Site : 03CH02-CA
 Condition: PEAK_15.231 3m LF_HORN_50391_240807 VERTICAL
 Mode : 7
 Setting : 11
 Plane :

	Frequency (MHz)	Level (dBuV/m)	Margin (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
*	315.18	69.80	-25.80	95.60	69.81	19.39	2.95	32.48	100	70	P	V
*	315.18	64.03	-11.57	75.60	--	--	--	--	--	--	A	V
	630.43	58.86	-16.74	75.60	50.94	26.2	4.17	32.63	121	100	P	V
	630.43	53.09	-2.51	55.60	--	--	--	--	--	--	A	V
	945.68	48.73	-26.87	75.60	33.87	30.73	5.10	31.30	150	300	P	V
	945.68	42.96	-12.64	55.60	--	--	--	--	--	--	A	V

Note:

- 315MHz is fundamental signal which can be ignored.
- Path Loss (dB) = Cable Loss (dB) + Filter Loss (dB)
- Level (dBuV/m) = Antenna Factor (dB/m) + Path Loss (dB) + Read Level (dBuV) - Preamplifier Factor (dB)
- Margin (dB) = Level (dBuV/m) - Limit Line (dBuV/m)
- Duty cycle correction factor = 5.77 dB

A3. Test Result of Field Radiated Spurious Emissions (1GHz~5GHz)
