

FCC Test Report

Product Name	Mobile Medical Assistant Tablet
Model No.	xxxONYX-MD116xxxxxxxxxx(Where "x" is 0~9, A~Z, "-" or blank)
FCC ID.	RZ5-MD116

Applicant	ONYX Healthcare Inc.
Address	2F,No.135,lane235,Pao Chiao Rd.Hsin-Tien Dist,New Taipei City,Taiwan,ROC.

Date of Receipt	May 31, 2017
Issued Date	Aug. 18, 2017
Report No.	1770099R-RFUSP01V00-A
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.

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Test Report

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Product Name	Mobile Medical Assistant Tablet
Applicant	ONYX Healthcare Inc.
Address	2F,No.135,lane235,Pao Chiao Rd.Hsin-Tien Dist,New Taipei City,Taiwan,ROC.
Manufacturer	ONYX Healthcare Inc.
Model No.	xxxONYX-MD116xxxxxxxxxx(Where "x" is 0~9, A~Z, "-" or blank)
FCC ID.	RZ5-MD116
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	onyx
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2016 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Genie Chang)

Tested By :



(Engineer / Kevin Liu)

Approved By :



(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Mobile Medical Assistant Tablet
Trade Name	onyx
Model No.	xxxONYX-MD116xxxxxxxxxx(Where "x" is 0~9, A~Z, "-" or blank)
FCC ID.	RZ5-MD116
Frequency Range	2402 – 2480MHz
Channel Number	V4.0: 40CH
Type of Modulation	V4.0: GFSK(1Mbps)
Antenna Type	PIFA Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
Docking No.	xxxOPM-T016xxxxxxxxxx(Where "x" is 0~9, A~Z, "-" or blank)
Power Adapter	MFR: APAPTER TECH, M/N: ATM090T-P120 Input: AC 100-240V, 50-60Hz, 5A Output: DC 12V, 7A Cable Out: Shielded, 1.8m, with one ferrite core bonded.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ARISTOTLE ENTERPRISES INC.	RFA-25-AP152-70B340R (Main) RFA-25-AP152-70-285L (Aux)	PIFA Antenna	3.93dBi for 2.4 GHz

Note: The antenna of EUT is conforming to FCC 15.203.

Center Frequency of Each Channel: (For V4.0)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 01:	2404 MHz	Channel 02:	2406 MHz	Channel 03:	2408 MHz
Channel 04:	2410 MHz	Channel 05:	2412 MHz	Channel 06:	2414 MHz	Channel 07:	2416 MHz
Channel 08:	2418 MHz	Channel 09:	2420 MHz	Channel 10:	2422 MHz	Channel 11:	2424 MHz
Channel 12:	2426 MHz	Channel 13:	2428 MHz	Channel 14:	2430 MHz	Channel 15:	2432 MHz
Channel 16:	2434 MHz	Channel 17:	2436 MHz	Channel 18:	2438 MHz	Channel 19:	2440 MHz
Channel 20:	2442 MHz	Channel 21:	2444 MHz	Channel 22:	2446 MHz	Channel 23:	2448 MHz
Channel 24:	2450 MHz	Channel 25:	2452 MHz	Channel 26:	2454 MHz	Channel 27:	2456 MHz
Channel 28:	2458 MHz	Channel 29:	2460 MHz	Channel 30:	2462 MHz	Channel 31:	2464 MHz
Channel 32:	2466 MHz	Channel 33:	2468 MHz	Channel 34:	2470 MHz	Channel 35:	2472 MHz
Channel 36:	2474 MHz	Channel 37:	2476 MHz	Channel 38:	2478 MHz	Channel 39:	2480 MHz

Note:

1. The EUT is a Mobile Medical Assistant Tablet with a built-in WLAN Bluetooth transceiver, this report for Bluetooth V4.0.
2. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode	Mode 1: Transmit - BLE Mode 2: Charger Mode
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1.2. Operational Description

The EUT is a Mobile Medical Assistant Tablet with built-in 2.4GHz Bluetooth V4.0 transceiver. The number of the channels is 40 in Bluetooth V4.0 mode the channel number is 40. This device provides three kinds of transmitting speed and modulation, respectively GFSK(1Mbps) . The antenna is Printed on PCB Antenna and provides diversity function to improve the receiving function.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 40 channels.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted.

The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

The EUT is forward-compatible with the impending Bluetooth Low Energy operating mode, which provides a dramatic reduction in the power consumption of the Bluetooth radio and baseband. The primary application for this mode is to provide support for low data rate devices, such as sensors and remote controls.

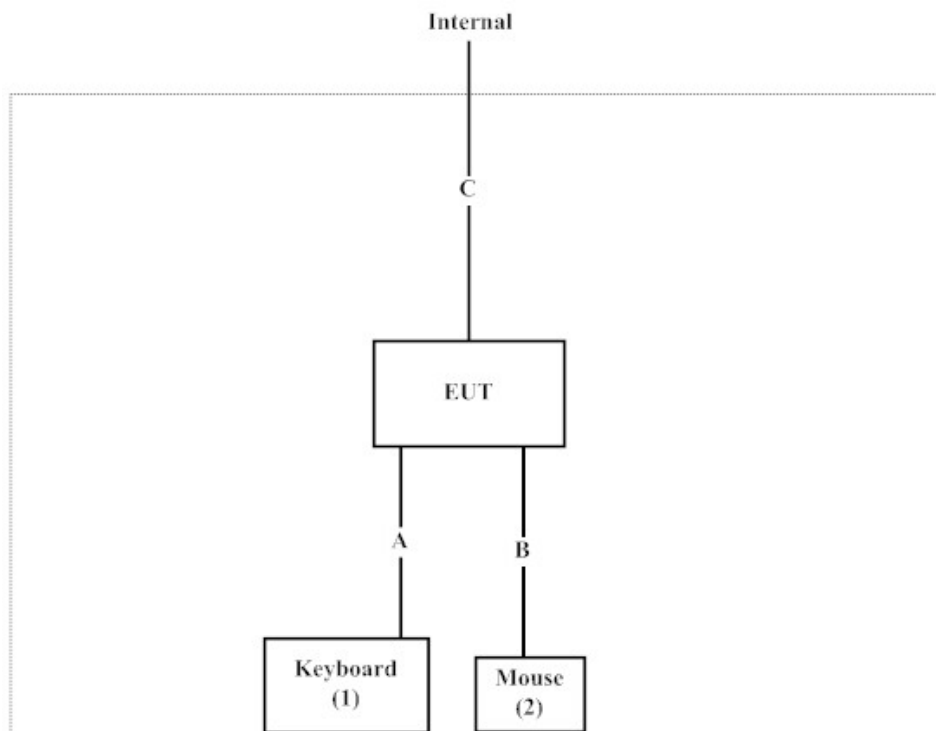
1.3. Tested System Details

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	Keyboard	Logitech	K120	N/A	N/A
2	Mouse	Logitech	U0026	N/A	N/A

Signal Cable Type	Signal cable Description
A	USB Keyboard Cable
B	USB Mouse Cable
C	LAN Cable

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Execute software “Atheros Radio Test 2 V4.4” on the EUT
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmit.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en

Site Description: Accredited by TAF
Accredited Number: 3023

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FCC Accreditation Number: TW1014

1.7. List of Test Equipment

For Conduction measurements /ASR1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	161601	2017.01.06	2018.01.05
X	Two-Line V-Network	R&S	ENV216	101306	2017.02.16	2018.02.15
X	Two-Line V-Network	R&S	ENV216	101307	2017.03.17	2018.03.16
X	Coaxial Cable	Quietek	RG400_BNC	RF001	2017.05.24	2018.05.23

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

For Conducted measurements /ASR4

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2017.01.09	2018.01.08
X	Power Meter	Anritsu	ML2496A	1548003	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531024	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531025	2016.12.15	2017.12.14
	Bluetooth Tester	R&S	CBT	101238	2017.01.03	2018.01.02

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 Conduction Test System V8.0.110

For Radiated measurements /ACB1

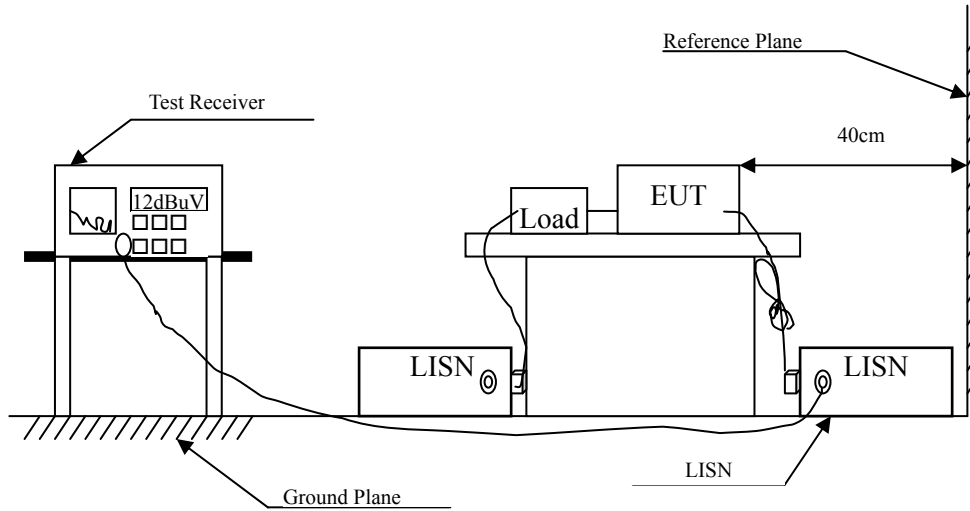
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	A.H.	SAS-562B	272	2016.03.18	2018.03.17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2017.02.09	2018.02.08
X	Horn Antenna	ETS-Lindgren	3117	00203800	2016.10.13	2017.10.12
X	Horn Antenna	Com-Power	AH-840	101087	2017.05.24	2018.05.23
X	Pre-Amplifier	EMCI	EMC001330	980316	2017.05.14	2018.05.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2017.05.17	2018.05.16
X	Filter	MICRO TRONICS	BRM50702	G251	2016.08.11	2017.08.10
	Filter	MICRO TRONICS	BRM50716	G188	2016.08.11	2017.08.10
X	EMI Test Receiver	R&S	ESR7	101602	2016.12.15	2017.12.14
X	Spectrum Analyzer	R&S	FSV40	101149	2017.01.24	2018.01.23
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2017.05.25	2018.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2016.08.11	2017.08.10

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

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) 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 Peripherals 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 refer 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 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.

The EUT was setup to ANSI C63.4, 2014; tested to DTS test procedure of FCC KDB-558074 for compliance to FCC 47CFR Subpart C requirements.

2.4. Uncertainty

±2.35dB

2.5. Test Result of Conducted Emission

Product : Mobile Medical Assistant Tablet
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmit - BLE (2442MHz)
 Test Date : 2017/06/15

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.161	9.704	37.025	46.729	-18.957	65.686
0.317	9.703	13.017	22.720	-38.509	61.229
0.406	9.718	24.200	33.918	-24.768	58.686
1.943	9.778	12.554	22.332	-33.668	56.000
18.247	10.124	17.174	27.298	-32.702	60.000
24.576	10.172	31.365	41.537	-18.463	60.000
Average					
0.161	9.704	9.923	19.627	-36.059	55.686
0.317	9.703	8.100	17.803	-33.426	51.229
0.406	9.718	23.982	33.700	-14.986	48.686
1.943	9.778	9.969	19.747	-26.253	46.000
18.247	10.124	13.302	23.426	-26.574	50.000
24.576	10.172	29.491	39.663	-10.337	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Mobile Medical Assistant Tablet
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmit - BLE (2442MHz)
 Test Date : 2017/06/15

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.159	9.697	37.740	47.437	-18.306	65.743
0.400	9.711	25.029	34.740	-24.117	58.857
1.223	9.761	10.793	20.554	-35.446	56.000
5.159	9.877	11.179	21.056	-38.944	60.000
18.247	10.138	17.504	27.642	-32.358	60.000
24.576	10.212	31.775	41.987	-18.013	60.000
Average					
0.159	9.697	9.798	19.495	-36.248	55.743
0.400	9.711	19.349	29.060	-19.797	48.857
1.223	9.761	2.214	11.975	-34.025	46.000
5.159	9.877	5.784	15.661	-34.339	50.000
18.247	10.138	13.774	23.912	-26.088	50.000
24.576	10.212	29.925	40.137	-9.863	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Mobile Medical Assistant Tablet
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Charger Mode
 Test Date : 2017/06/15

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.152	9.707	36.184	45.892	-20.051	65.943
0.393	9.716	23.513	33.228	-25.829	59.057
0.683	9.741	16.182	25.924	-30.076	56.000
5.091	9.882	17.040	26.922	-33.078	60.000
8.187	9.963	18.704	28.668	-31.332	60.000
24.576	10.172	24.559	34.731	-25.269	60.000
Average					
0.152	9.707	20.252	29.959	-25.984	55.943
0.393	9.716	21.929	31.644	-17.413	49.057
0.683	9.741	10.110	19.851	-26.149	46.000
5.091	9.882	10.879	20.761	-29.239	50.000
8.187	9.963	12.551	22.515	-27.485	50.000
24.576	10.172	23.391	33.563	-16.437	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Mobile Medical Assistant Tablet
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Charger Mode
 Test Date : 2017/06/15

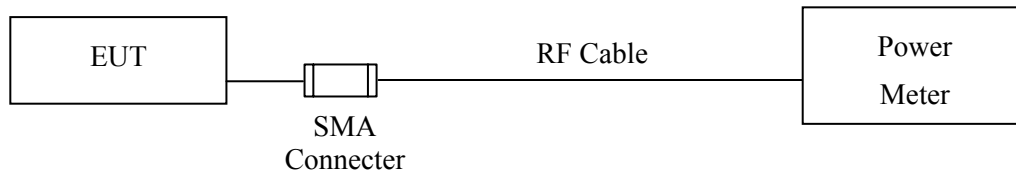
Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.152	9.698	39.201	48.899	-17.044	65.943
0.395	9.710	25.342	35.052	-23.948	59.000
0.672	9.738	16.751	26.489	-29.511	56.000
5.215	9.874	19.132	29.006	-30.994	60.000
8.124	9.965	17.984	27.948	-32.052	60.000
24.576	10.212	24.586	34.798	-25.202	60.000
Average					
0.152	9.698	16.802	26.500	-29.443	55.943
0.395	9.710	21.324	31.034	-17.966	49.000
0.672	9.738	10.956	20.694	-25.306	46.000
5.215	9.874	13.474	23.348	-26.652	50.000
8.124	9.965	11.933	21.897	-28.103	50.000
24.576	10.212	23.386	33.598	-16.402	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup



3.2. Limit

The maximum peak power shall be less 1Watt.

3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.2 PKPM1 Peak power meter method.

3.4. Uncertainty

± 0.86 dB

3.5. Test Result of Peak Power Output

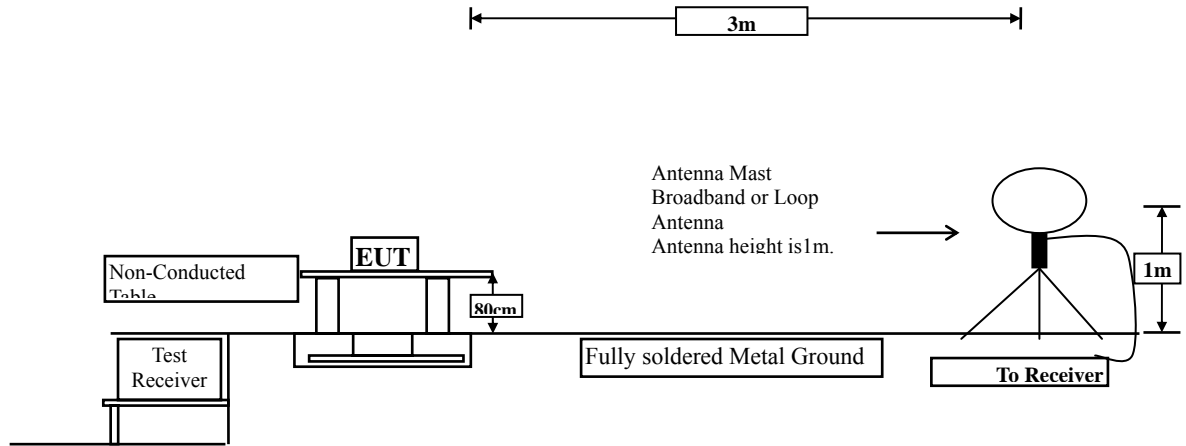
Product : Mobile Medical Assistant Tablet
Test Item : Peak Power Output
Test Mode : Mode 1: Transmit - BLE
Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	0.82	1 Watt= 30 dBm	Pass
Channel 19	2440.00	0.26	1 Watt= 30 dBm	Pass
Channel 39	2480.00	-0.28	1 Watt= 30 dBm	Pass

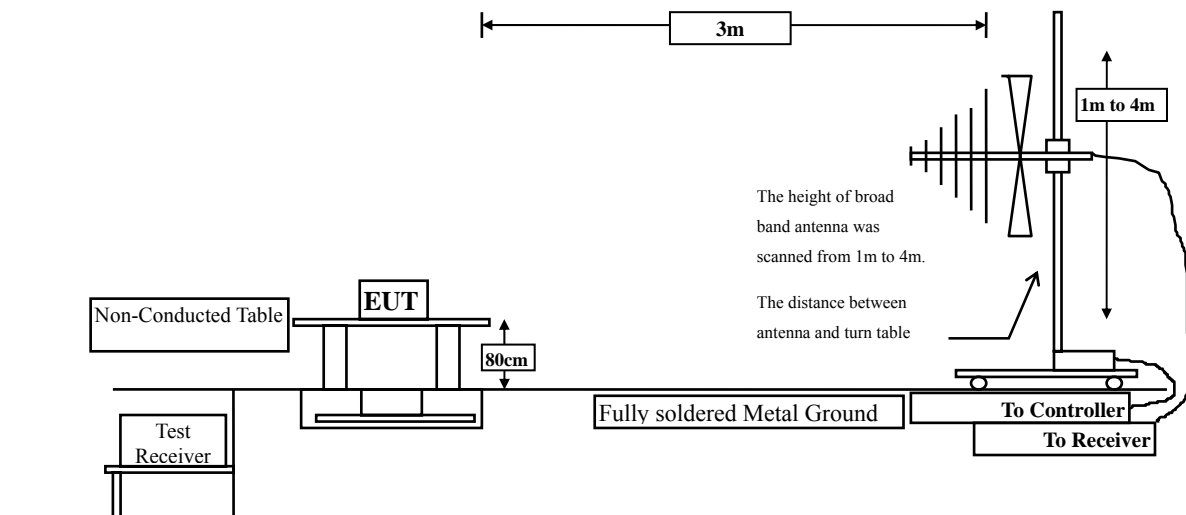
4. Radiated Emission

4.1. Test Setup

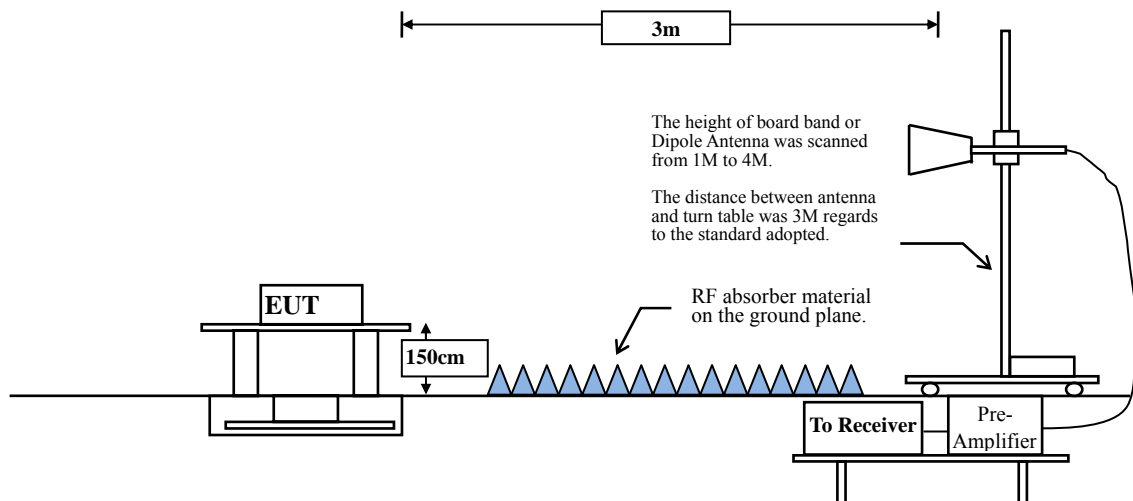
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB 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 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:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 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.

4.4. Uncertainty

Horizontal polarization :

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

Vertical polarization :

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 Radiated Emission

Product : Mobile Medical Assistant Tablet
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE(2402MHz)
 Test Date : 2017/06/14

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4804.000	-6.114	52.860	46.746	-27.254	74.000
7206.000	-3.112	50.300	47.188	-26.812	74.000
9608.000	-0.801	51.170	50.370	-23.630	74.000
Average Detector:					
--					54.000
Vertical					
Peak Detector:					
4804.000	-6.114	52.190	46.076	-27.924	74.000
7206.000	-3.112	50.140	47.028	-26.972	74.000
9608.000	-0.801	50.840	50.040	-23.960	74.000
Average Detector:					
--					54.000

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 : Mobile Medical Assistant Tablet
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2017/06/14

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4880.000	-6.069	52.320	46.251	-27.749	74.000
7320.000	-3.027	51.250	48.223	-25.777	74.000
9760.000	-0.527	50.850	50.322	-23.678	74.000
Average Detector:					
--					54.000
Vertical					
Peak Detector:					
4880.000	-6.069	52.520	46.451	-27.549	74.000
7320.000	-3.027	50.350	47.323	-26.677	74.000
9760.000	-0.527	51.110	50.582	-23.418	74.000
Average Detector:					
--					54.000

Note:

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

Product : Mobile Medical Assistant Tablet
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2017/06/14

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4960.000	-6.055	53.000	46.945	-27.055	74.000
7440.000	-2.861	52.020	49.158	-24.842	74.000
9920.000	-0.306	51.100	50.794	-23.206	74.000
Average Detector:					
--					54.000
Vertical					
Peak Detector:					
4960.000	-6.055	52.720	46.665	-27.335	74.000
7440.000	-2.861	51.750	48.888	-25.112	74.000
9920.000	-0.306	51.070	50.764	-23.236	74.000
Average Detector:					
--					54.000

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 : Mobile Medical Assistant Tablet
 Test Item : General Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2017/06/20

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
299.913	-10.364	47.389	37.025	-8.975	46.000
354.739	-9.101	45.759	36.658	-9.342	46.000
412.377	-7.772	42.281	34.509	-11.491	46.000
543.116	-5.348	41.800	36.452	-9.548	46.000
686.507	-3.240	37.542	34.302	-11.698	46.000
960.638	0.360	52.272	52.631	-1.369	54.000
Vertical					
239.464	-12.295	51.576	39.281	-6.719	46.000
267.580	-11.505	52.641	41.135	-4.865	46.000
354.739	-9.101	44.701	35.600	-10.400	46.000
540.304	-5.392	36.231	30.839	-15.161	46.000
710.406	-2.851	34.688	31.837	-14.163	46.000
960.638	0.360	47.979	48.338	-5.662	54.000

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 : Mobile Medical Assistant Tablet
 Test Item : General Radiated Emission
 Test Mode : Mode 2: Charger Mode
 Test Date : 2017/06/20

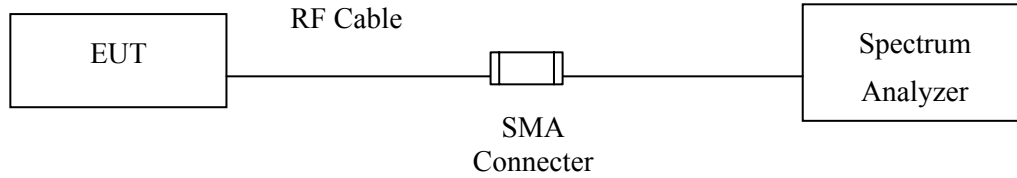
Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
119.971	-13.428	51.757	38.329	-5.171	43.500
193.072	-13.679	53.006	39.327	-4.173	43.500
225.406	-13.141	50.878	37.737	-8.263	46.000
322.406	-9.840	50.040	40.200	-5.800	46.000
524.841	-5.636	38.591	32.955	-13.045	46.000
960.638	0.360	50.821	51.180	-2.820	54.000
Vertical					
122.783	-13.137	50.128	36.991	-6.509	43.500
239.464	-12.295	50.900	38.605	-7.395	46.000
322.406	-9.840	44.733	34.893	-11.107	46.000
543.116	-5.348	43.575	38.227	-7.773	46.000
717.435	-2.714	37.723	35.009	-10.991	46.000
960.638	0.360	46.458	46.817	-7.183	54.000

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.

5. RF Antenna Conducted Test

5.1. Test Setup



5.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.4. Uncertainty

±1.23dB

5.5. Test Result of RF Antenna Conducted Test

Product : Mobile Medical Assistant Tablet
 Test Item : RF Antenna Conducted Test
 Test Mode : Mode 1: Transmit - BLE
 Test Date : 2017/06/21

Figure Channel 00:

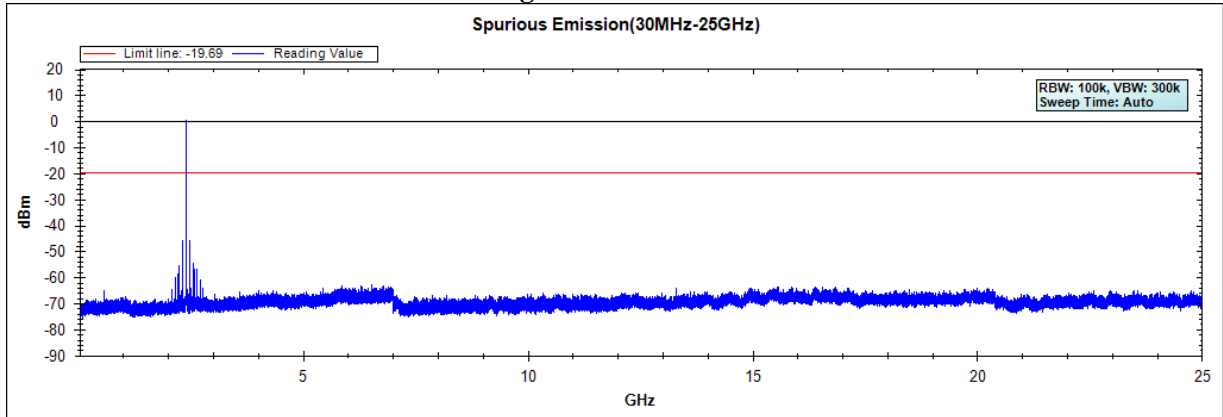


Figure Channel 19:

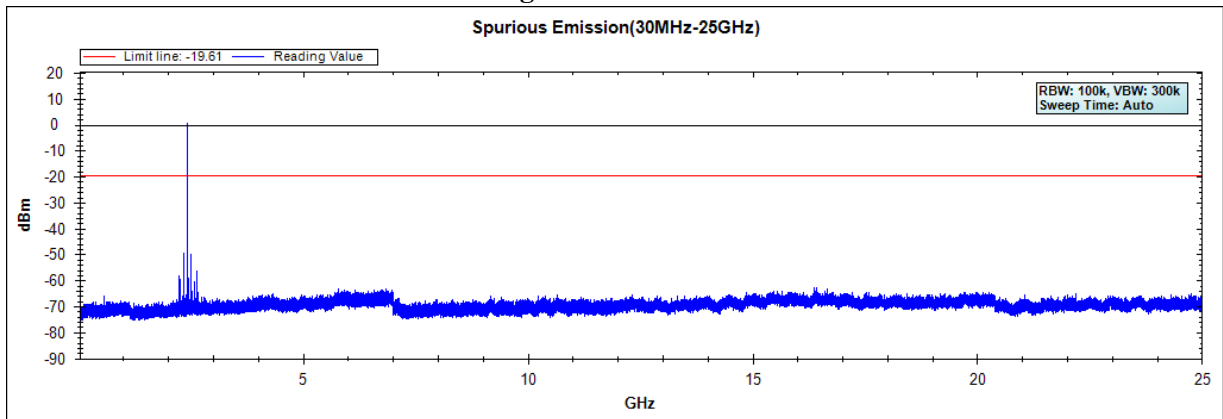
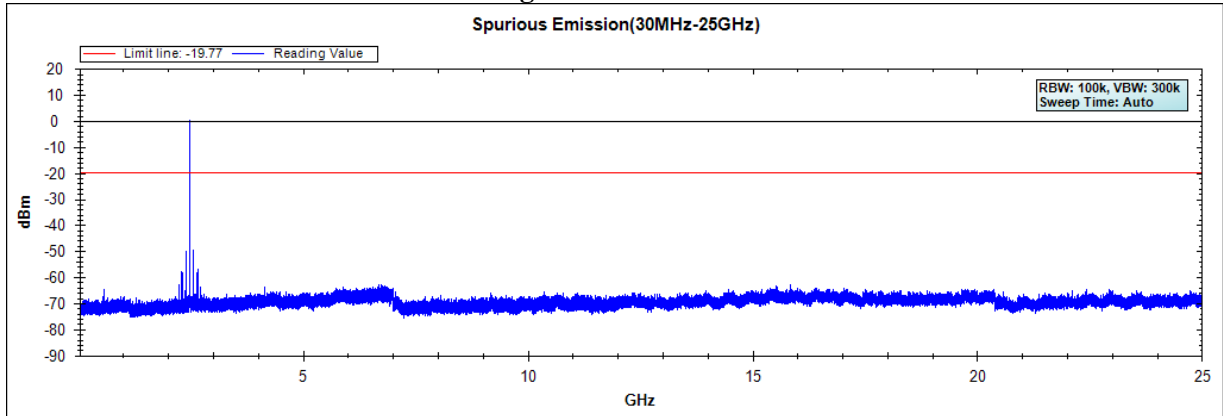


Figure Channel 39:

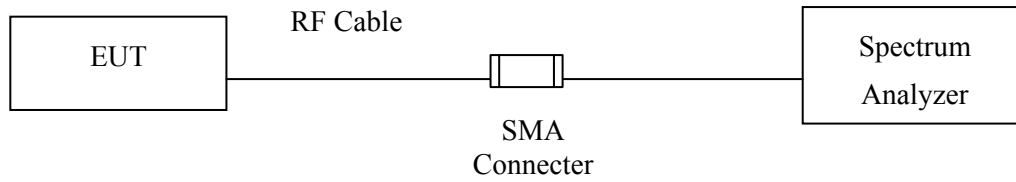


Note: The above test pattern is synthesized by multiple of the frequency range.

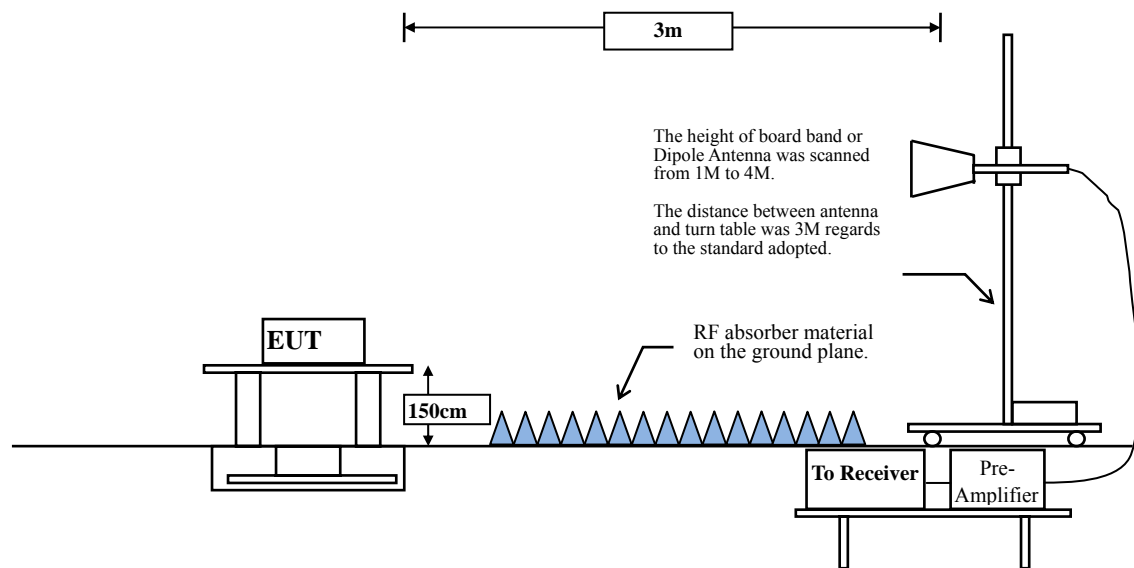
6. Band Edge

6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.2. Limit

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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 from 1 meter to 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.

6.4. Uncertainty

Conducted: ± 1.23 dB

Radiated:

Horizontal polarization : 1-18GHz: ± 3.77 dB

Vertical polarization : 1-18GHz : ± 3.83 dB

6.5. Test Result of Band Edge

Product : Mobile Medical Assistant Tablet
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE
 Test Date : 2017/06/13

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2389.710	-8.951	55.878	46.927	74.00	54.00	Pass
00 (Peak)	2390.000	-8.951	54.224	45.274	74.00	54.00	Pass
00 (Peak)	2400.000	-8.912	66.028	57.116	--	--	--
00 (Peak)	2402.174	-8.904	96.063	87.159	--	--	--
00 (Average)	2390.000	-8.951	35.140	26.190	74.00	54.00	Pass
00 (Average)	2400.000	-8.912	50.000	41.088	--	--	--
00 (Average)	2401.884	-8.905	77.981	69.076	--	--	--

Figure Channel 00: Horizontal (Peak)

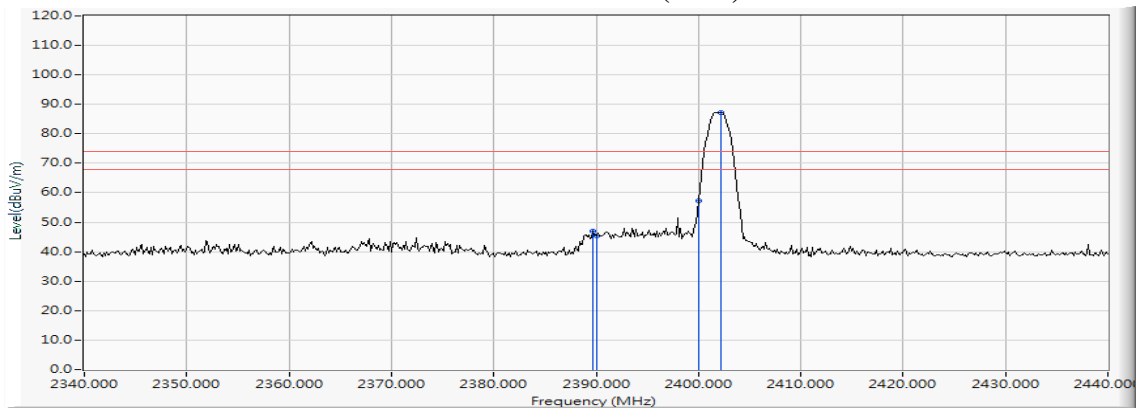
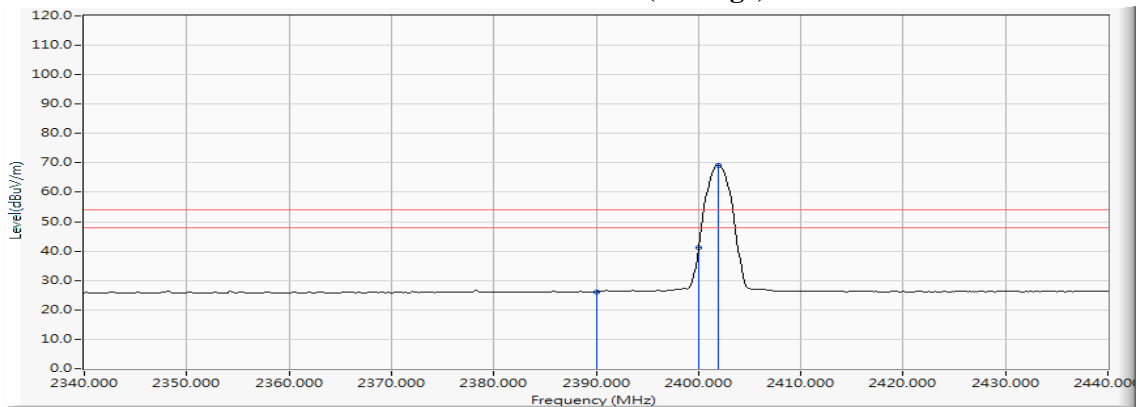


Figure Channel 00: Horizontal (Average)



Note:

1. All readings 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. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Mobile Medical Assistant Tablet
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE
 Test Date : 2017/06/13

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2390.000	-8.951	49.781	40.831	74.00	54.00	Pass
00 (Peak)	2400.000	-8.912	63.575	54.663	--	--	--
00 (Peak)	2402.174	-8.904	93.875	84.971	--	--	--
00 (Average)	2390.000	-8.951	34.974	26.024	74.00	54.00	Pass
00 (Average)	2400.000	-8.912	48.076	39.164	--	--	--
00 (Average)	2401.884	-8.905	76.369	67.464	--	--	--

Figure Channel 00: Vertical (Peak)

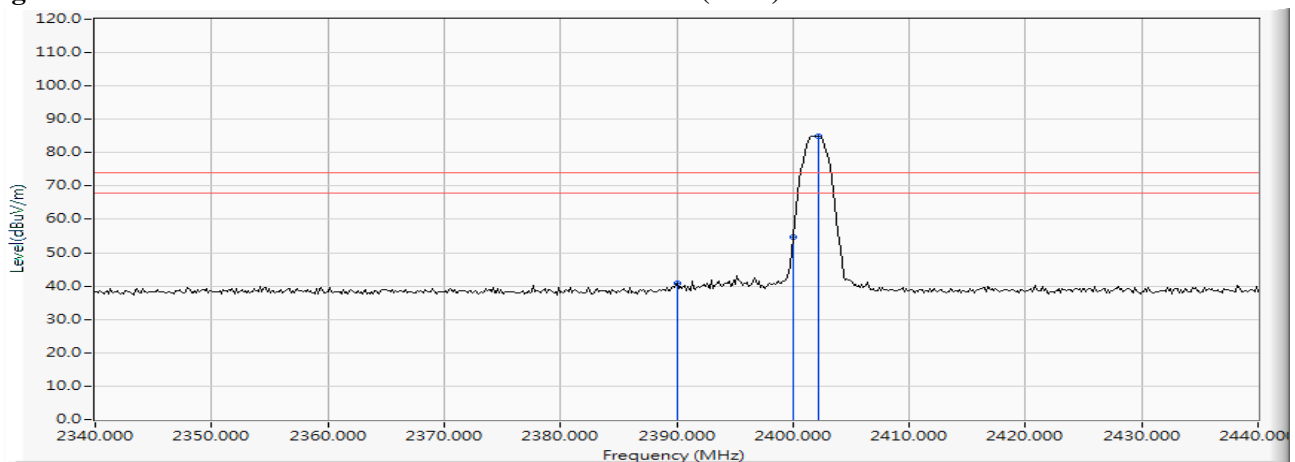
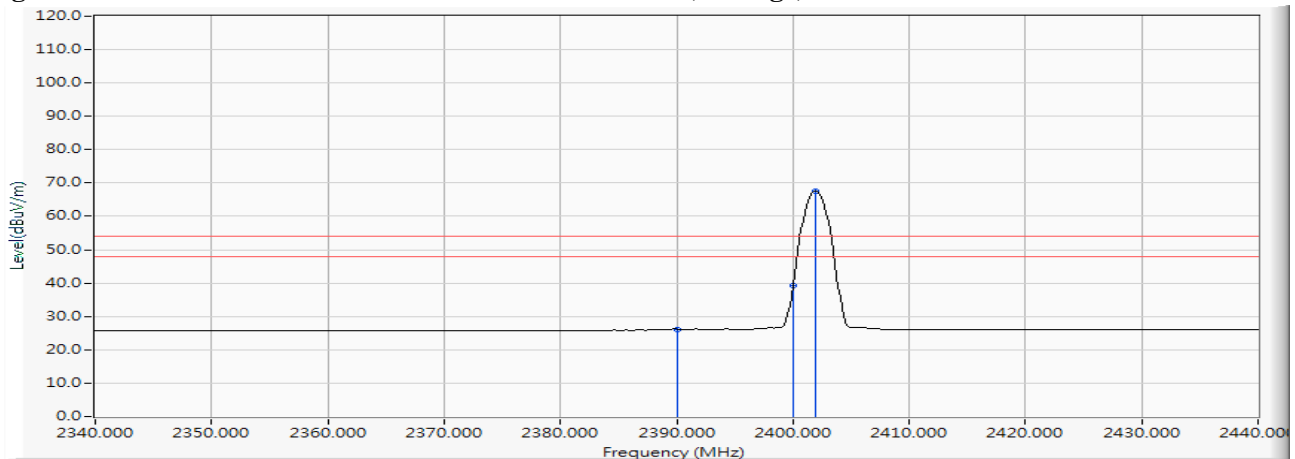


Figure Channel 00: Vertical (Average)



Note:

1. All readings 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. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Mobile Medical Assistant Tablet
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE
 Test Date : 2017/06/13

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39 (Peak)	2480.167	-8.614	99.525	90.910	--	--	--
39 (Peak)	2483.500	-8.604	53.455	44.852	74.00	54.00	Pass
39 (Average)	2479.877	-8.615	80.460	71.844	--	--	--
39 (Average)	2483.500	-8.604	37.064	28.461	74.00	54.00	Pass

Figure Channel 39: Horizontal (Peak)

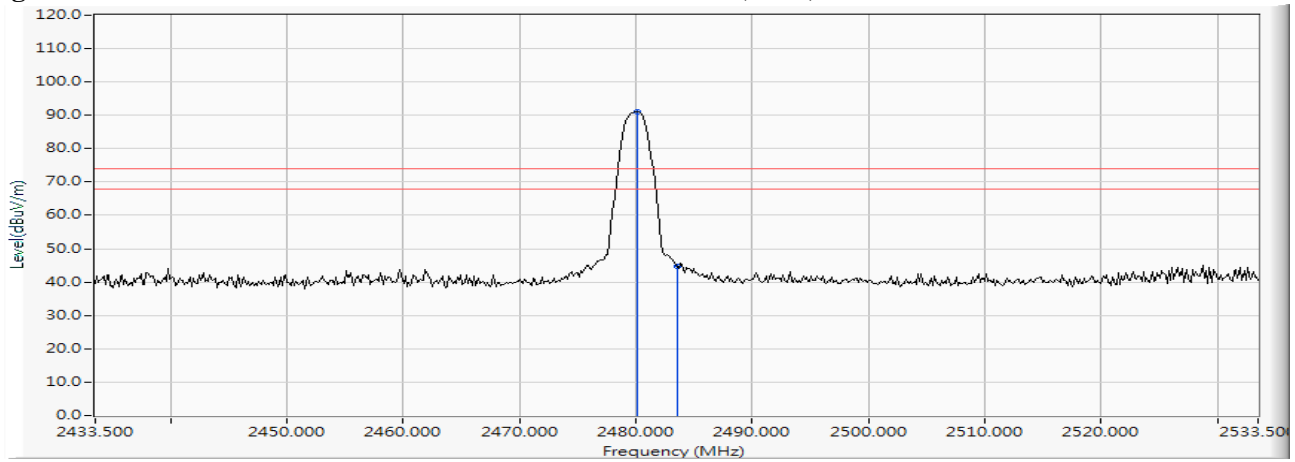
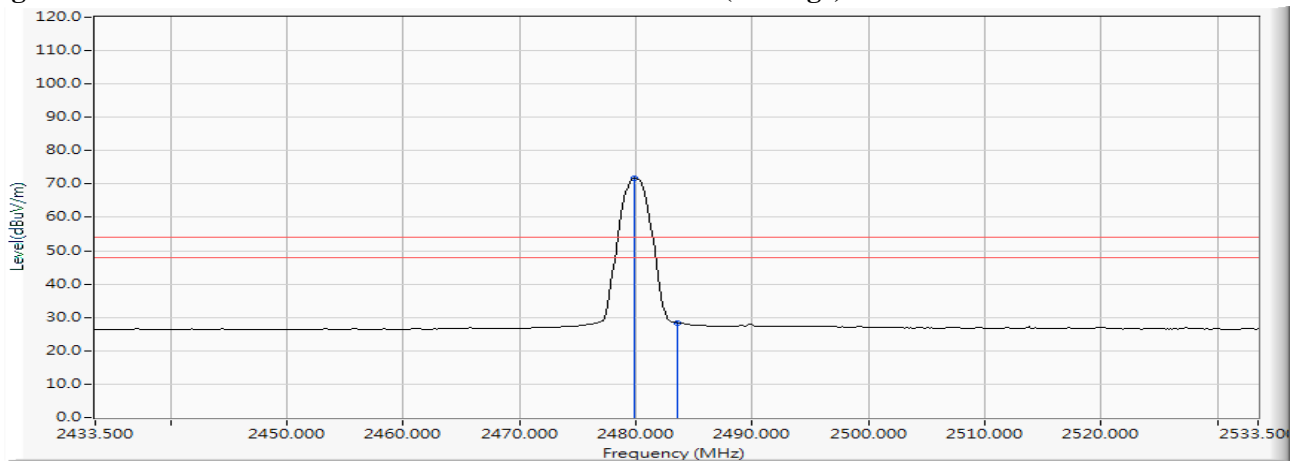


Figure Channel 39: Horizontal (Average)



Note:

1. All readings 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. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Mobile Medical Assistant Tablet
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE
 Test Date : 2017/06/13

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39 (Peak)	2480.022	-8.615	97.278	88.663	--	--	--
39 (Peak)	2483.500	-8.604	51.812	43.209	74.00	54.00	Pass
39 (Average)	2479.877	-8.615	78.855	70.239	--	--	--
39 (Average)	2483.500	-8.604	36.289	27.686	74.00	54.00	Pass

Figure Channel 39: Vertical (Peak)

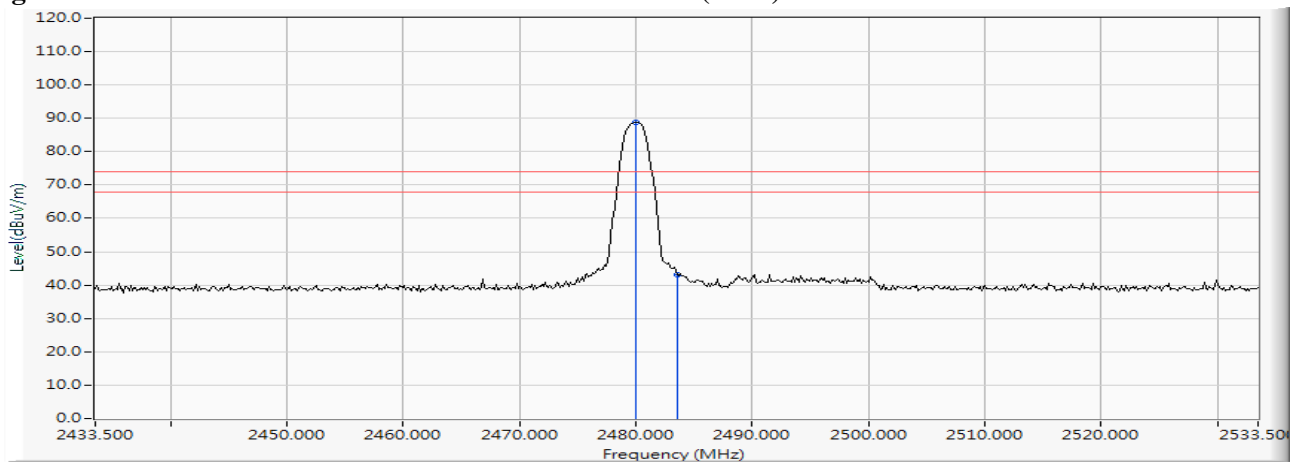
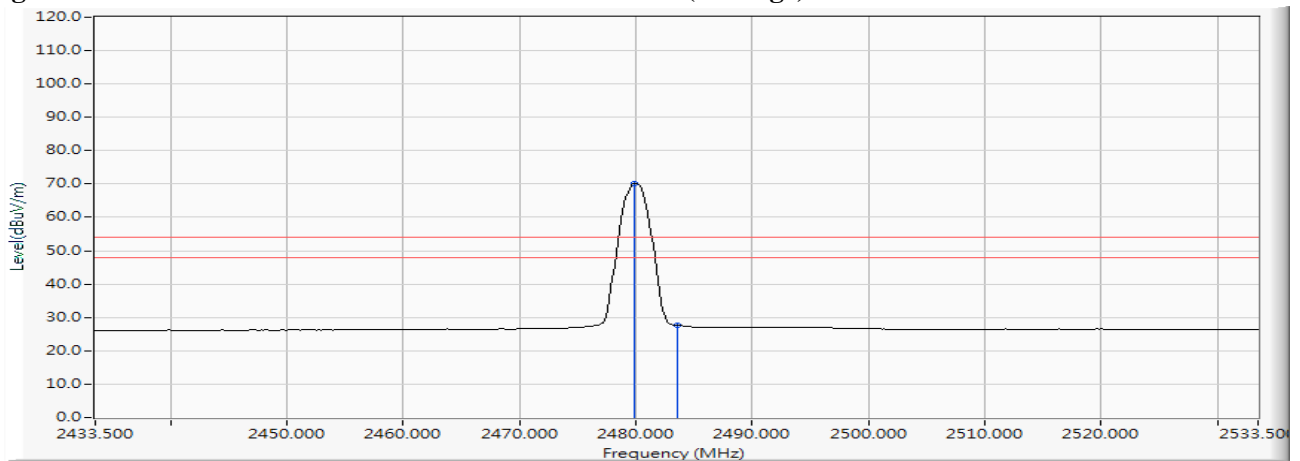


Figure Channel 39: Vertical (Average)

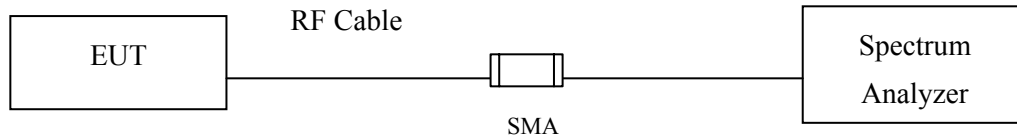


Note:

1. All readings 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. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1-5% of the emission bandwidth, $VBW \geq 3 * RBW$

7.4. Uncertainty

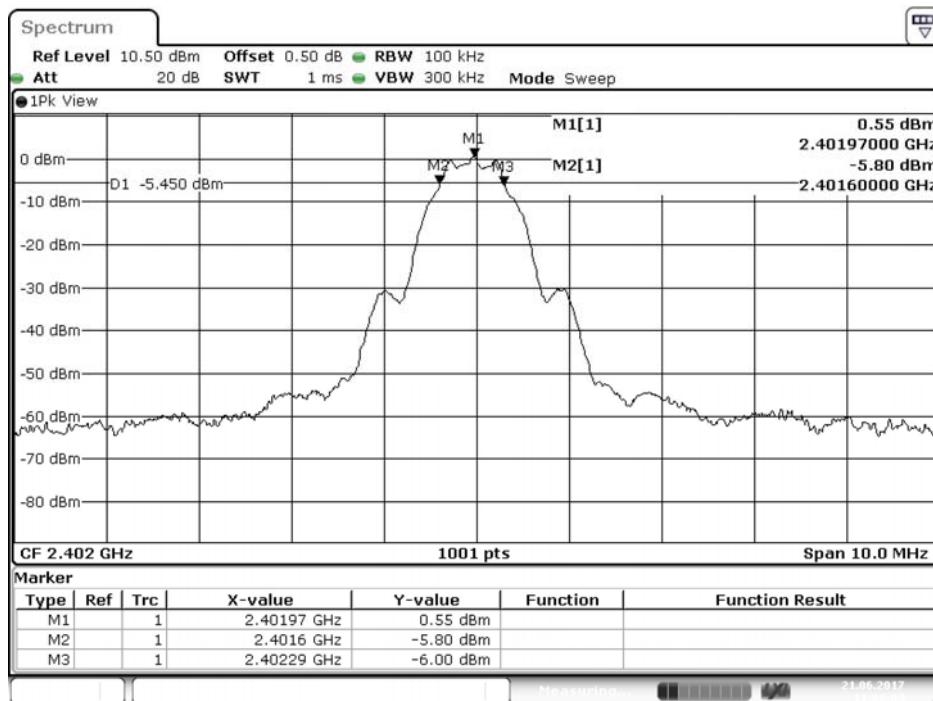
$\pm 279.2\text{Hz}$

7.5. Test Result of 6dB Bandwidth

Product : Mobile Medical Assistant Tablet
 Test Item : 6dB Bandwidth Data
 Test Mode : Mode 1: Transmit - BLE (2402MHz)
 Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	690	>500	Pass

Figure Channel 00:

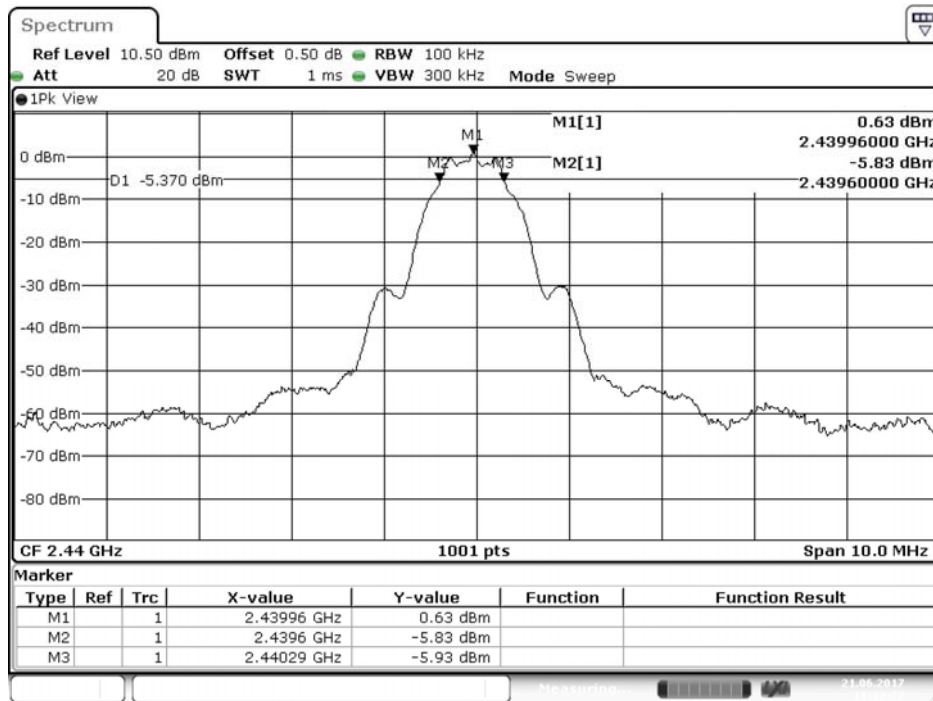


Date: 21 JUN 2017 11:08:04

Product : Mobile Medical Assistant Tablet
 Test Item : 6dB Bandwidth Data
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
19	2440	690	>500	Pass

Figure Channel 19:

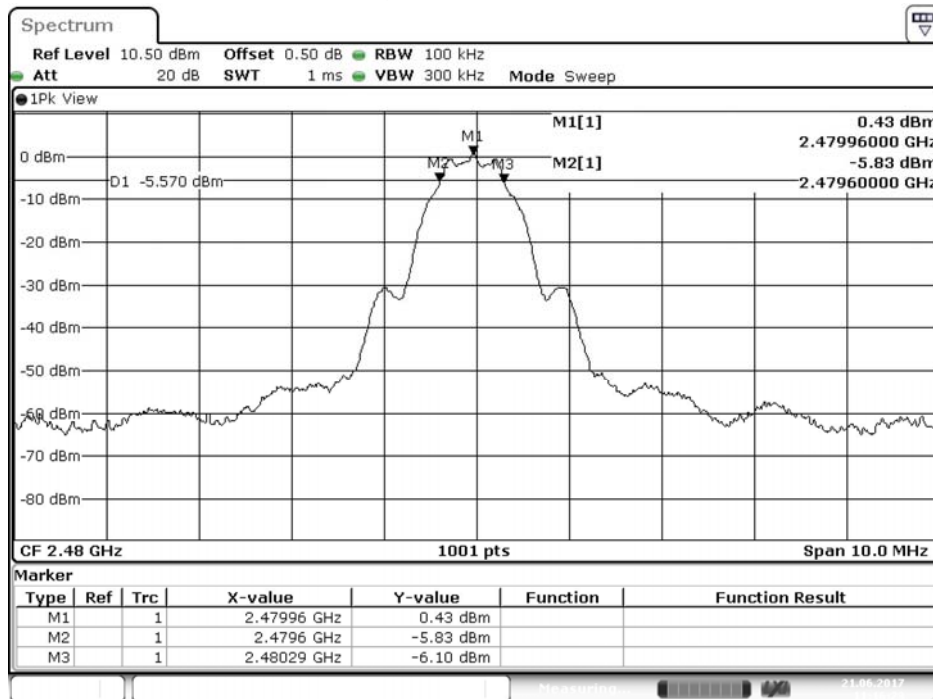


Date: 21.JUN.2017 11:12:28

Product : Mobile Medical Assistant Tablet
 Test Item : 6dB Bandwidth Data
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2480	690	>500	Pass

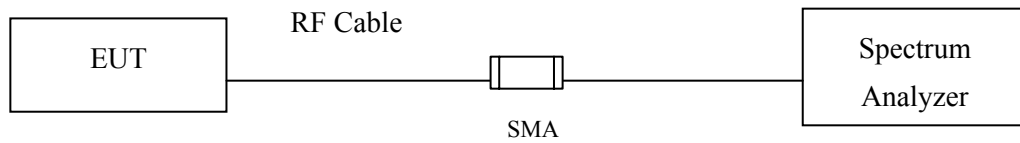
Figure Channel 39:



Date: 21.JUN.2017 11:16:23

8. Power Density

8.1. Test Setup



8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013, the maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.4. Uncertainty

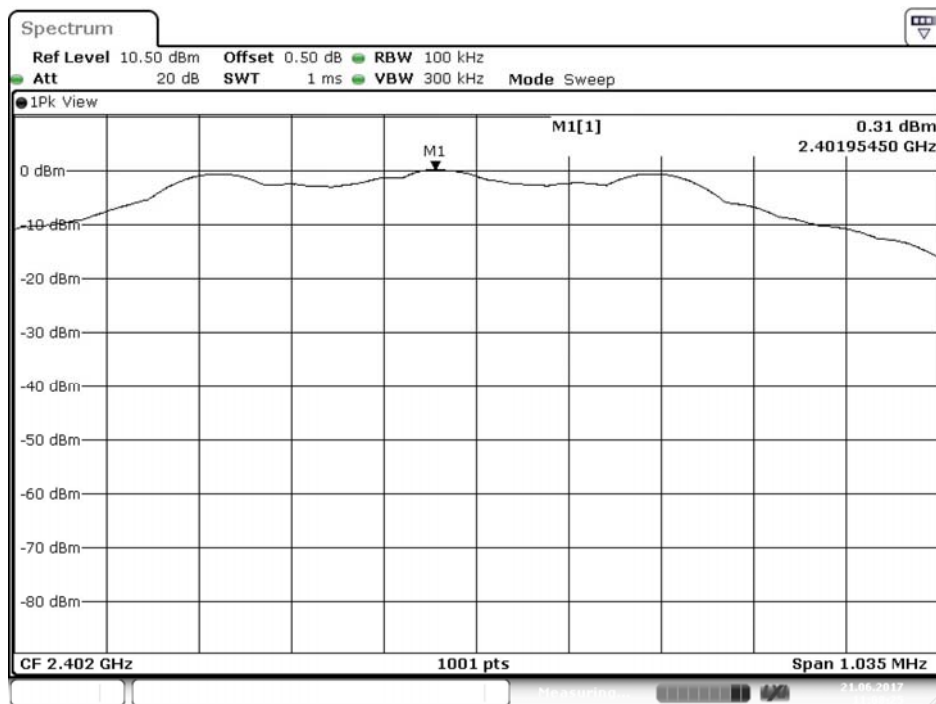
$\pm 1.23\text{dB}$

8.5. Test Result of Power Density

Product : Mobile Medical Assistant Tablet
 Test Item : Power Density Data
 Test Mode : Mode 1: Transmit - BLE (2402MHz)
 Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	0.310	≤ 8dBm	Pass

Figure Channel 00:

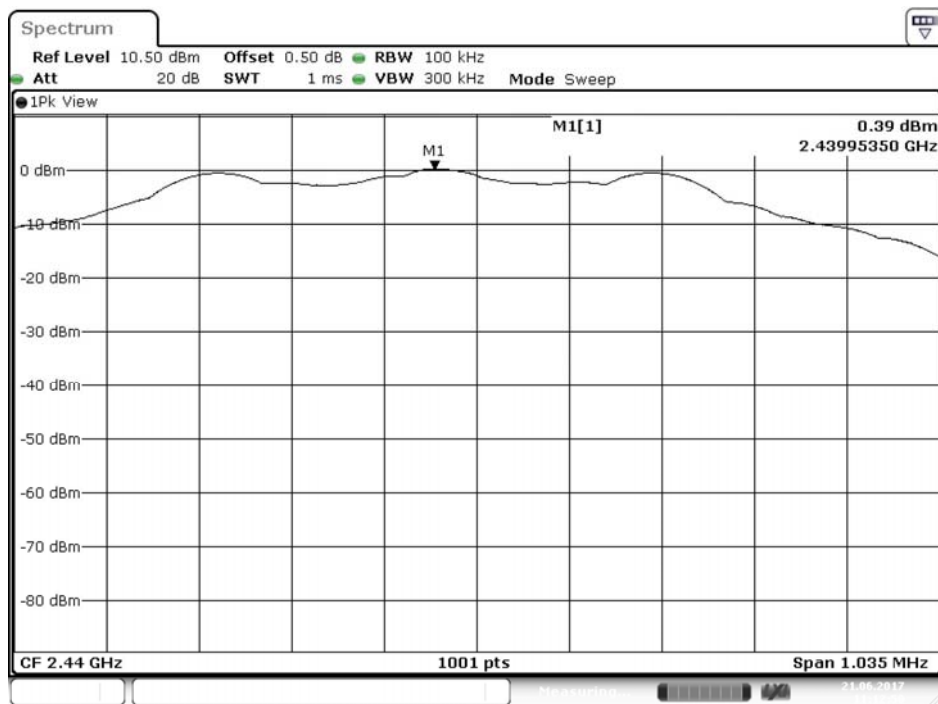


Date: 21.JUN.2017 11:08:25

Product : Mobile Medical Assistant Tablet
 Test Item : Power Density Data
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
19	2440	0.390	≤ 8dBm	Pass

Figure Channel 19:

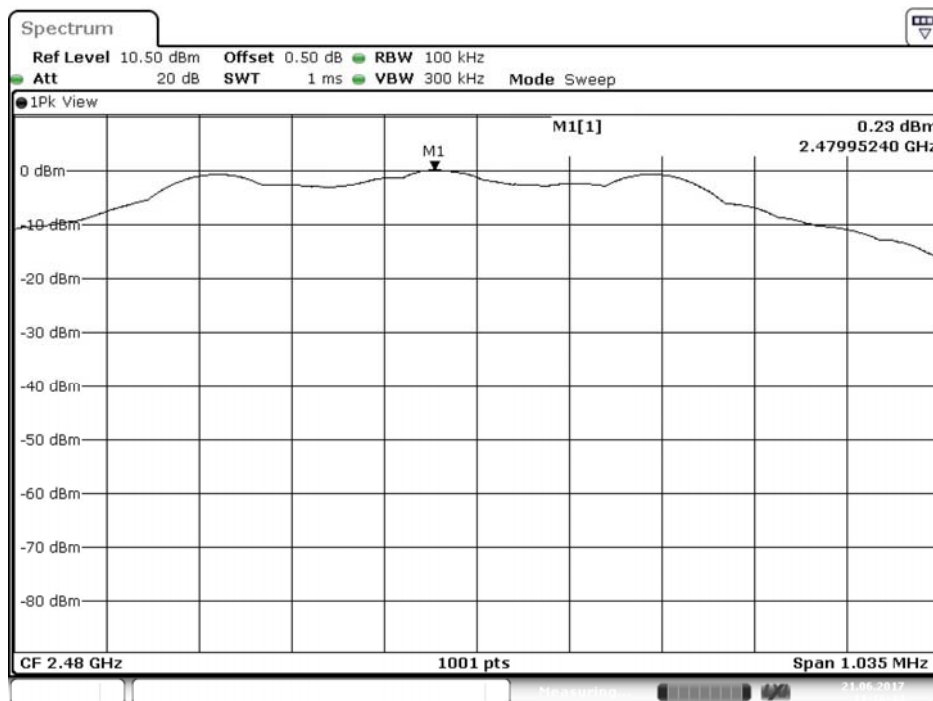


Date: 21.JUN.2017 11:12:50

Product : Mobile Medical Assistant Tablet
 Test Item : Power Density Data
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2017/06/21

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
39	2480	0.230	≤ 8dBm	Pass

Figure Channel 39:



Date: 21.JUN.2017 11:16:44

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs