

FCC Test Report

Product Name	ENY Button
Model No.	ENY-T3U01W
FCC ID	2AM4X-ENY-T3U01W

Applicant	Panasonic Corporation
Address	1006 Kadoma, Kadoma City, Osaka 571-8506, Japan

Date of Receipt	Nov. 05, 2019
Issued Date	Nov. 14, 2019
Report No.	19B0068R-RFUSP66V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Test Report

Issued Date: Nov. 14, 2019

Report No.: 19B0068R-RFUSP66V00



Product Name	ENY Button
Applicant	Panasonic Corporation
Address	1006 Kadoma, Kadoma City, Osaka 571-8506, Japan
Manufacturer	Panasonic Corporation
Model No.	ENY-T3U01W
EUT Rated Voltage	DC 3.6V (Power by Supply)
EUT Test Voltage	DC 3.6V (Power by Supply)
Trade Name	Panasonic
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :

Joanne Lin

(Senior Adm. Specialist / Joanne Lin)

Tested By :

Leo Chen

(Assistant Engineer / Leo Chen)

Approved By :

Vincent Lin

(Director / Vincent Lin)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	4
1.1. EUT Description.....	4
1.2. Operational Description	5
1.3. Tested System Details.....	6
1.4. Configuration of Test System	6
1.5. EUT Exercise Software	6
1.6. Test Facility	7
1.7. List of Test Equipment	8
1.8. Uncertainty	9
2. Conducted Emission.....	10
2.1. Test Setup	10
2.2. Limits	10
2.3. Test Procedure	11
2.4. Uncertainty	11
2.5. Test Result of Conducted Emission.....	12
3. Radiated Emission	13
3.1. Test Setup	13
3.2. Limits	14
3.3. Test Procedure	15
3.4. Uncertainty	15
3.5. Test Result of Radiated Emission.....	16
4. Band Edge	26
4.1. Test Setup	26
4.2. Limits	26
4.3. Test Procedure	27
4.4. Uncertainty	27
4.5. Test Result of Band Edge	28
5. EMI Reduction Method During Compliance Testing	30

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ENY Button
Trade Name	Panasonic
Model No.	ENY-T3U01W
FCC ID	2AM4X-ENY-T3U01W
Frequency Range	925MHz
Channel Number	1
Type of Modulation	GFSK
Channel Control	Auto
Antenna Type	Monopole Antenna
Antenna Gain	Refer to the table “Antenna List”
ENY receiver	Trade Name: Panasonic , M/N: ENY-R3U01W

Center Frequency of Each Channel

Channel Frequency

Channel 01: 925 MHz

Note:

1. The EUT is an ENY Button with a built-in Sub-GHz transceiver.
2. Pressing the “ENY button” generates electricity .During the active time the button can transmit RF signal. The operation is done in Sub-GHz (925MHz) and the protocol is “ENY” original “ENY button” does not need the power supply.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
4. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.

Test Mode	Mode 1: Transmit
-----------	------------------

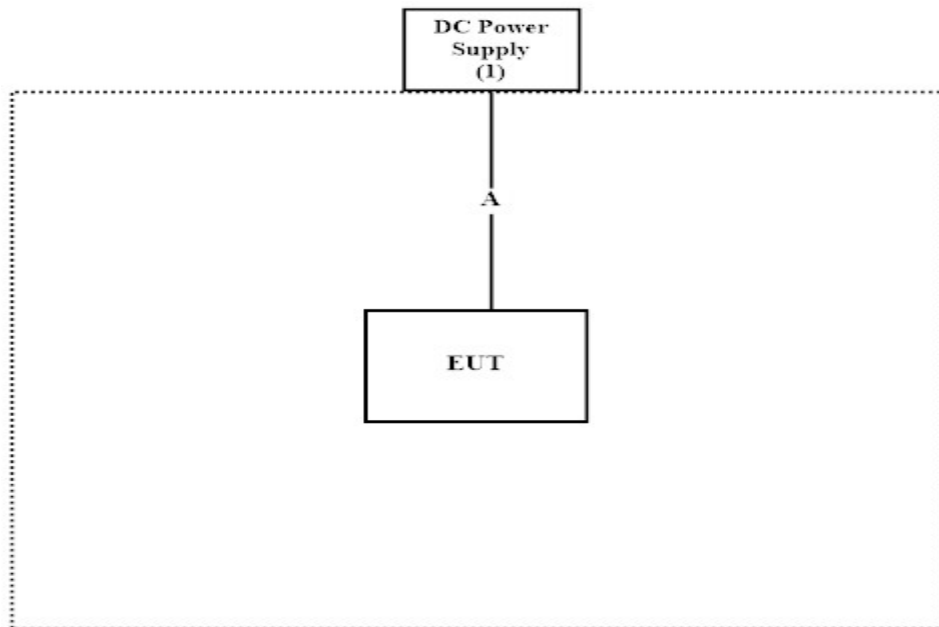
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 DC POWER SUPPLY	GWInstek	SPD-3606	GEQ820915	N/A

Signal Cable Type	Signal cable Description
A Power Cable	Non-shielded, 1.8m

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Turn on the power
- (3) Start the continuous Transmit.
- (4) Verify that the EUT works properly.

1.6. Test Facility

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	10~40 °C	23°C
	Humidity (%RH)	10~90 %	52%

USA : FCC Registration Number: TW0023

Canada : IC Registration Number: 4075A

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist.,
New Taipei City 24457, Taiwan, R.O.C.

Phone number : 886-2-2602-7968

Fax number : 866-2-2602-3286

Email address : info.tw@dekra.com

Website : <http://www.dekra.com.tw>

1.7. List of Test Equipment

For Radiated measurements /ACB1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	AMETEK	HLA6121	49611	2019.02.22	2020.02.21
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-953	2019.01.04	2020.01.03
X	Horn Antenna	ETS-Lindgren	3117	00203800	2018.12.11	2019.12.10
	Horn Antenna	Com-Power	AH-840	101087	2019.05.30	2020.05.29
X	Pre-Amplifier	EMCI	EMC001330	980316	2019.06.14	2020.06.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2019.06.13	2020.06.12
	Pre-Amplifier	EMCI	EMC05820SE	980310	2019.06.24	2020.06.23
	Pre-Amplifier	EMCI	EMC184045SE	980314	2019.05.28	2020.05.27
	Filter	MICRO TRONICS	BRM50702	G251	2019.09.03	2020.09.02
	Filter	MICRO TRONICS	BRM50716	G188	2019.09.03	2020.09.02
X	EMI Test Receiver	R&S	ESR7	101602	2018.12.17	2019.12.16
X	Spectrum Analyzer	R&S	FSV40	101148	2019.02.20	2020.02.19
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2019.05.25	2020.05.24
	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2019.05.28	2020.05.27

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

1.8. Uncertainty

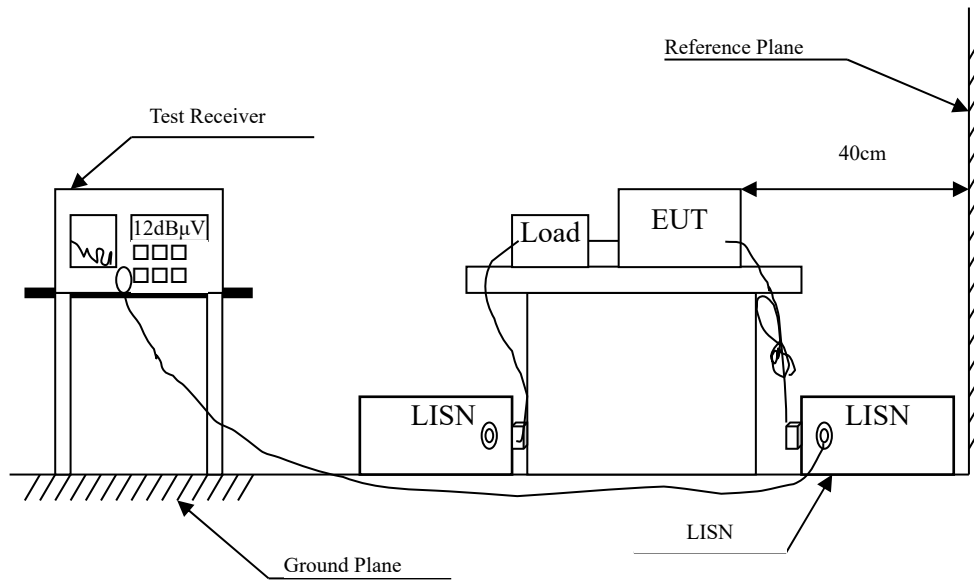
Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB μ V) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. 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 C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Uncertainty

± 2.35 dB

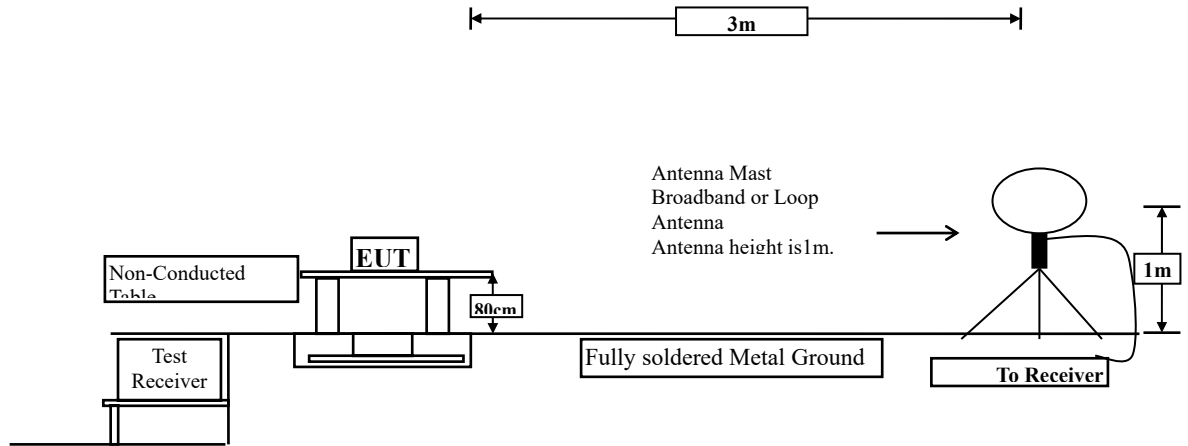
2.5. Test Result of Conducted Emission

This test item is not performed.

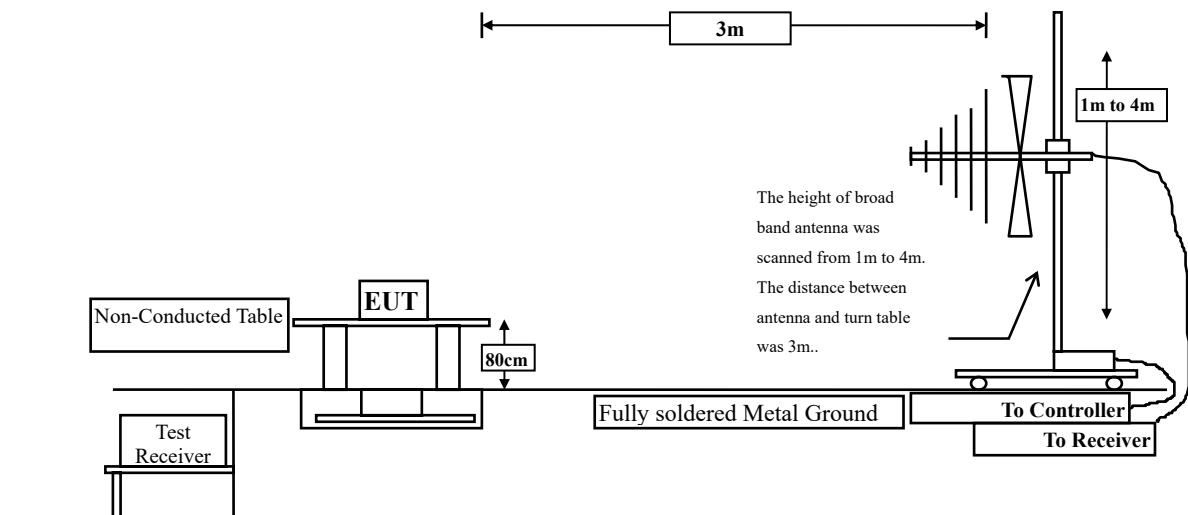
3. Radiated Emission

3.1. Test Setup

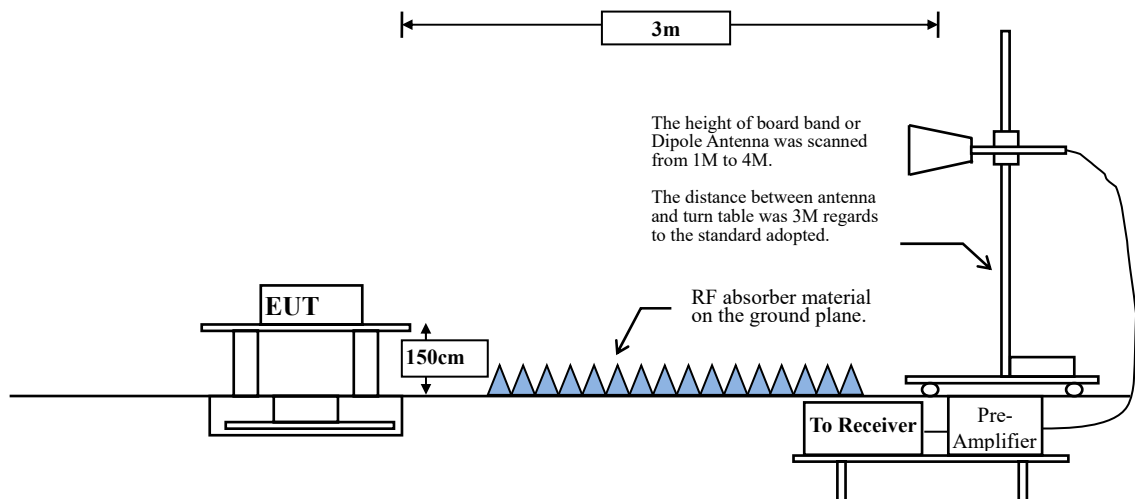
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.2. Limits

➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dB μ V /m @3m)	(uV/m @3m)	(dB μ V /m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

Remarks : 1. RF Voltage (dB μ V /m) = 20 log RF Voltage (uV/m)

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dB μ V /m) = 20 log E field strength (uV/m)

3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.249 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level.

This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

3.4. Uncertainty

Horizontal :

30-300MHz: ± 4.08 dB ; 300M-1GHz: ± 3.86 dB ; 1-18GHz: ± 3.77 dB ; 18-40GHz: ± 3.98 dB ◦

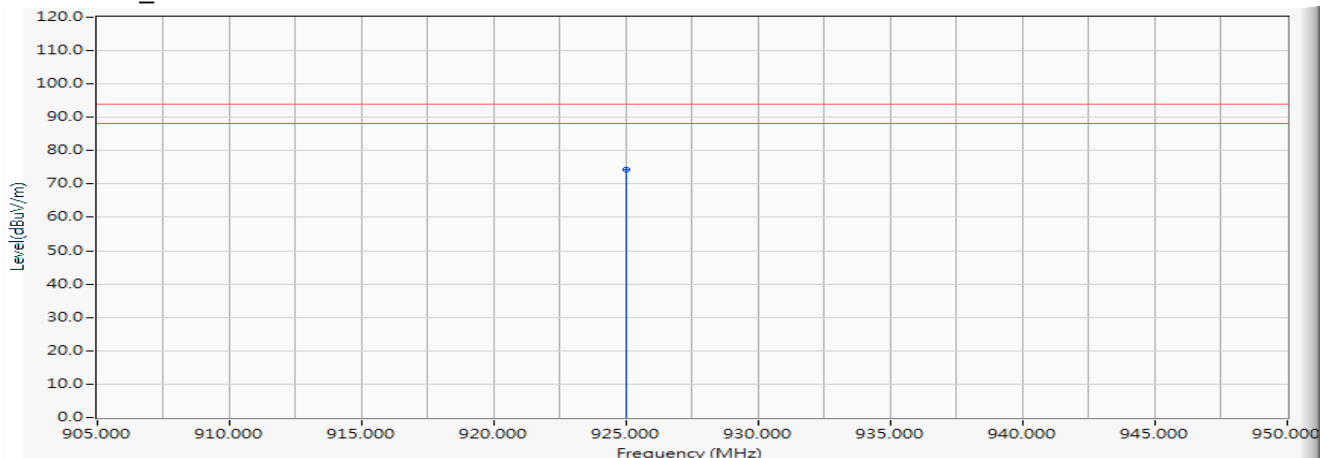
Vertical :

30-300MHz: ± 4.81 dB ; 300M-1GHz: ± 3.87 dB ; 1-18GHz: ± 3.83 dB ; 18-40GHz: ± 3.98 dB ◦

3.5. Test Result of Radiated Emission

Product : ENY Button
 Test Item : Fundamental Radiated Emission
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Horizontal_X-Axis



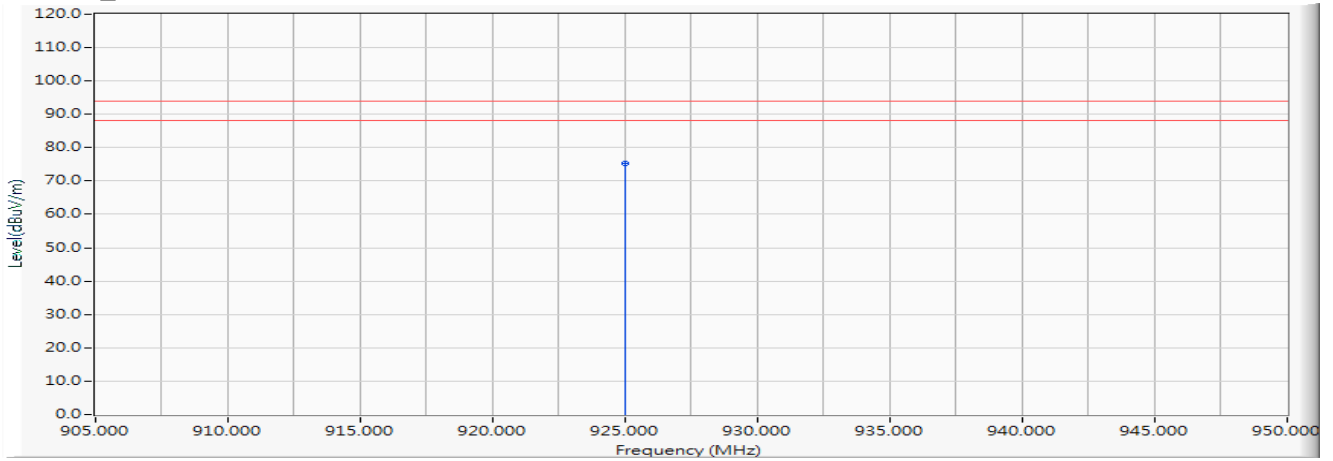
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	925.000	0.983	73.400	74.383	-19.617	94.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Fundamental Radiated Emission
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Vertical_X-Axis



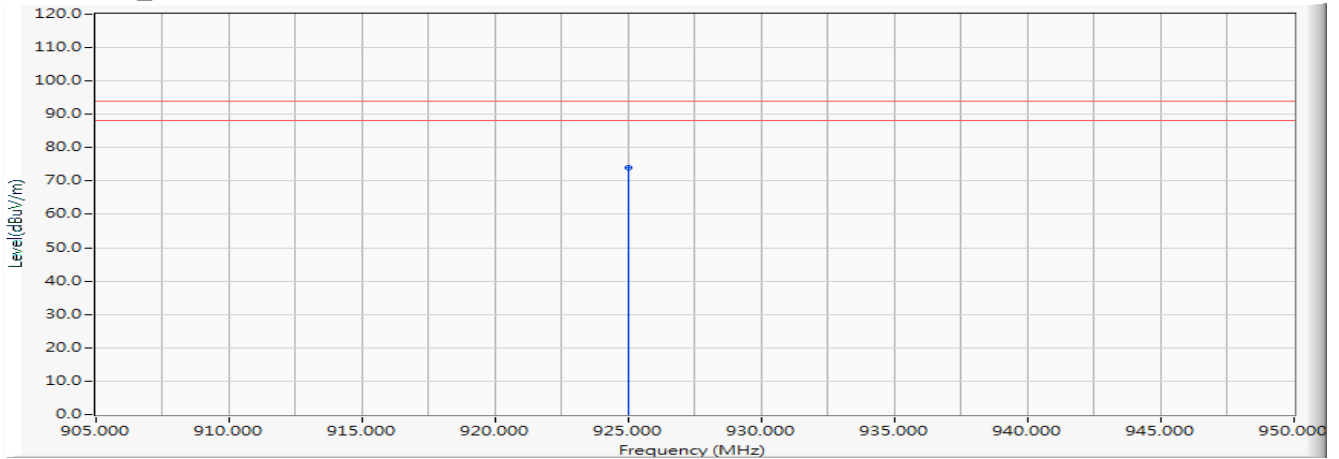
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	925.000	0.983	74.240	75.223	-18.777	94.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Fundamental Radiated Emission
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Horizontal_Y-Axis



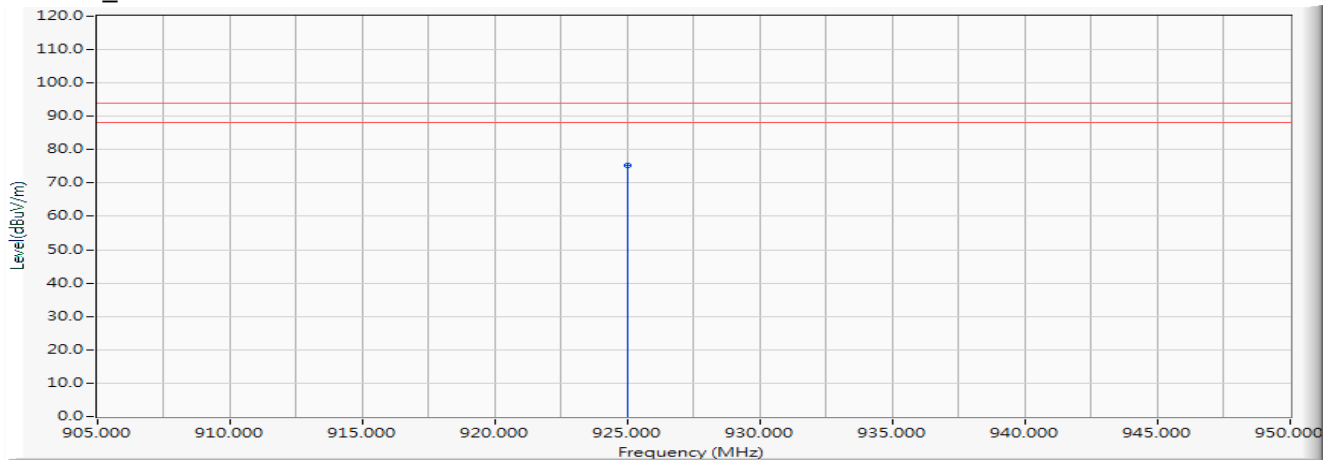
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	925.000	0.983	73.050	74.033	-19.967	94.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Fundamental Radiated Emission
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Vertical_Y-Axis



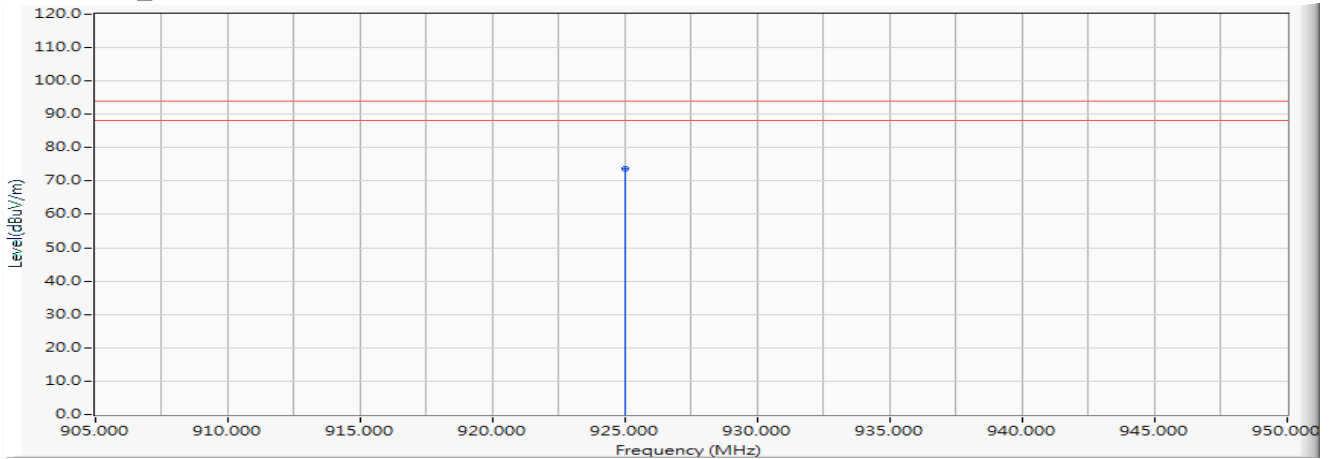
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	925.000	0.983	74.160	75.143	-18.857	94.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Fundamental Radiated Emission
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Horizontal_Z-Axis



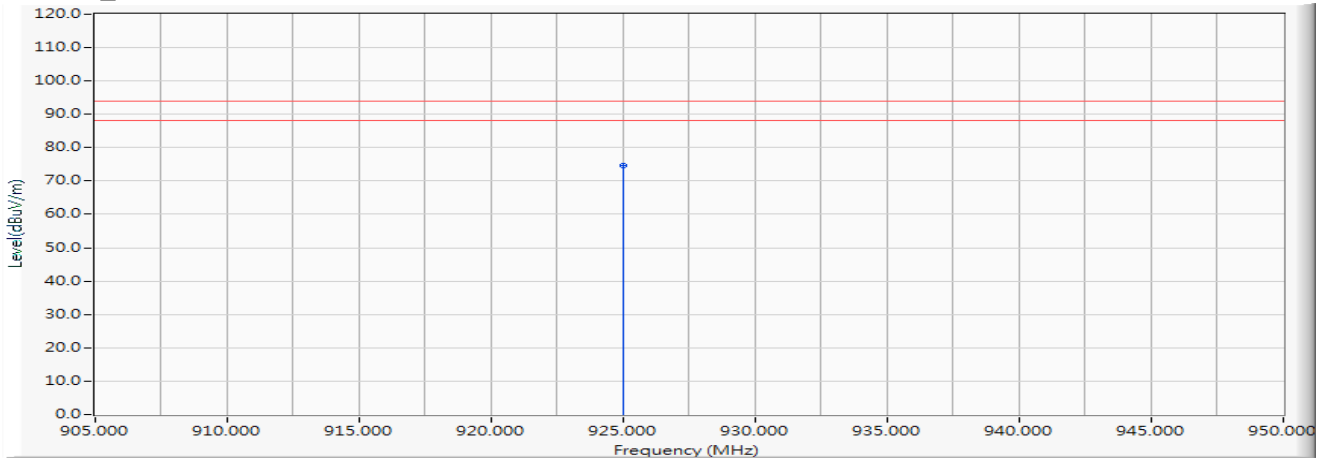
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	925.000	0.983	72.790	73.773	-20.227	94.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Fundamental Radiated Emission
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Vertical_Z-Axis



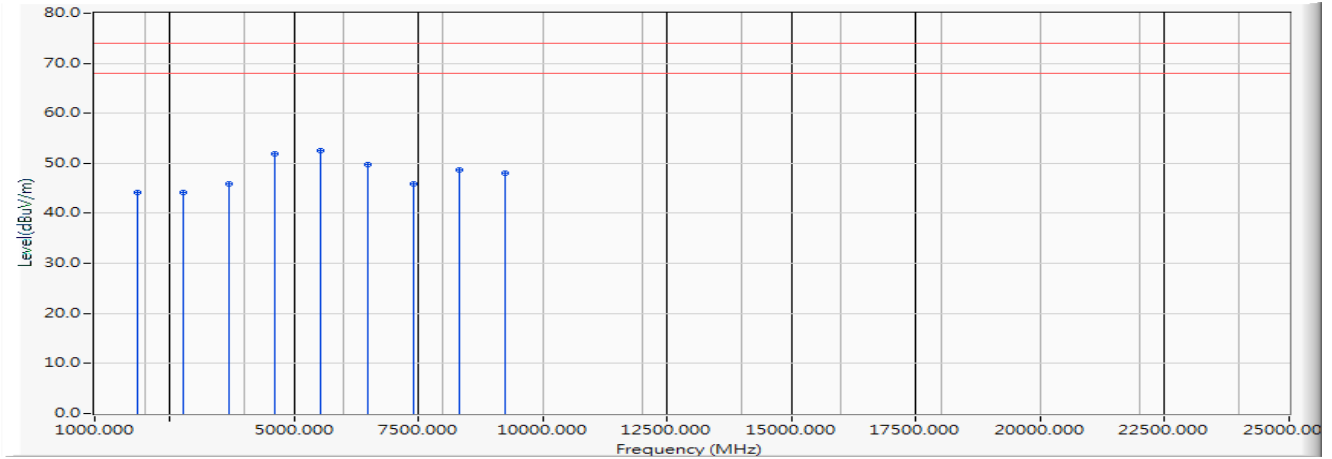
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	925.000	0.983	73.690	74.673	-19.327	94.000	QUASPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Harmonic Radiated Emission Data
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Horizontal



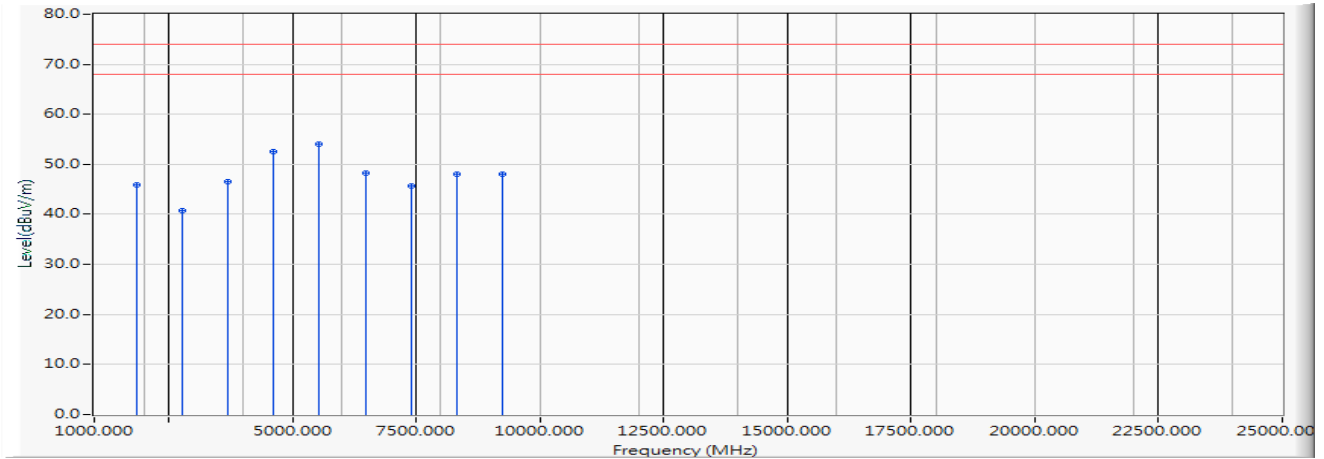
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1		1850.000	-9.190	53.430	44.240	-29.760	74.000	PEAK
2		2775.000	-6.290	50.480	44.190	-29.810	74.000	PEAK
3		3700.000	-5.423	51.290	45.867	-28.133	74.000	PEAK
4		4625.000	-3.703	55.610	51.907	-22.093	74.000	PEAK
5	*	5550.000	-2.610	55.100	52.490	-21.510	74.000	PEAK
6		6475.000	-0.818	50.600	49.782	-24.218	74.000	PEAK
7		7400.000	-0.171	46.040	45.869	-28.131	74.000	PEAK
8		8325.000	0.258	48.440	48.698	-25.302	74.000	PEAK
9		9250.000	1.178	46.940	48.118	-25.882	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : ENY Button
 Test Item : Harmonic Radiated Emission Data
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Vertical



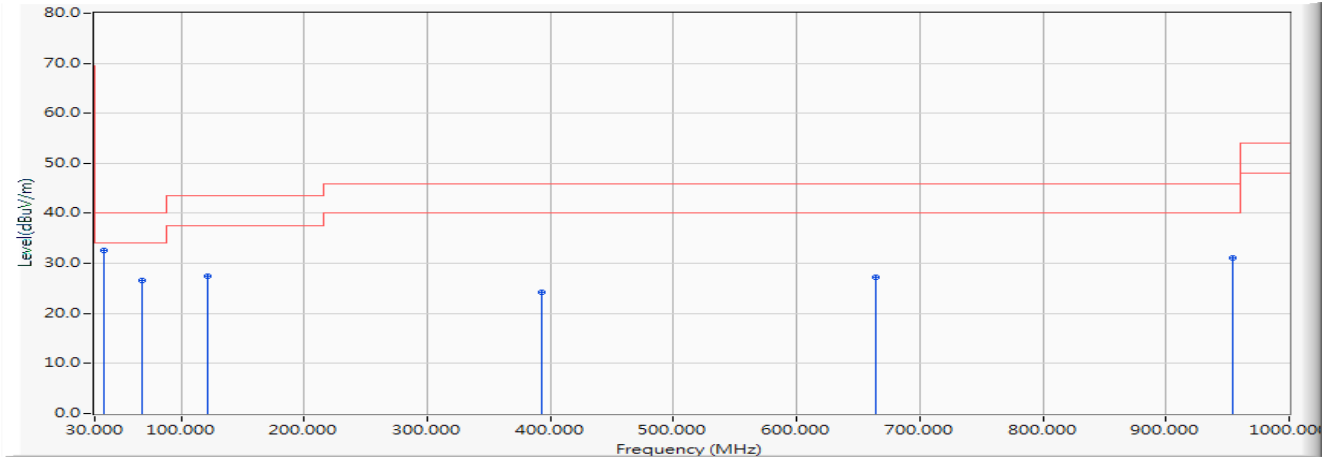
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1		1850.000	-9.190	54.990	45.800	-28.200	74.000	PEAK
2		2775.000	-6.290	46.970	40.680	-33.320	74.000	PEAK
3		3700.000	-5.423	52.030	46.607	-27.393	74.000	PEAK
4		4625.000	-3.703	56.310	52.607	-21.393	74.000	PEAK
5	*	5550.000	-2.610	56.580	53.970	-20.030	74.000	PEAK
6		6475.000	-0.818	49.170	48.352	-25.648	74.000	PEAK
7		7400.000	-0.171	45.780	45.609	-28.391	74.000	PEAK
8		8325.000	0.258	47.790	48.048	-25.952	74.000	PEAK
9		9250.000	1.178	46.800	47.978	-26.022	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : ENY Button
 Test Item : General Radiated Emission Data
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Horizontal



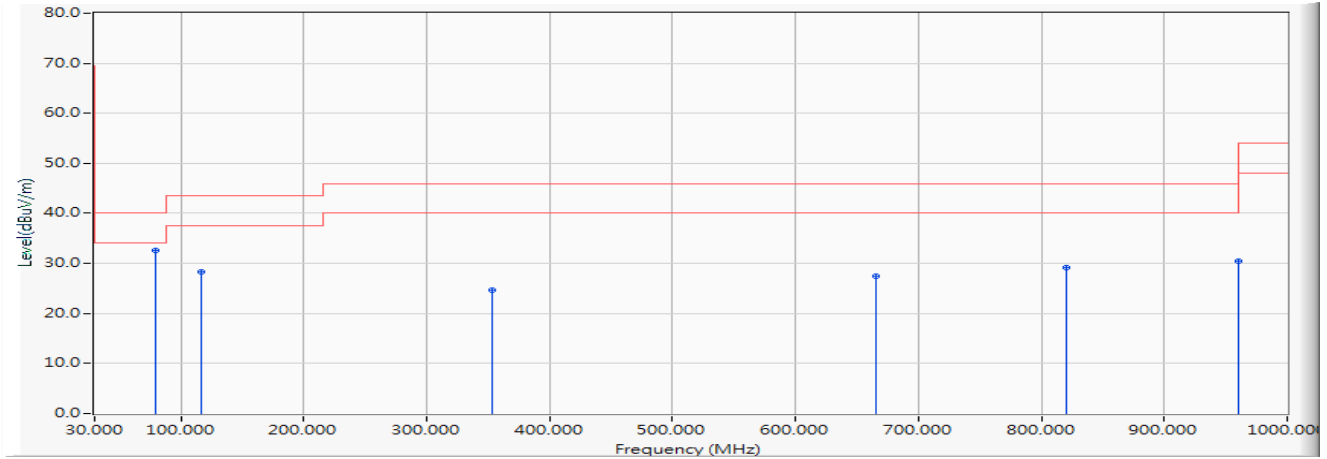
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	37.029	-11.226	43.895	32.669	-7.331	40.000	QUASIPEAK
2		67.957	-12.489	39.135	26.646	-13.354	40.000	QUASIPEAK
3		121.377	-12.940	40.456	27.516	-15.984	43.500	QUASIPEAK
4		392.696	-7.112	31.369	24.257	-21.743	46.000	QUASIPEAK
5		664.014	-2.244	29.514	27.270	-18.730	46.000	QUASIPEAK
6		953.609	1.257	29.917	31.174	-14.826	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : ENY Button
 Test Item : General Radiated Emission Data
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1	*	79.203	-14.551	47.182	32.632	-7.368	40.000	QUASIPEAK
2		117.159	-13.255	41.526	28.270	-15.230	43.500	QUASIPEAK
3		353.333	-8.370	32.931	24.561	-21.439	46.000	QUASIPEAK
4		665.420	-2.251	29.778	27.527	-18.473	46.000	QUASIPEAK
5		820.058	-0.420	29.509	29.089	-16.911	46.000	QUASIPEAK
6		960.638	1.447	28.982	30.429	-23.571	54.000	QUASIPEAK

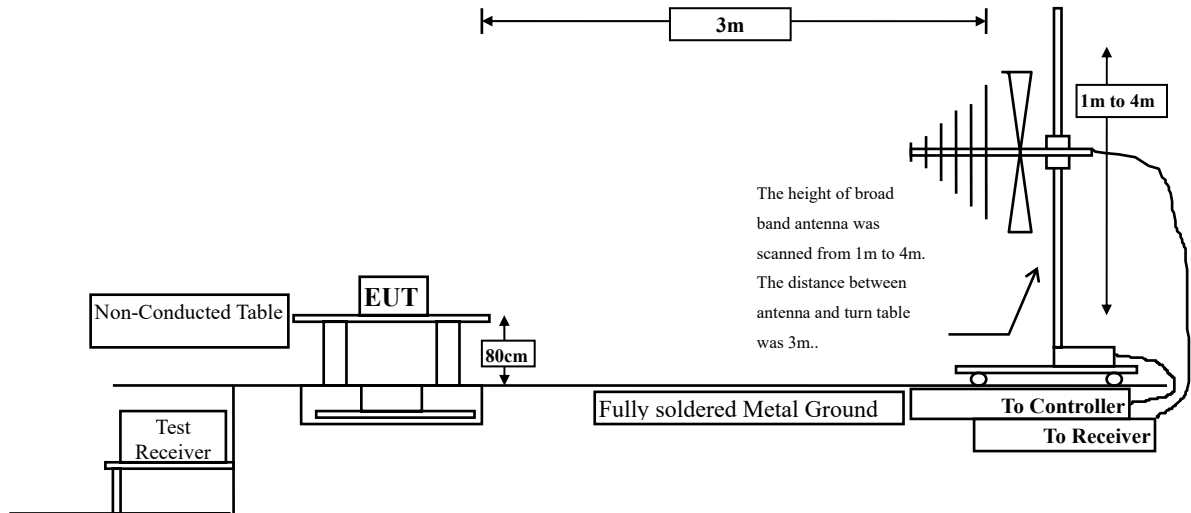
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

4. Band Edge

4.1. Test Setup

RF Radiated Measurement:



4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBμV /m) = 20 log E field strength (uV/m)

4.3. Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

4.4. Uncertainty

Horizontal :

30-300MHz: ± 4.08 dB ; 300M-1GHz: ± 3.86 dB ; 1-18GHz: ± 3.77 dB ; 18-40GHz: ± 3.98 dB ◦

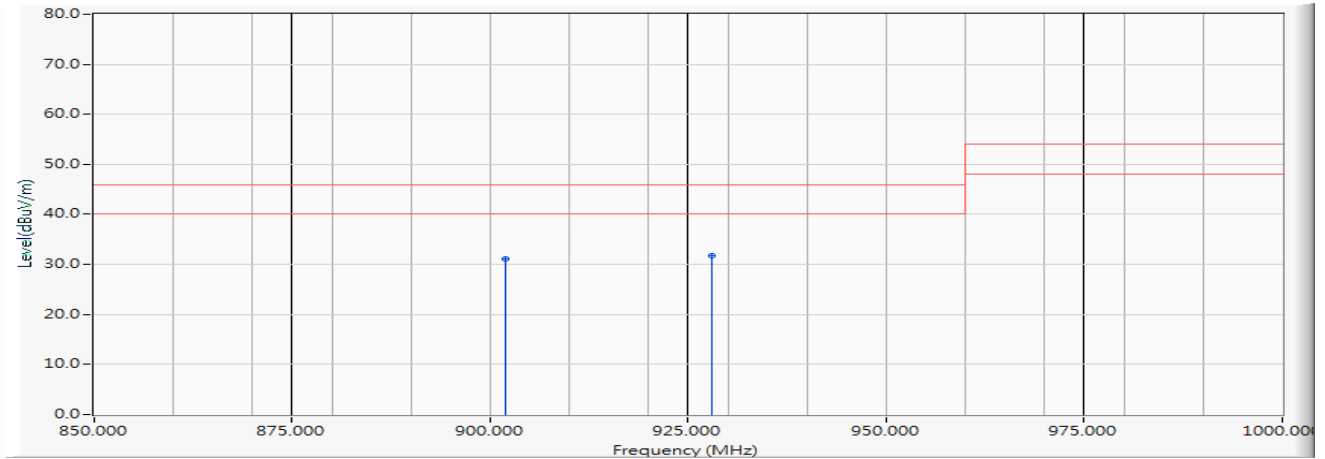
Vertical :

30-300MHz: ± 4.81 dB ; 300M-1GHz: ± 3.87 dB ; 1-18GHz: ± 3.83 dB ; 18-40GHz: ± 3.98 dB ◦

4.5. Test Result of Band Edge

Product : ENY Button
 Test Item : Band Edge Data
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Horizontal



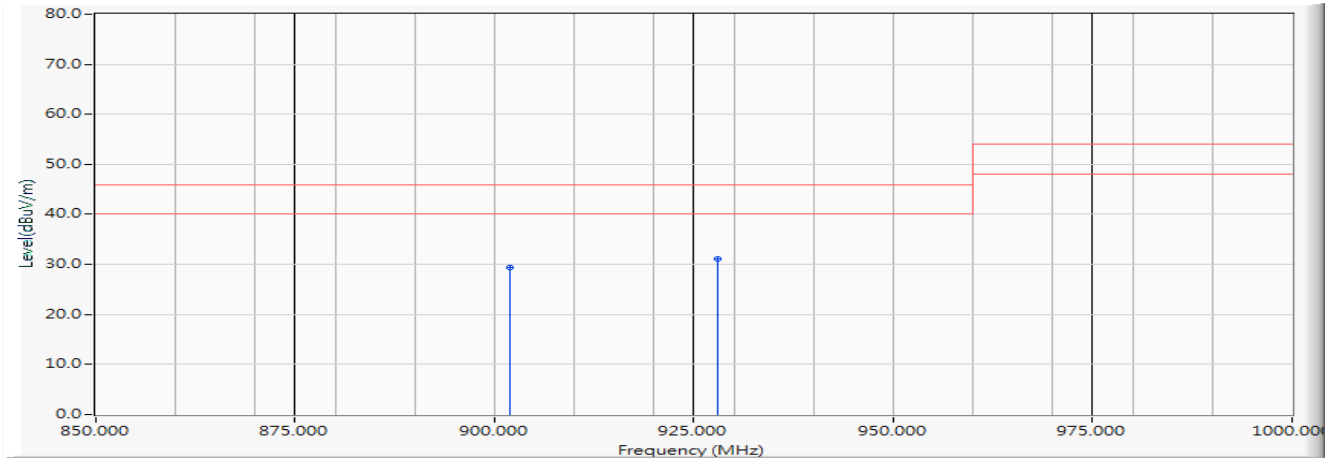
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1		902.000	0.829	30.370	31.199	-14.801	46.000	QUASIPeAK
2	*	928.000	0.980	30.841	31.821	-14.179	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

Product : ENY Button
 Test Item : Band Edge Data
 Test Date : 2019/11/10
 Test Mode : Mode 1: Transmit

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector Type
1		902.000	0.829	28.473	29.302	-16.698	46.000	QUASIPeAK
2	*	928.000	0.980	30.169	31.149	-14.851	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

5. EMI Reduction Method During Compliance Testing

No modification was made during testing.