TEST REPORT

Reference No.	:	WTD24D03050722W001
FCC ID.....	:	2A84W-STICK03
Applicant	:	HANK SMART TECH Co., Ltd.
Address	:	729, 7th Floor, Zerun Center,1 Banxuegang Avenue, Longgang District, Shenzhen, China
Manufacturer	:	HANK Electronics Co., Ltd.
Address	:	Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road, Baoan District, Shenzhen, China
Product.....	:	Z-Wave Stick
Model(s).....	:	HKSZW-STICK03
Standards.....	:	FCC CFR47 Part 15 Section 15.249
Date of Receipt sample....	:	2024-03-18
Date of Test……..	:	2024-03-18 to 2024-04-01
Date of Issue……	:	2024-04-01
Test Result	:	Pass

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Ford Wang / Test Engineer

Approved by:

Deval Qin

Deval Qin /Designated Reviewer

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3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD24D03050722W001	2024-03-18	2024-03-18 to 2024-04-01	2024-04-01	Original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product: Z-Wave Stick

Model(s): HKSZW-STICK03

Test Sample No.: 1-1/1

Operation Frequency: 908.4-916.0MHz

Antenna installation: PCB printed antenna

Antenna Gain: 0dBi

Note:
#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTEK lab has not verified the authenticity of its information.

Type of Modulation: FSK

Hardware Version: V2.0

Software Version: V7.20.2

4.2 Details of E.U.T.

Ratings: DC 5V

4.3 Channel List

Channel No.	Frequency (MHz)
0	908.4
1	908.42
2	916.0

4.4 Standards Applicable for Testing

The tests were performed according to following standards:

FCC CFR47 Part 15 Section 15.249: 2019	Telecommunication-RADIO FREQUENCY DEVICES-Intentional Radiators-Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests.

And according to FCC 47 CFR Section 15.203(m):

Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

5 Equipment Used during Test

5.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP30	100091	2023-04-24	2024-04-23
2	Broad-band Horn Antenna(1-18GHz)	SCHWARZBECK	BBHA 9120 D	667	2024-01-23	2025-01-22
3	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2023-08-08	2024-08-07
4	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	N/A	2023-04-24	2024-04-23
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2023-04-24	2024-04-23
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2023-11-04	2024-11-03
3	Active Loop Antenna	Com-Power Corp.	AL-130R	10160007	2023-05-07	2024-05-06
4	Amplifier	ANRITSU	MH648A	M43381	2023-04-24	2024-04-23
5	Cable	HUBER+SUHNER	CBL2	525178	2023-04-24	2024-04-23
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	Spectrum Analyzer	R&S	FSL6	100959	2023-04-24	2024-04-23
2	Coaxial Cable	Top	10Hz-30GHz	-	2023-04-24	2024-04-23
3	Antenna Connector*	Realacc	45RSm	-	2023-04-24	2024-04-23
4	DC Block	Gwave	GDCB-3G-N-SMA	140307001	2023-04-24	2024-04-23

Test Software:

Test Item	Software name	Software version
Conduction disturbance Radiated Emission(3m)	EZ-EMC	EZ-EMC(RA-03A1-1)

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)

5.3 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration number 523476, September 10, 2019.

5.4 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

6 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207	N/A*
Radiated Emission	15.249(a) 15.209 15.205(a)	Pass
Periodic Operation	15.35(c)	Pass
Band Edge	15.249 15.205 15.209	Pass
20dB Bandwidth	15:215(c)	Pass
Antenna Requirement	15.203	Pass
Note: Pass=Compliance; NC=Not Compliance; NT=Not Tested; N/A=Not Applicable. *: This requirement does not apply for device powered by battery.		

7 Radiation Emission Test

Test Requirement: FCC Part15 Paragraph 15.249&15.209&15.205

Test Method: ANSI 63.10: 2013

Measurement Distance: 3m

Test Result: ☑ Pass ☐ Fail

15.249(a)Limit:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

15.209 Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40(29.54+40)$
30 ~ 88	100	3	100	$20\log^{(100)} =(40)$
88 ~ 216	150	3	150	$20\log^{(150)} =(43.5)$
216 ~ 960	200	3	200	$20\log^{(200)} =(46)$
Above 960	500	3	500	$20\log^{(500)} =(54)$

Note: RF Voltage(dBuV)=20 $\log_{10}$ RF Voltage(uV)

7.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 51.1 % RH

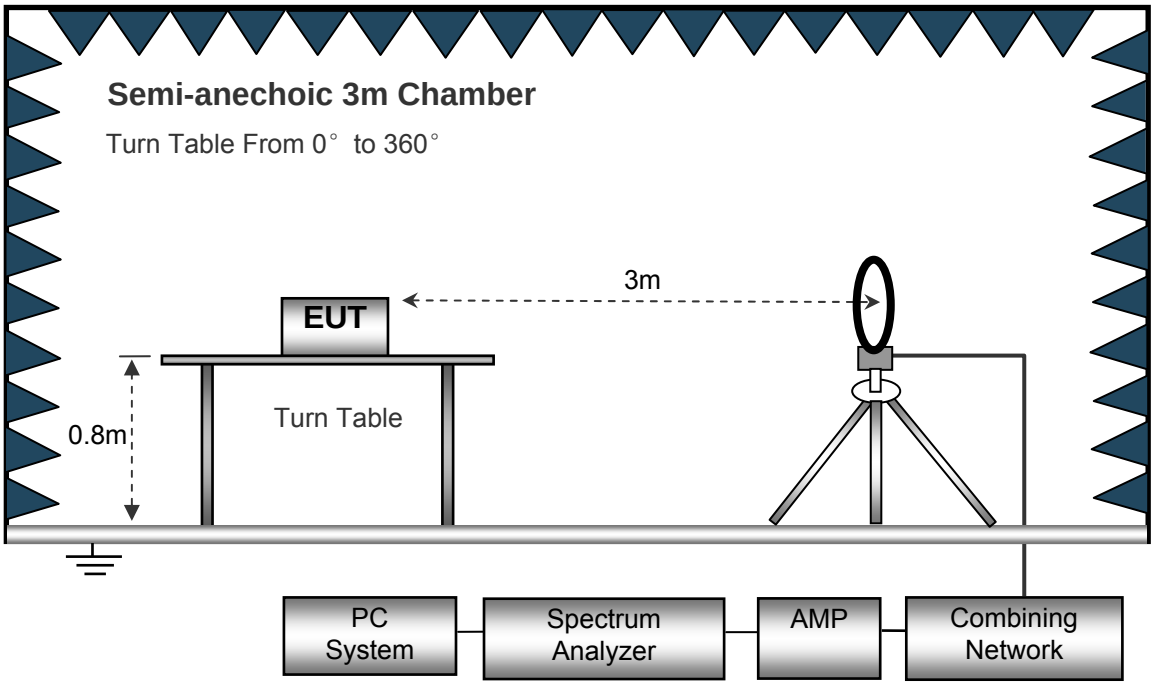
Atmospheric Pressure: 101.2kPa

EUT Operation **:**

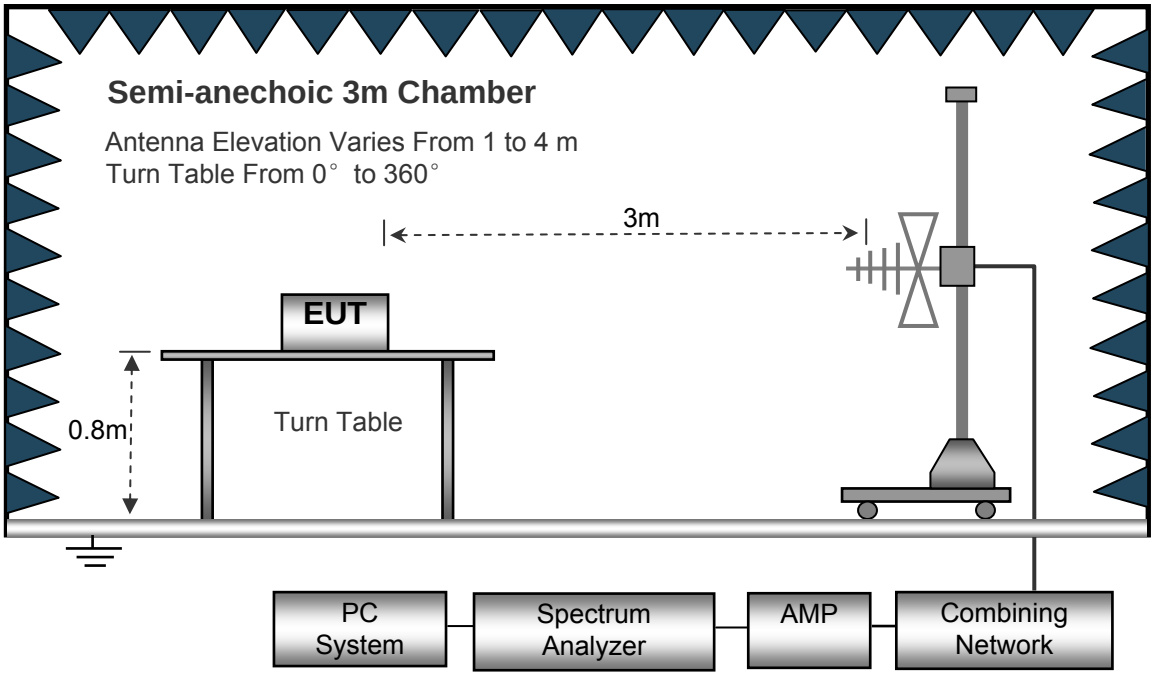
The test was performed in transmitting mode, the test data were shown in the report.

7.2 Test Setup

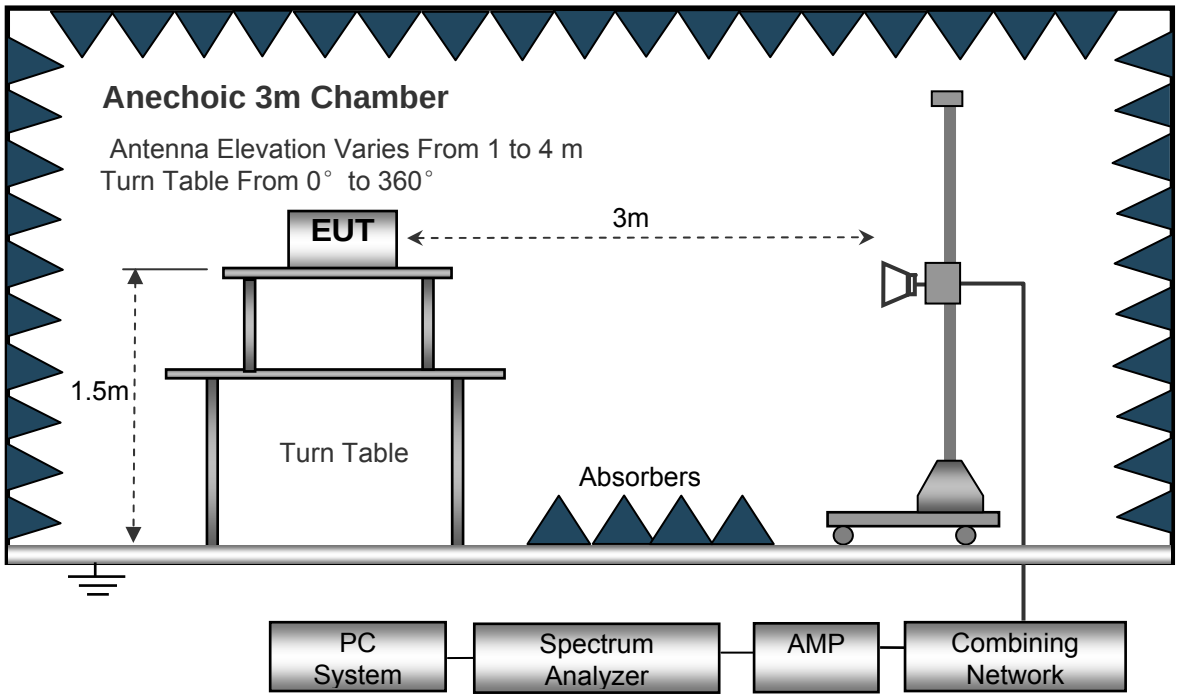
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed ..... Auto
IF Bandwidth..... 10kHz
Video Bandwidth 10kHz

Resolution Bandwidth 10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth 10Hz

7.4 Test Procedure

1. The EUT is placed on a turntable. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m above ground plane.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

6. Repeat above procedures until the measurements for all frequencies are complete.

7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

7.5 Frequency range of radiated measurements.

According to FCC 47 CFR Section 15.33:

(a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:

(1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

(4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1) through (a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation.

7.6 Test Result

Test Frequency: 9 kHz ~ 30 MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 10GHz

908.4MHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
908.4	79.06	PK	214	1.5	H	18.86	97.92	114.00	-16.08
908.4	78.11	PK	23	1.4	V	18.86	96.97	114.00	-17.03
1816.8	41.22	PK	219	1.9	H	5.85	47.07	74.00	-26.93
1816.8	40.5	PK	355	1.9	V	5.85	46.35	74.00	-27.65
2725.2	51.34	PK	142	1.9	H	-8.25	43.09	74.00	-30.91
2725.2	50.66	PK	21	1.7	V	-8.25	42.41	74.00	-31.59
3633.6	59.63	PK	284	1.5	H	-7.68	51.95	74.00	-22.05
3633.6	57.72	PK	327	1.1	V	-7.68	50.04	74.00	-23.96

AV = Peak +20Log10(duty cycle) =PK+(-5.08) [refer to section 8 for more detail]

Frequency	PK	RX Antenna Polar	Duty cycle Factor	AV	FCC Part 15.249/209/205	
					Limit	Margin
(MHz)	(dBμV/m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
908.4	97.92	H	-5.08	92.84	94.00	-1.16
908.4	96.97	V	-5.08	91.89	94.00	-2.11
1816.8	47.07	H	-5.08	41.99	54.00	-12.01
1816.8	46.35	V	-5.08	41.27	54.00	-12.73
2725.2	43.09	H	-5.08	38.01	54.00	-15.99
2725.2	42.41	V	-5.08	37.33	54.00	-16.67
3633.6	51.95	H	-5.08	46.87	54.00	-7.13
3633.6	50.04	V	-5.08	44.96	54.00	-9.04

908.42MHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Correcte d Factor	Corrected Amplitude	FCC Part 15.249/209/205	
				Height	Polar			Limit	Margi n
(MHz)	(dBμV)	(PK/QP)	Degre e	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
908.42	79.16	PK	244	1.9	H	18.86	98.02	114.00	-15.98
908.42	78.09	PK	6	1.6	V	18.86	96.95	114.00	-17.05
1816.84	41.11	PK	66	1.5	H	5.85	46.96	74.00	-27.04
1816.84	40.04	PK	114	1.8	V	5.85	45.89	74.00	-28.11
2725.26	51.43	PK	47	1.3	H	-8.25	43.18	74.00	-30.82
2725.26	50.58	PK	352	1.8	V	-8.25	42.33	74.00	-31.67
3633.68	59.66	PK	139	1.7	H	-7.68	51.98	74.00	-22.02
3633.68	57.17	PK	197	1.6	V	-7.68	49.49	74.00	-24.51

AV = Peak +20Log10(duty cycle) =PK+(-5.26) [refer to section 8 for more detail]

Frequency	PK	RX Antenna Polar	Duty cycle Factor	AV	FCC Part 15.249/209/205	
					Limit	Margin
(MHz)	(dBμV/m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
908.42	98.02	H	-5.26	92.76	94.00	-1.24
908.42	96.95	V	-5.26	91.69	94.00	-2.31
1816.84	46.96	H	-5.26	41.70	54.00	-12.30
1816.84	45.89	V	-5.26	40.63	54.00	-13.37
2725.26	43.18	H	-5.26	37.92	54.00	-16.08
2725.26	42.33	V	-5.26	37.07	54.00	-16.93
3633.68	51.98	H	-5.26	46.72	54.00	-7.28
3633.68	49.49	V	-5.26	44.23	54.00	-9.77

916MHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
916.00	79.13	PK	254	1.3	H	18.86	97.99	114.00	-16.01
916.00	78.56	PK	69	1.8	V	18.86	97.42	114.00	-16.58
1832.00	41.41	PK	156	1.6	H	5.85	47.26	74.00	-26.74
1832.00	40.51	PK	68	1.7	V	5.85	46.36	74.00	-27.64
2748.00	51.39	PK	357	1.7	H	-8.25	43.14	74.00	-30.86
2748.00	50.61	PK	266	1.4	V	-8.25	42.36	74.00	-31.64
3664.00	59.69	PK	22	1.8	H	-7.68	52.01	74.00	-21.99
3664.00	57.77	PK	332	1.3	V	-7.68	50.09	74.00	-23.91

AV = Peak +20Log10(duty cycle) =PK+(-4.87) [refer to section 8 for more detail]

Frequency	PK	RX Antenna Polar	Duty cycle Factor	AV	FCC Part 15.249/209/205	
					Limit	Margin
(MHz)	(dBμV/m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
916.00	97.99	H	-4.87	93.12	94.00	-0.88
916.00	97.42	V	-4.87	92.55	94.00	-1.45
1832.00	47.26	H	-4.87	42.39	54.00	-11.61
1832.00	46.36	V	-4.87	41.49	54.00	-12.51
2748.00	43.14	H	-4.87	38.27	54.00	-15.73
2748.00	42.36	V	-4.87	37.49	54.00	-16.51
3664.00	52.01	H	-4.87	47.14	54.00	-6.86
3664.00	50.09	V	-4.87	45.22	54.00	-8.78

8 Periodic Operation

Test Requirement: 15.35(c): when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

Test Mode: Transmitting

The duty cycle was determined by the following equation:

To calculate the actual field intensity,the duty cycle correction factor in decibel is needed for later use and can be obtained from following conversion

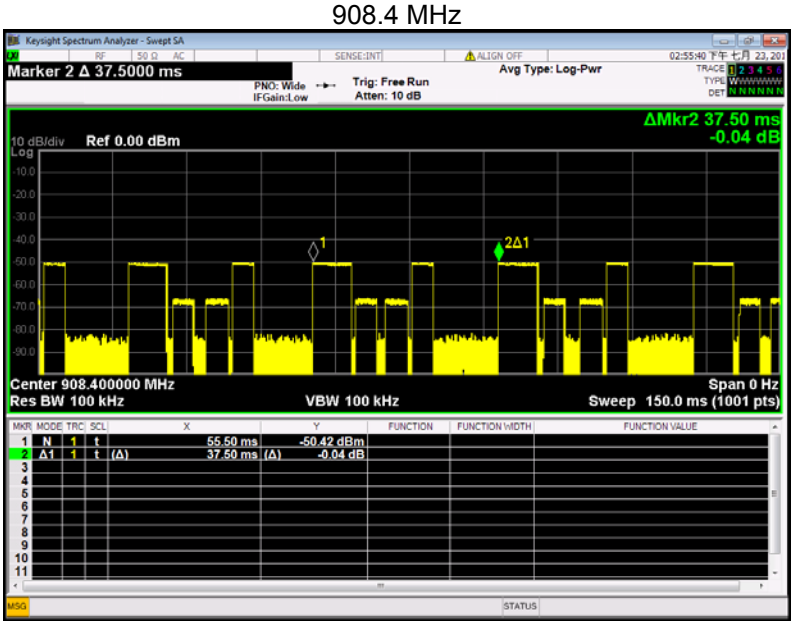
Duty Cycle(%)=Total On interval in a complete pulse train/ Length of a complete pulse train * %

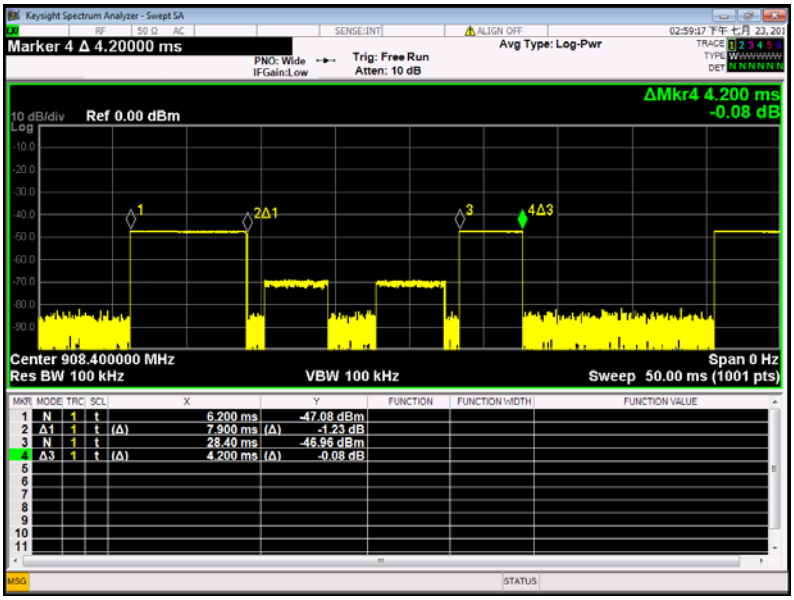
Duty Cycle Correction Factor(dB)=20 * Log_{10}(Duty Cycle)

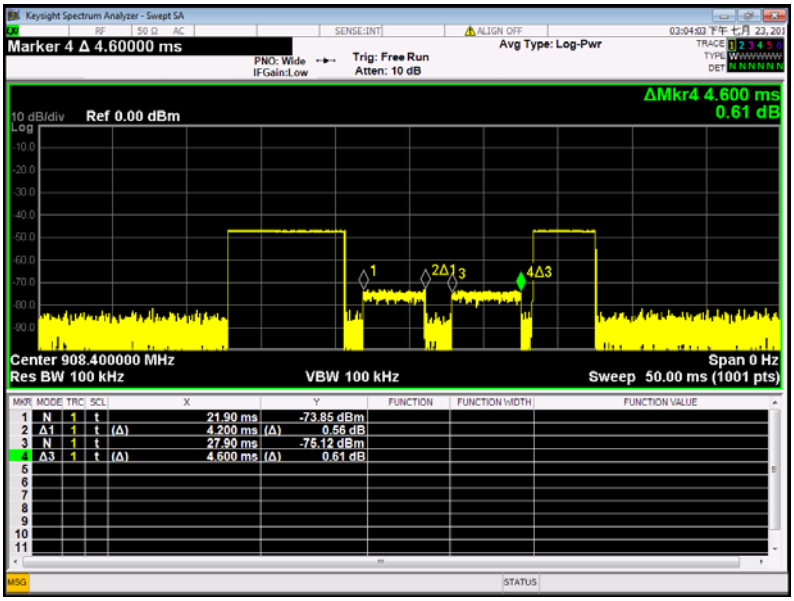
Test channel	908.40MHz	908.42MHz	916MHz
Total transmission time(ms)	37.5	38.1	36.45
Length of a complete transmission period(ms)	7.9+4.2+4.2+4.6=20.9	7.8+4.2+4.2+4.6=20.8	7.8+4.2+4.2+4.6=20.8
Duty Cycle(%)	55.73	55.59	57.06
Duty Cycle Correction Factor(dB)	-5.08	-5.26	-4.87

Refer to the duty cycle plot (as below)

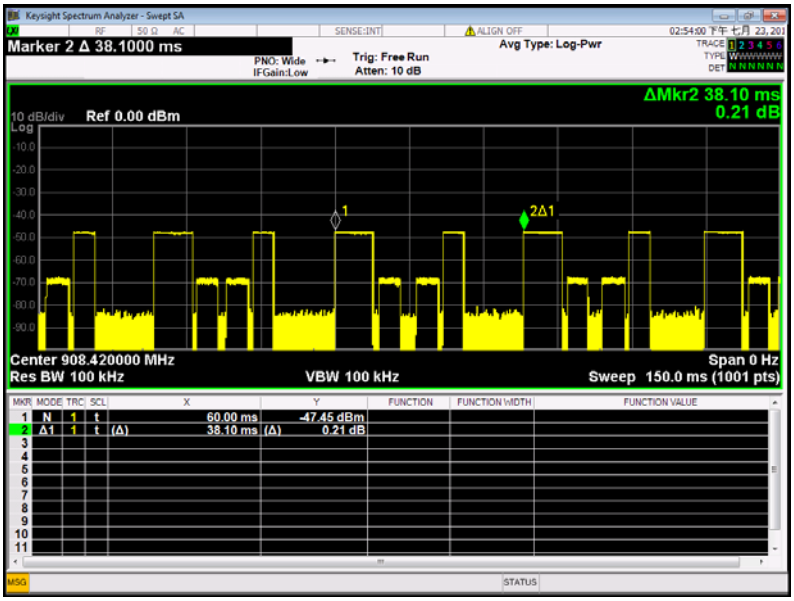
908.4 MHz

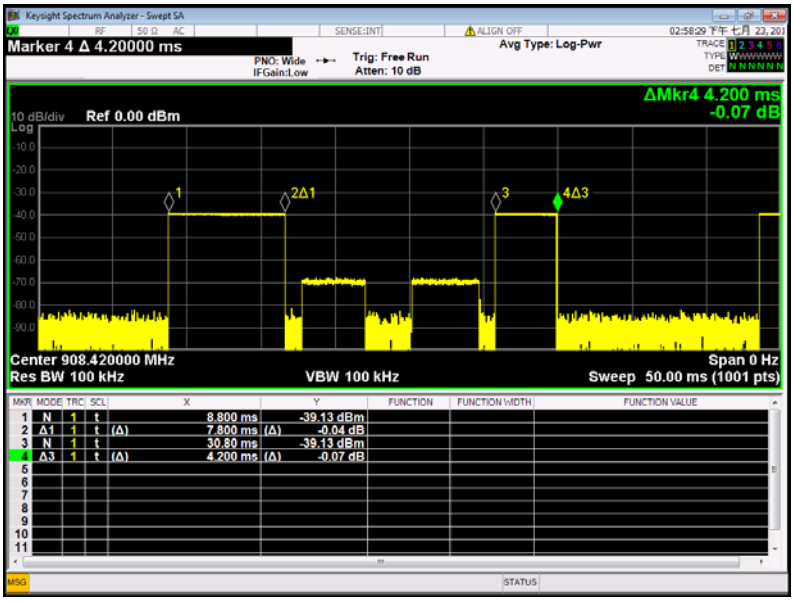


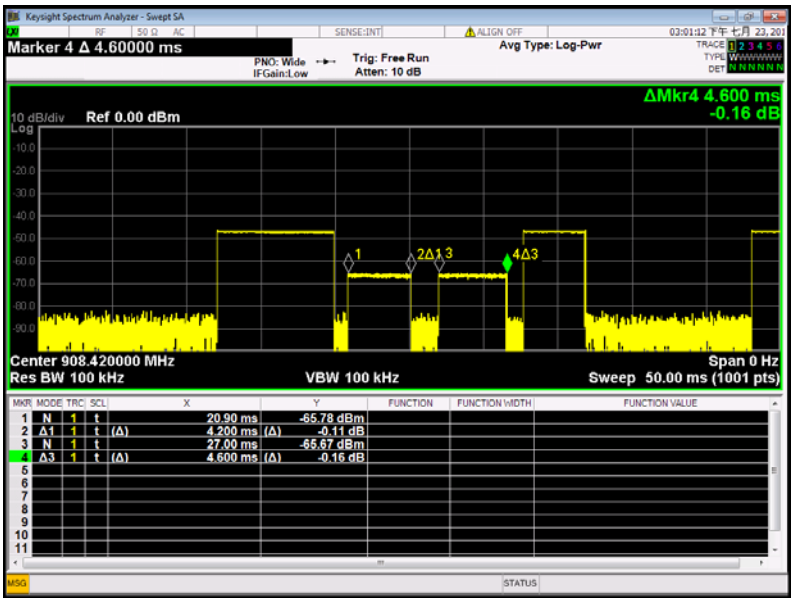



Keysight Spectrum Analyzer - Swept SA
Marker 4 Δ 4.60000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr4 4.600 ms
0.61 dB
10 dB/div
Ref 0.00 dBm
Log
Center 908.400000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 50.00 ms (1001 pts)
1 N 1 t 21.90 ms -73.85 dBm
2 Δ1 1 t (Δ) 4.200 ms (Δ) 0.56 dB
3 N 1 t 27.90 ms -76.12 dBm
4 Δ3 1 t (Δ) 4.600 ms (Δ) 0.61 dB

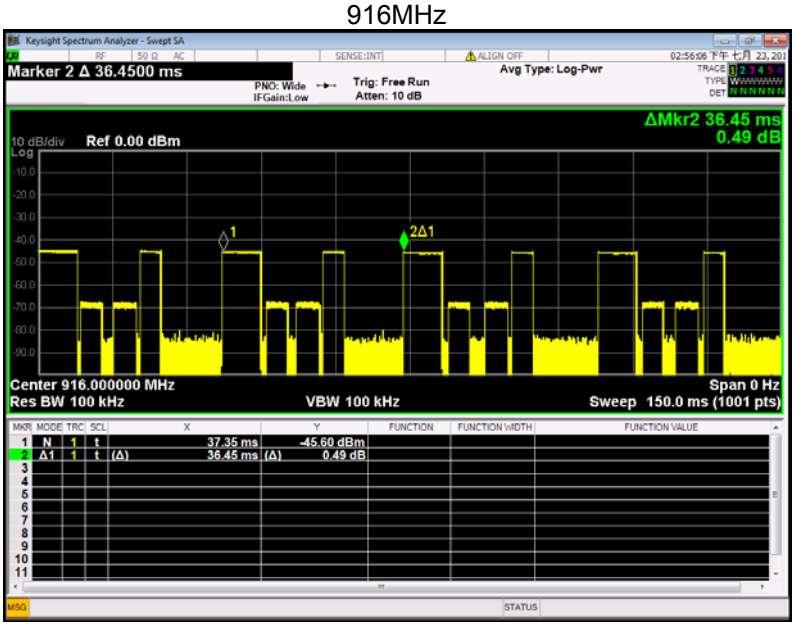
908.42 MHz

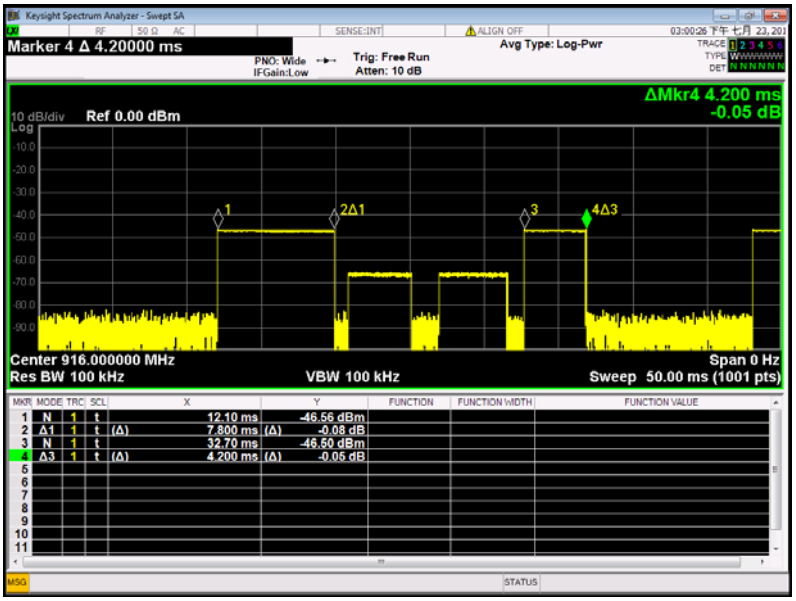

Keysight Spectrum Analyzer - Swept SA
Marker 2 Δ 38.1000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr2 38.10 ms
0.21 dB
10 dB/div
Ref 0.00 dBm
Log
Center 908.420000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 150.0 ms (1001 pts)
1 N 1 t 60.00 ms -47.45 dBm
2 Δ1 1 t (Δ) 38.10 ms (Δ) 0.21 dB

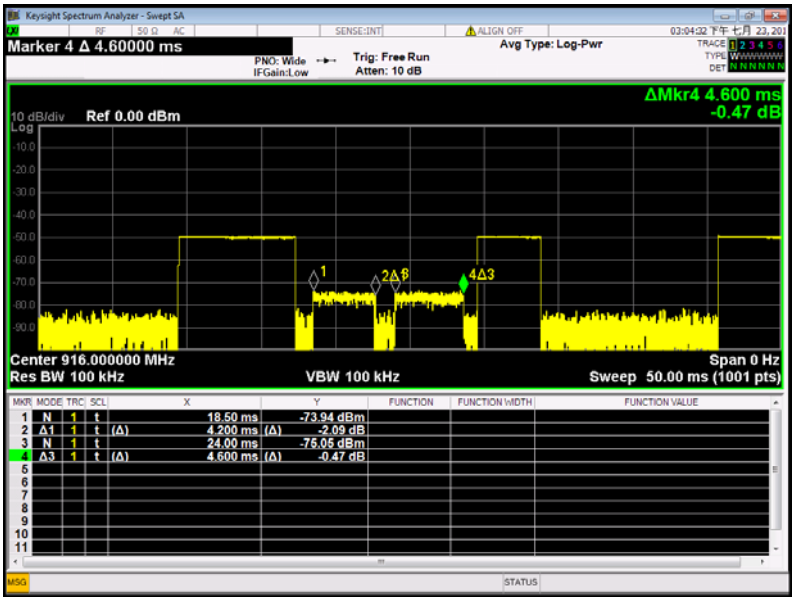

Keysight Spectrum Analyzer - Swept SA
Marker 4 Δ 4.20000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr4 4.200 ms
-0.07 dB
10 dB/div
Ref 0.00 dBm
Log
Center 908.420000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 50.00 ms (1001 pts)
1 N 1 t 8.800 ms -39.13 dBm
2 Δ1 1 t (Δ) 7.800 ms (Δ) -0.04 dB
3 N 1 t 30.80 ms -39.13 dBm
4 Δ3 1 t (Δ) 4.200 ms (Δ) -0.07 dB


Keysight Spectrum Analyzer - Swept SA
Marker 4 Δ 4.60000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr4 4.600 ms
-0.16 dB
10 dB/div
Ref 0.00 dBm
Log
Center 908.420000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 50.00 ms (1001 pts)
1 N 1 t 20.90 ms -65.78 dBm
2 Δ1 1 t (Δ) 4.200 ms (Δ) -0.11 dB
3 N 1 t 27.00 ms -65.67 dBm
4 Δ3 1 t (Δ) 4.600 ms (Δ) -0.16 dB

916MHz


Keysight Spectrum Analyzer - Swept SA
Marker 2 Δ 36.4500 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr2 36.45 ms
0.49 dB
10 dB/div
Log
Ref 0.00 dBm
Center 916.000000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 150.0 ms (1001 pts)
1 N 1 t 37.35 ms -45.60 dBm
2 Δ1 1 t (Δ) 36.45 ms (Δ) 0.49 dB


Keysight Spectrum Analyzer - Swept SA
Marker 4 Δ 4.20000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr4 4.200 ms
-0.05 dB
10 dB/div
Log
Ref 0.00 dBm
Center 916.000000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 50.00 ms (1001 pts)
1 N 1 t 12.10 ms -46.56 dBm
2 Δ1 1 t (Δ) 7.800 ms (Δ) -0.08 dB
3 N 1 t 32.70 ms -46.50 dBm
4 Δ3 1 t (Δ) 4.200 ms (Δ) -0.05 dB


Keysight Spectrum Analyzer - Swept SA
Marker 4 Δ 4.60000 ms
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr4 4.600 ms
-0.47 dB
10 dB/div
Ref 0.00 dBm
Log
Center 916.000000 MHz
Res BW 100 kHz
VBW 100 kHz
Span 0 Hz
Sweep 50.00 ms (1001 pts)
1 N 1 t 18.50 ms -73.94 dBm
2 Δ1 1 t (Δ) 4.200 ms (Δ) -2.09 dB
3 N 1 t 24.00 ms -75.05 dBm
4 Δ3 1 t (Δ) 4.600 ms (Δ) -0.47 dB

9 Band Edge

Test Requirement:	15.249(d):Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.
Test Method:	ANSI C63.10:2013
Test Mode:	Transmitting

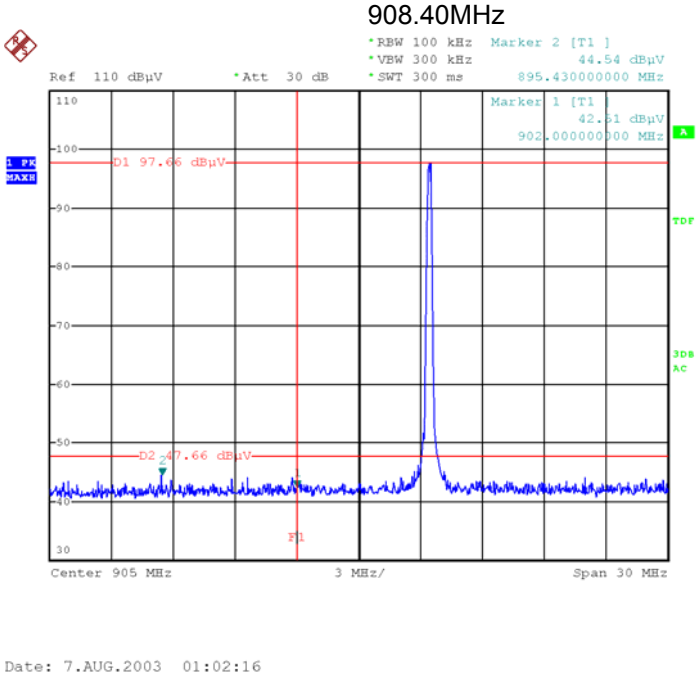
9.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
   Detector function = peak, Trace = max hold

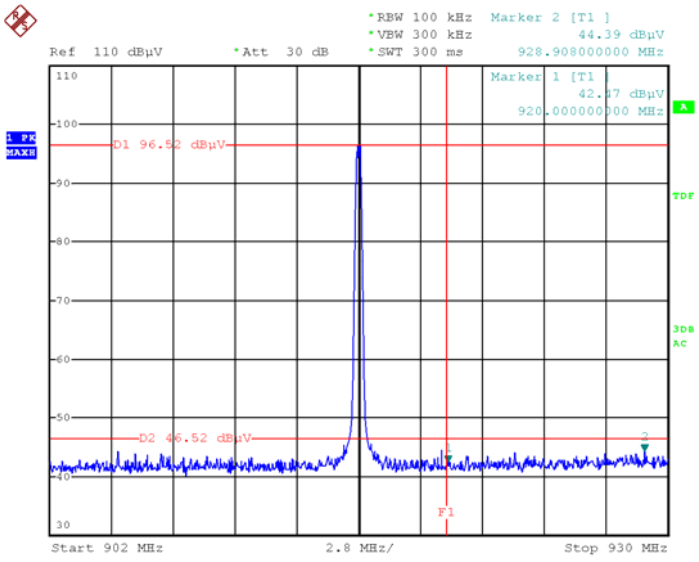
9.2 Test Result

Test plots

908.40MHz



916MHz



Date: 7.AUG.2003 00:59:06

10 20 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.215(c)

Test Method: ANSI C63.10:2013

Test Mode: Transmitting

10.1 Test Procedure

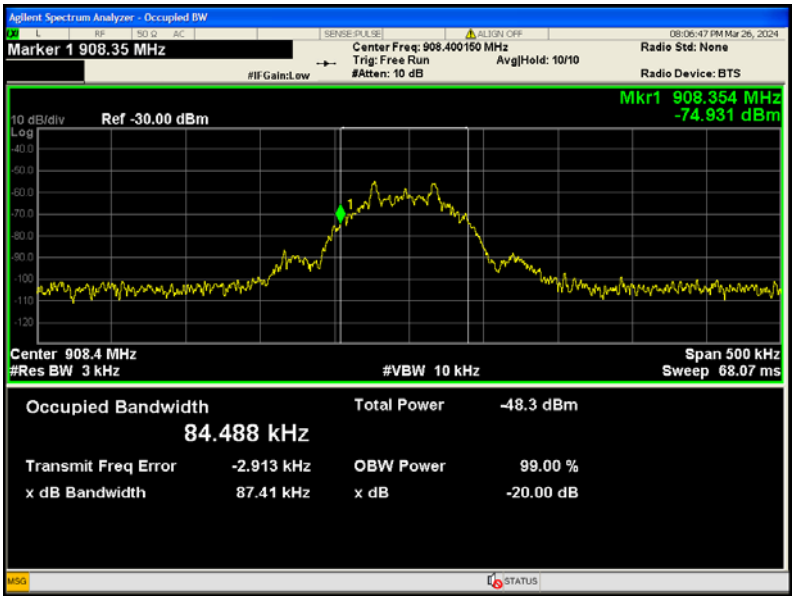
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 3kHz, VBW = 10kHz

10.2 Test Result

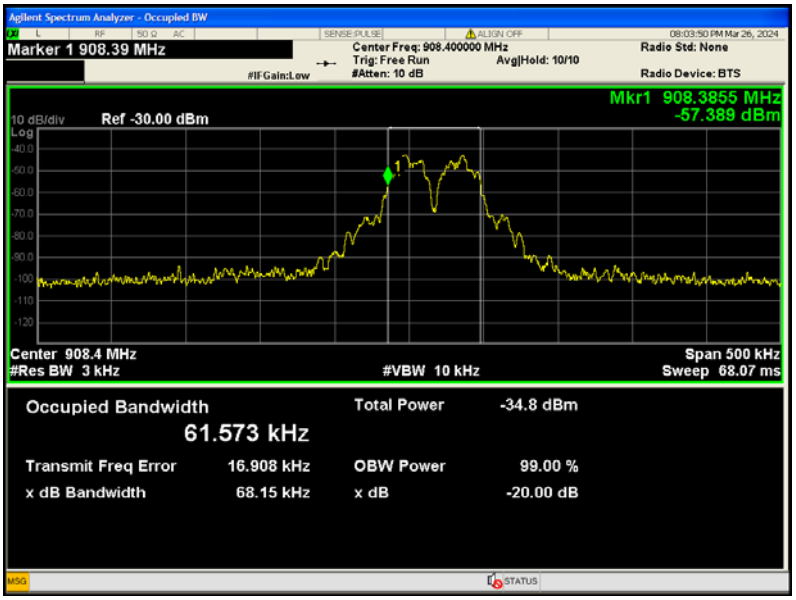
Test channel	Frequency (MHz)	20dB Bandwidth Emission(kHz)
0	908.4	87.41
1	908.42	68.15
2	916.0	121.1

Test plots

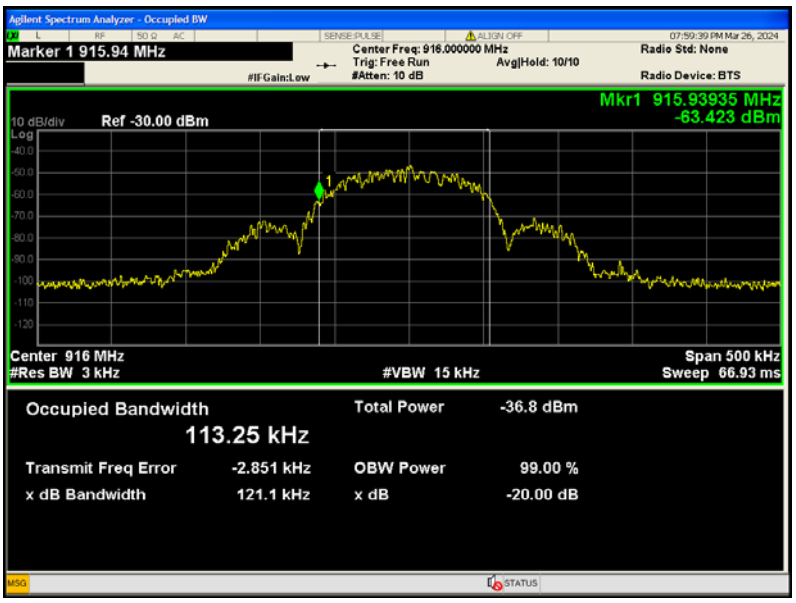
908.4MHz



908.4MHz



916.0MHz


Agilent Spectrum Analyzer - Occupied BW
Marker 1 915.94 MHz
Center Freq: 916.000000 MHz
Trig: Free Run
Avg|Hold: 10/10
#IFGain:Low
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
07:59:39 PM Mar 26, 2024
Mkr1 915.93935 MHz
-63.423 dBm
10 dB/div
Log
Ref -30.00 dBm
Center 916 MHz
#Res BW 3 kHz
#VBW 15 kHz
Span 500 kHz
Sweep 66.93 ms
Occupied Bandwidth
113.25 kHz
Total Power -36.8 dBm
Transmit Freq Error -2.851 kHz
OBW Power 99.00 %
x dB Bandwidth 121.1 kHz
x dB -20.00 dB
MSG
STATUS

11 Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, 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. This product has a PCB printed antenna fulfil the requirement of this section.

Note: Please refer to EUT photos for more details.

12 RF Exposure

Remark: Please refer to MPE test report: WTD24D03050722W002.

13 Photographs - Constructional Details

Note: Please refer to appendix: Appendix-HKSZW-STICK03-Photos.

======End of Report======