

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CBT_RM-1078_02.docx	Date of Report:	10-Sep-2014
Number of pages:	45	Customer's Contact person:	Hu Dongji
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-1078 / AC-Charger AC-20U / Battery BL-5H / Headset WH-108		
FCC ID:	QTLRM-1078	IC:	
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Microsoft.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document		
Date and signature for the contents:			

Fu Roger, Engineer, EMC

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	31-Jul-2014
Testing completed	25-Aug-2014
The customer's contact person	Hu Dongji
Test Plan referred to	T:\Projects\RM-1078\TestPlan\RS_Testplan_RM-1078.xlsm
Notes	-
Document name	FCC15CBT_RM-1078_02.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/CDMA/WCDMA/LTE/WLAN/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-1078	355129060006721	0201	-	02035.00000.14295.07001	54576
AC-Charger	AC-20U	4868672462450500270;0675629	-	-	-	54581
Battery	BL-5H	4175354275C20304003;0670699	-	-	-	54583
Headset	WH-108	3022D71	-	-	-	54459
Phone	RM-1078	355129060007299	0201	-	02035.00000.14295.07001	54582
AC-Charger	AC-20U	4868672462450500270;0675629	-	-	-	54581
Battery	BL-5H	4175354275C20304003;0670699	-	-	-	54583
Headset	WH-108	3022D71	-	-	-	54459
Phone	RM-1078	355129060007158	0201	-	02035.00000.14295.07001	54578
Battery	BL-5H	4175354275C20304014;0670699	-	-	-	54577
AC-Charger	AC-20U	4868673112340509970;0675629	-	-	-	53340
Headset	WH-108	3293L71	-	-	-	54240

1.2. Summary of Test Results

Bluetooth:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8.4(2)	Conducted peak output power	PASSED
15.247(d), 15.205(b)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(d)	A8.5	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	7.2.4	AC powerline conducted emissions	PASSED
15.247(a)(1)	A8.1(a)	20dB(bandwidth)	PASSED
15.247(a)(1)	A8.1(b)	Carrier frequency separation	PASSED
15.247(a)(1)(iii)	A8.1(d)	Number of hopping frequencies	PASSED
15.247(a)(1)(iii)	A8.1(d)	Time of occupancy	PASSED

PASSED

FAILED

NP

The EUT complies with the essential requirements in the standard.

The EUT does not comply with the essential requirements in the standard.

The test was not performed by the TCC Microsoft Laboratory.

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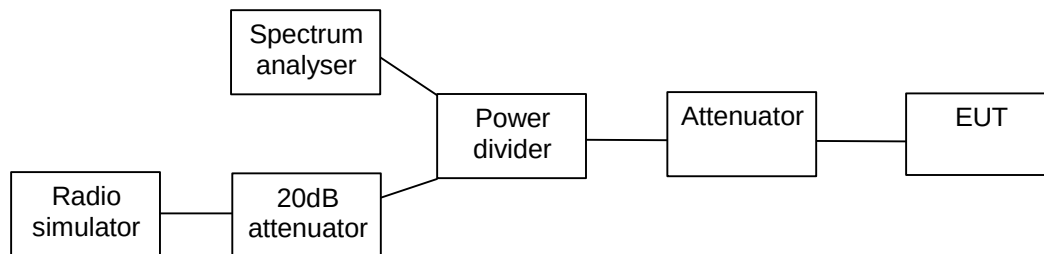
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2. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4(2))

EUT with DUT number	RM-1078, DUT 54582
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/55/100.2
Date of measurements	14-Aug-2014
Measured by	Dou Rubo

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for conducted peak output power measurements

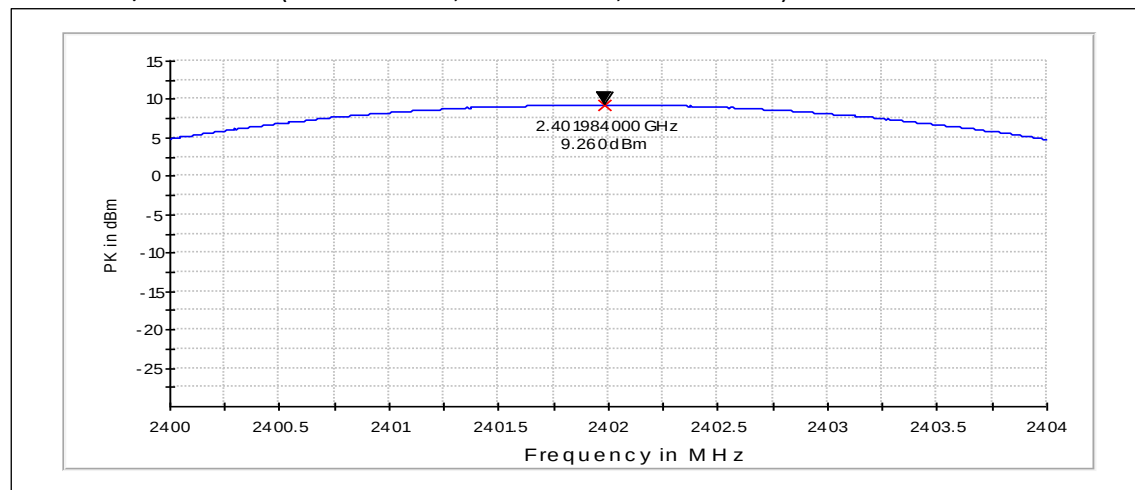
Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5 5725 - 5850	≤ 1	≤ 30

2.3. Bluetooth Test results

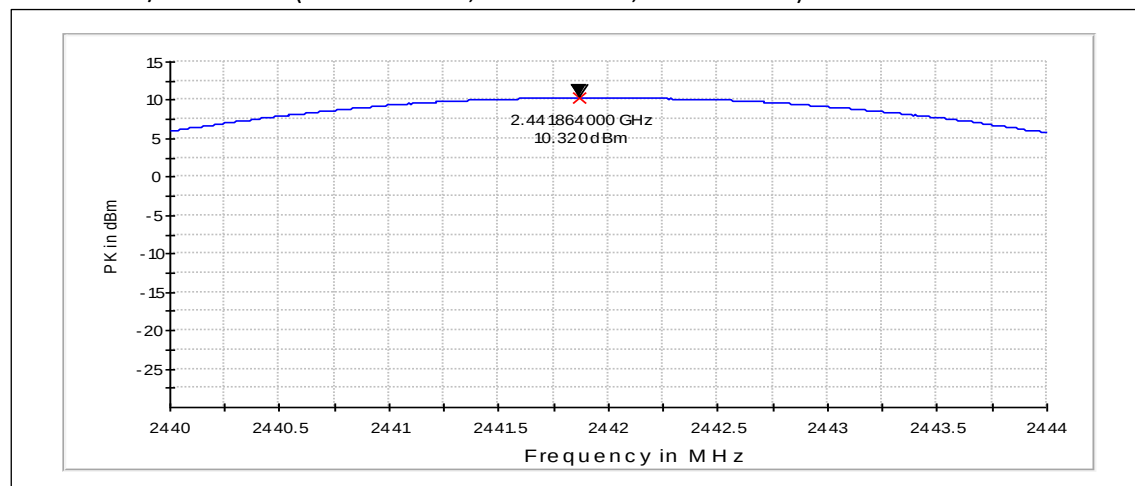
2.3.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	9.26	8.433	PASSED
40 / 2442	10.32	10.765	PASSED
78 / 2480	8.28	6.73	PASSED

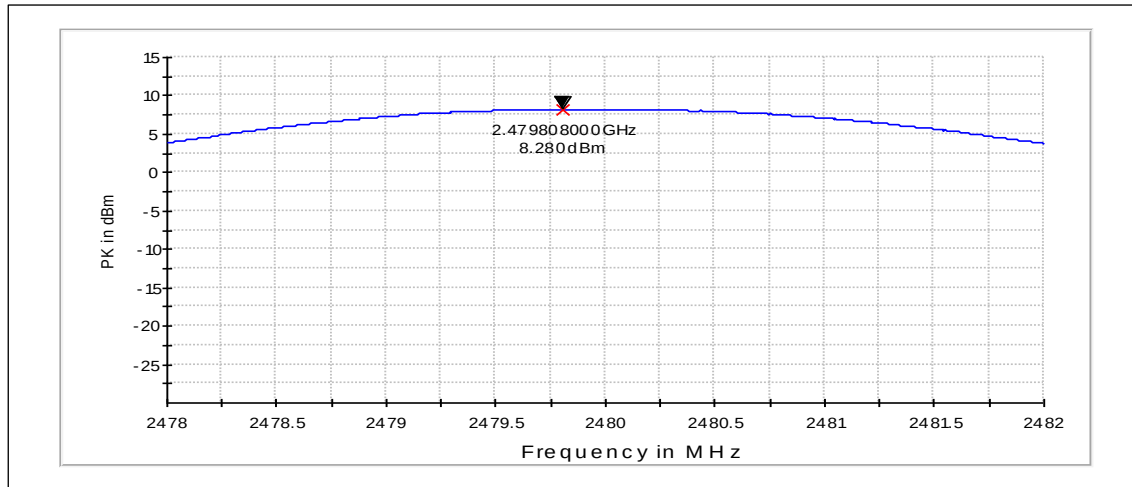
Channel 0 / 2402 MHz (Peak detector, RBW: 3 MHz, VBW: 3 MHz)



Channel 40 / 2442 MHz (Peak detector, RBW: 3 MHz, VBW: 3 MHz)



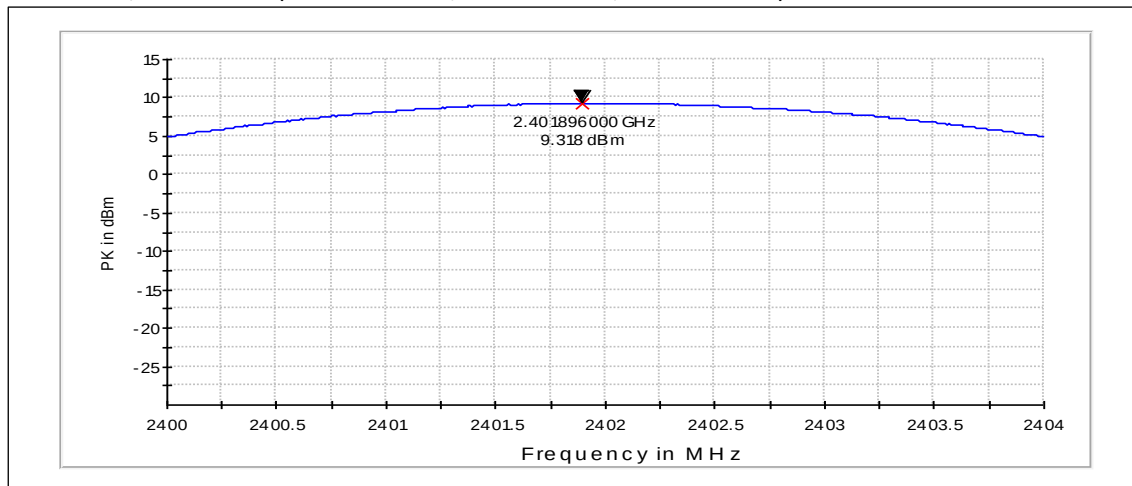
Channel 78 / 2480 MHz (Peak detector, RBW: 3 MHz, VBW: 3 MHz)



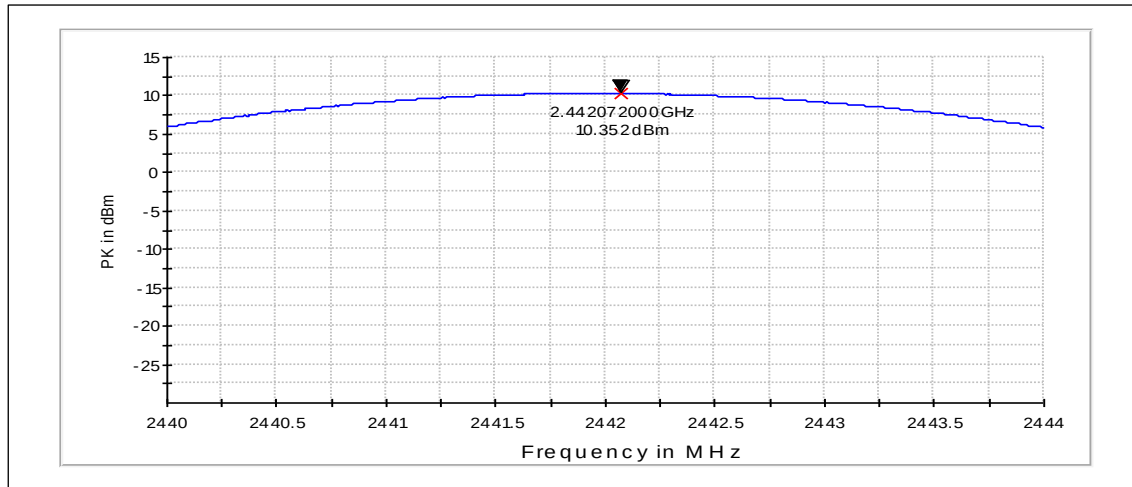
2.3.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
0 / 2402	9.32	8.551	PASSED
40 / 2442	10.35	10.839	PASSED
78 / 2480	8.26	6.699	PASSED

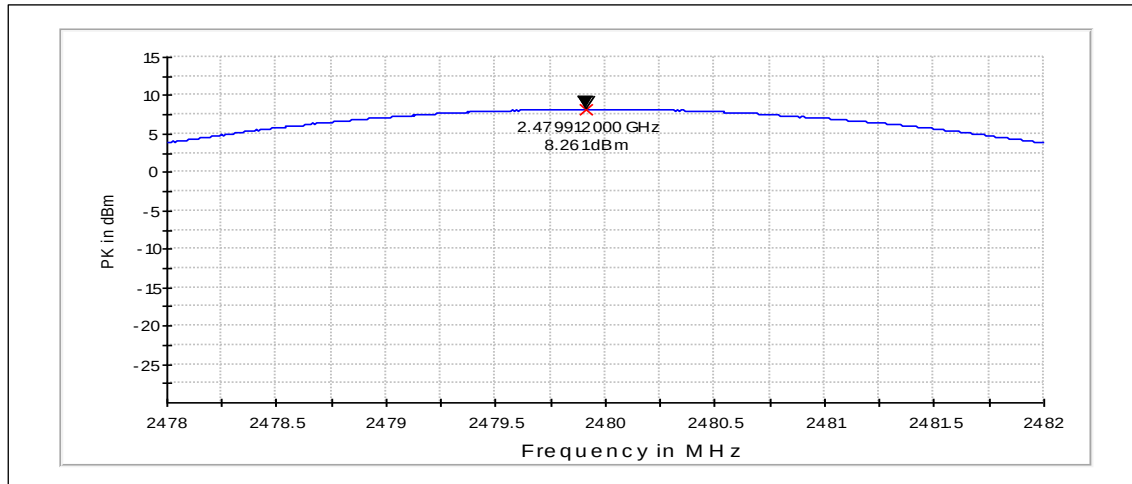
Channel 0 / 2402 MHz (Peak detector, RBW: 3 MHz, VBW: 3 MHz)



Channel 40 / 2442 MHz (Peak detector, RBW: 3 MHz, VBW: 3 MHz)



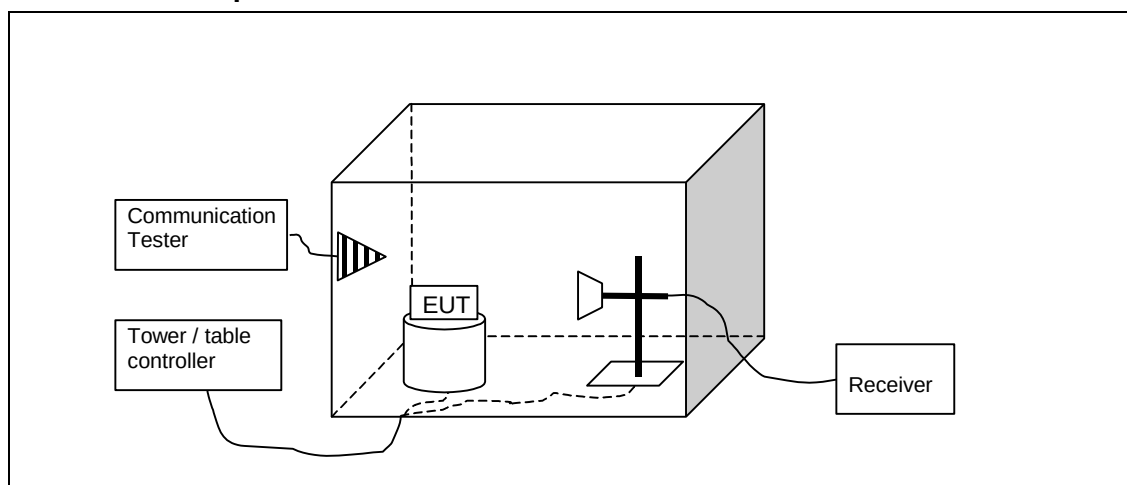
Channel 78 / 2480 MHz (Peak detector, RBW: 3 MHz, VBW: 3 MHz)



3. Band edge compliance of RF emissions (FCC 15.247(d), 15.205(b), RSS-210 A8.5)

EUT with DUT number	RM-1078, DUT 54578
Accessories with DUT numbers	BL-5H, DUT 54577 ; AC-20U, DUT 53340 ; WH-108, DUT 54240
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23/54/101
Date of measurements	18-Aug-2014
Measured by	Fu Roger

3.1.1 Test setup



3.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

The measurement results are obtained as described below:

$$E [dB\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

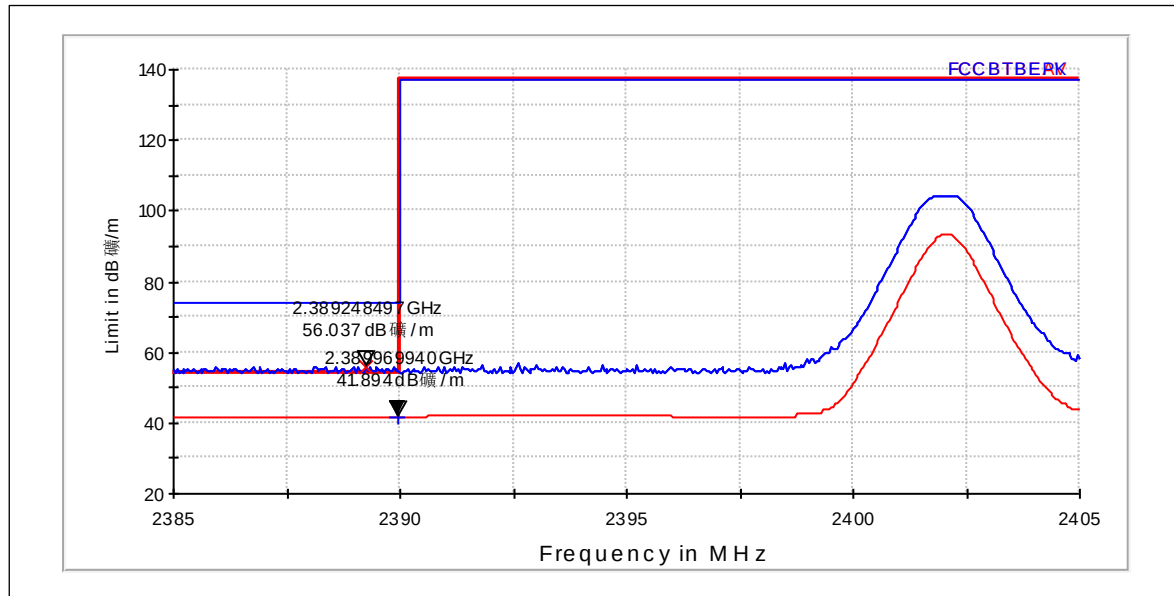
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit
Below 2390 and above 2483.5	54 dBuV/m (avg) and 74 dBuV/m (pk)

3.3. Bluetooth test results

3.3.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



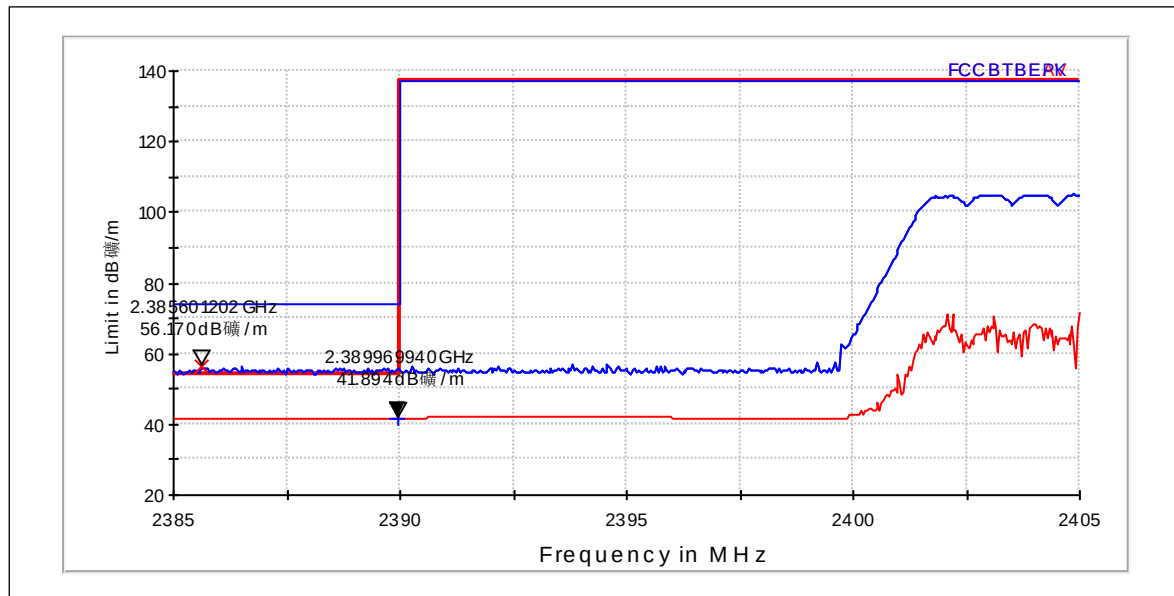
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2389	56.04	633.651	56.68	-0.64	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2390	41.89	124.366	42.53	-0.64	PASSED

Hopping on. Low end.



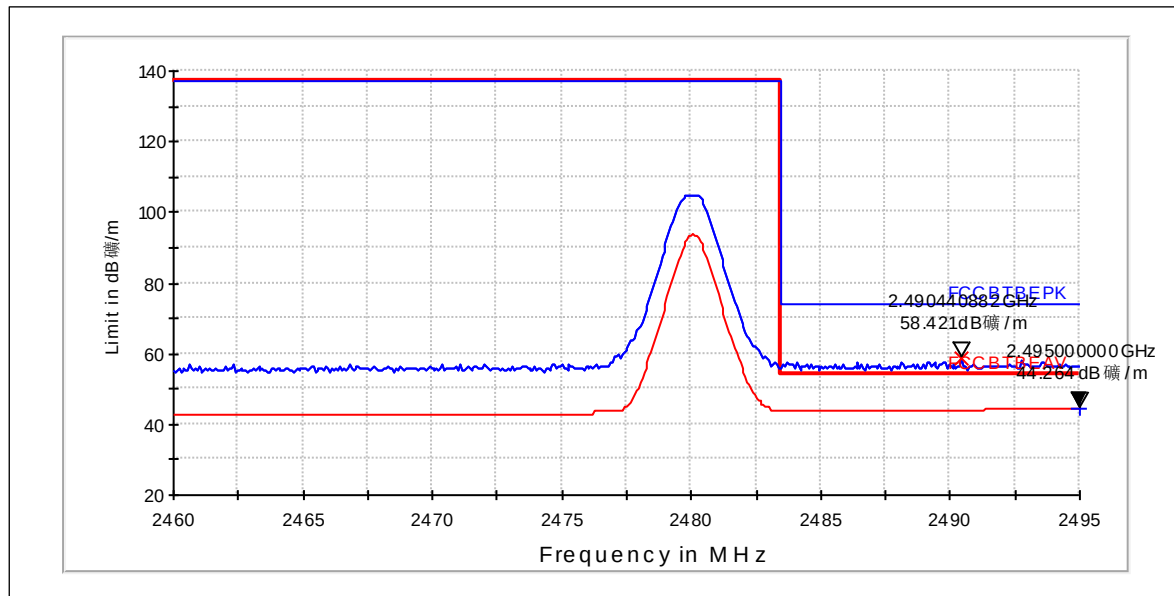
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2386	56.17	643.428	56.81	-0.64	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2390	41.89	124.366	42.53	-0.64	PASSED

Channel 78 / 2480 MHz



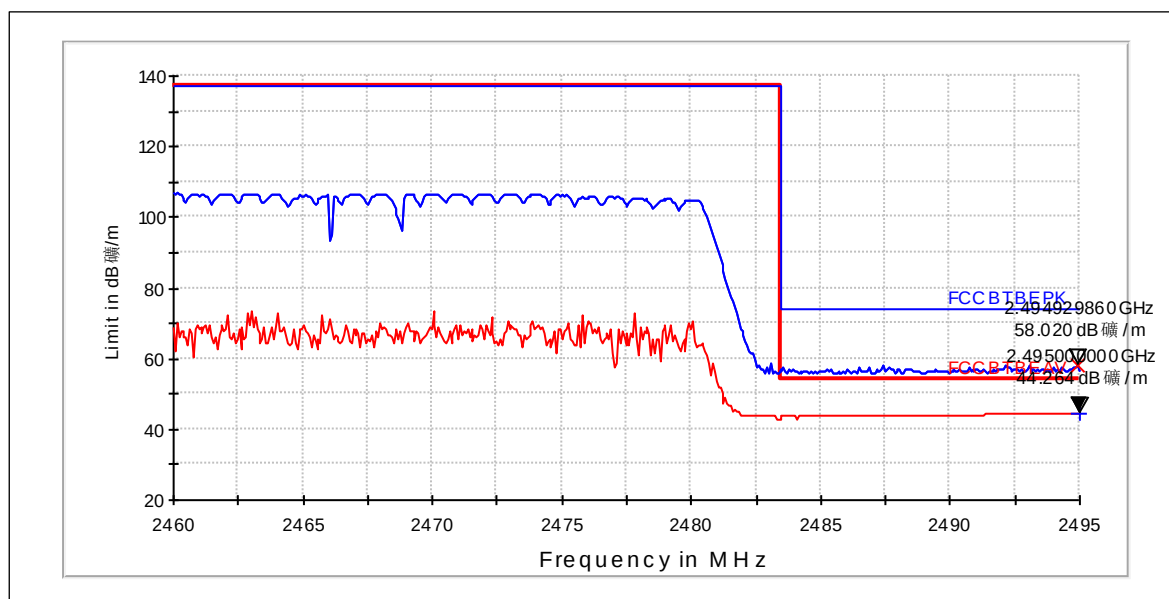
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2490	58.42	833.777	58.01	0.41	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2495	44.26	163.38	43.85	0.41	PASSED

Hopping on. High end.



Peak (RBW: 1 MHz, VBW: 1 MHz)

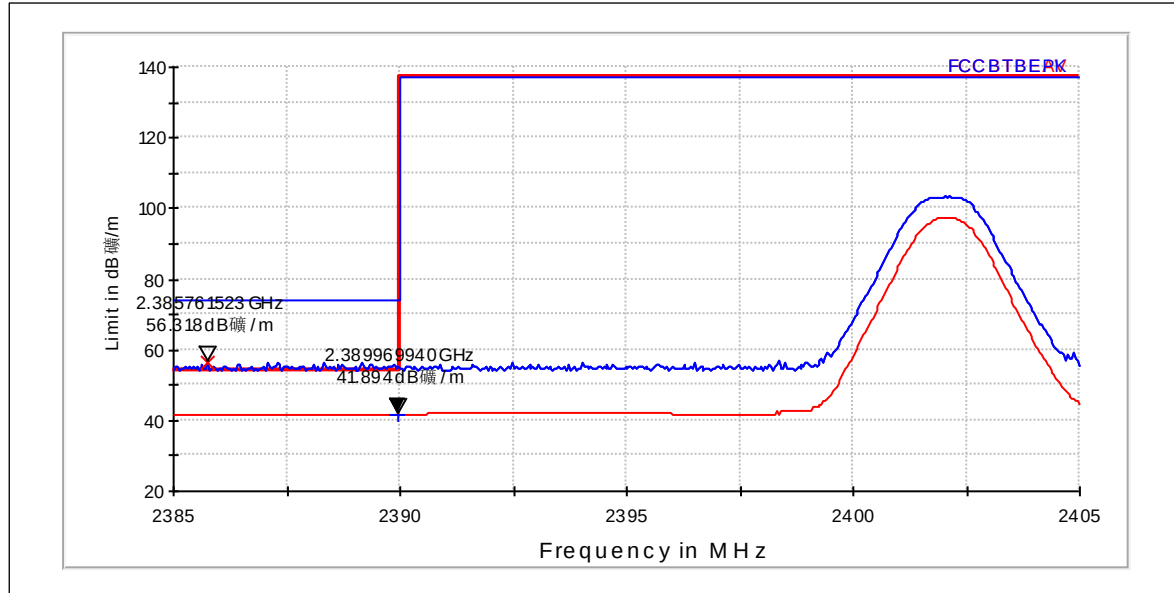
Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2495	58.02	796.159	57.61	0.41	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2495	44.26	163.38	43.85	0.41	PASSED

3.3.2 8DPSK modulation, PRBS packet type

Channel 0 / 2402 MHz



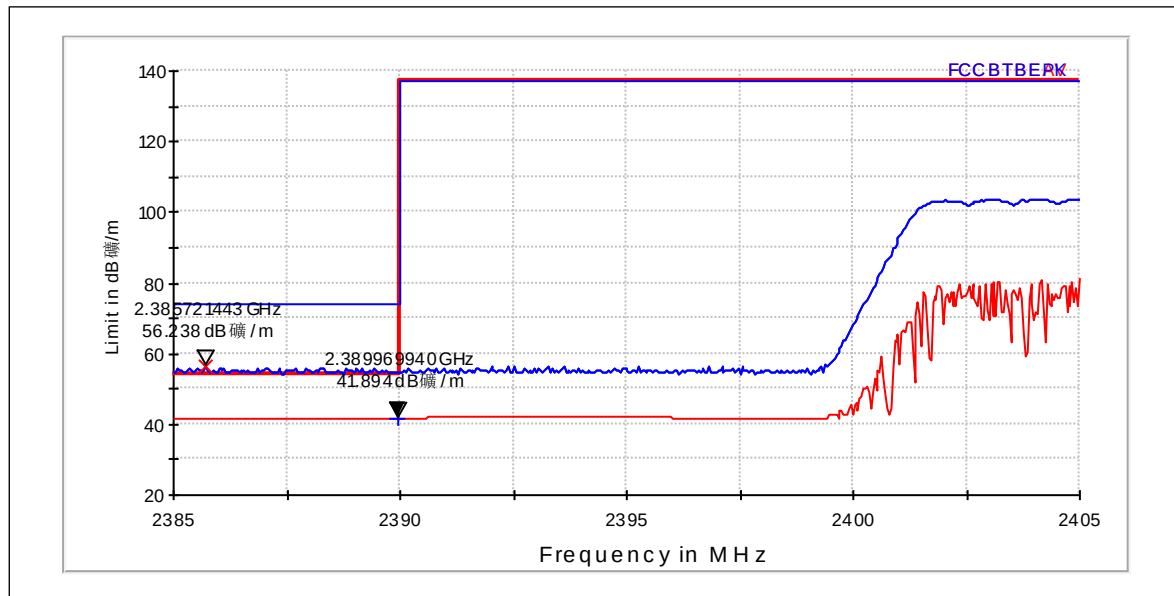
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2386	56.32	654.485	56.96	-0.64	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2390	41.89	124.366	42.53	-0.64	PASSED

Hopping on. Low end.



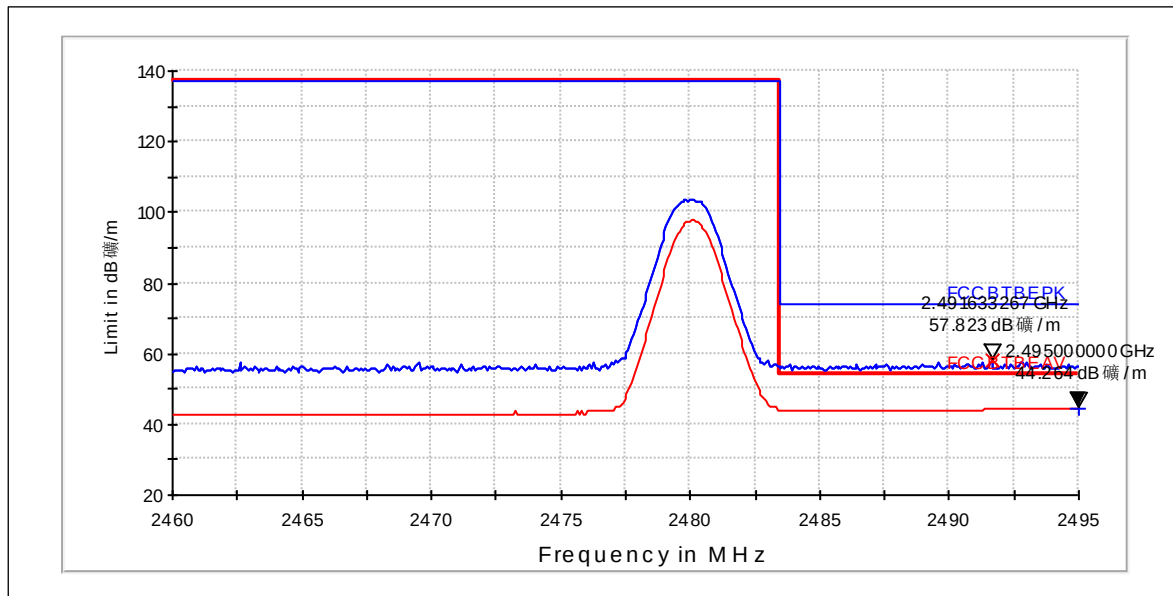
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2386	56.24	648.485	56.88	-0.64	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
2390	41.89	124.366	42.53	-0.64	PASSED

Channel 78 / 2480 MHz



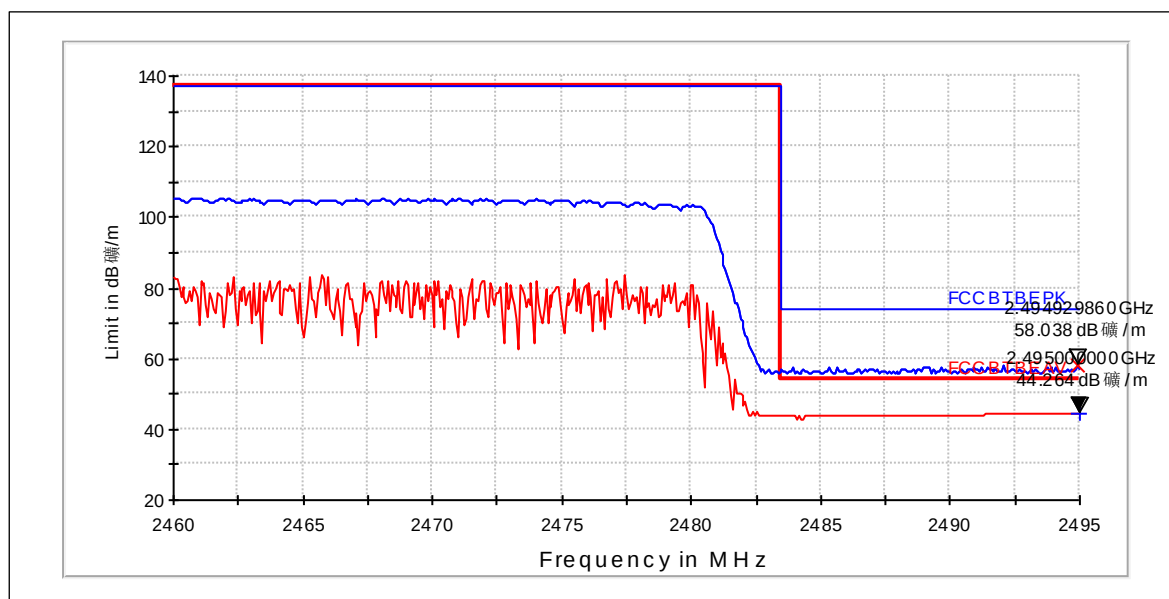
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2492	57.82	778.305	57.41	0.41	PASSED

Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2495	44.26	163.38	43.85	0.41	PASSED

Hopping on. High end.



Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2495	58.04	797.811	57.63	0.41	PASSED

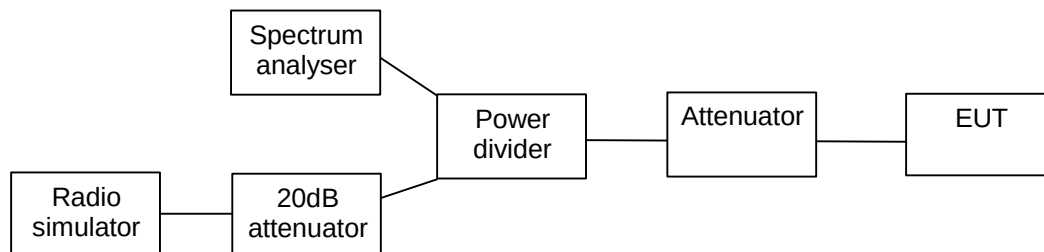
Average (RBW: 1 MHz, VBW: 10 Hz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
2495	44.26	163.38	43.85	0.41	PASSED

4. Spurious RF conducted emissions (FCC §15.247(d), RSS-210 A8.5)

EUT with DUT number	RM-1078, DUT 54582
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/55/100.2
Date of measurements	14-Aug-2014
Measured by	Dou Rubo

4.1. Test Setup



4.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

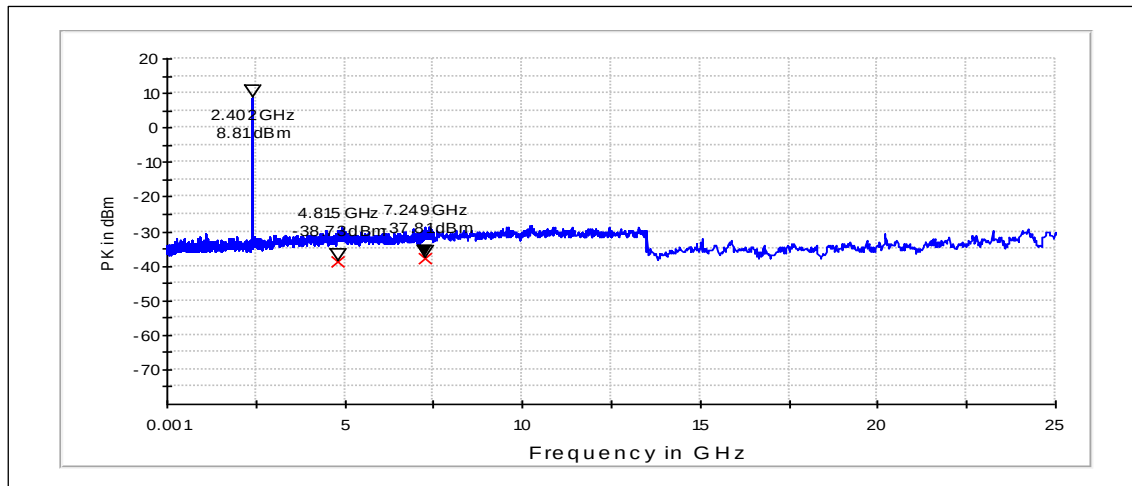
Limits for spurious RF conducted emissions measurements

Frequency range [MHz]	Limit [dBc]
1 – 25000	<= -20

4.3. Bluetooth Test results

4.3.1 GFSK modulation, PRBS packet type

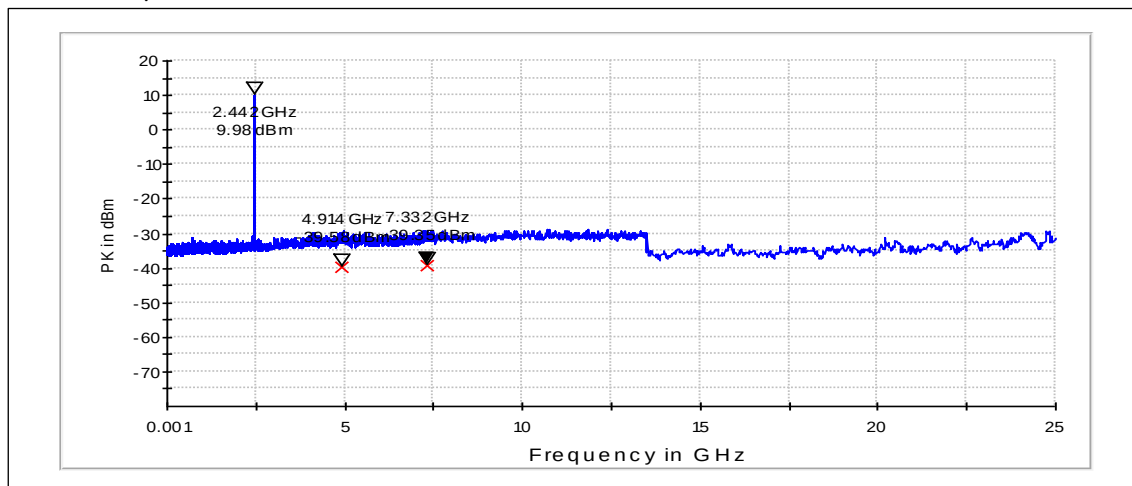
Channel 0 / 2402 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4814.800	-38.73	PASSED
7248.600	-37.81	PASSED

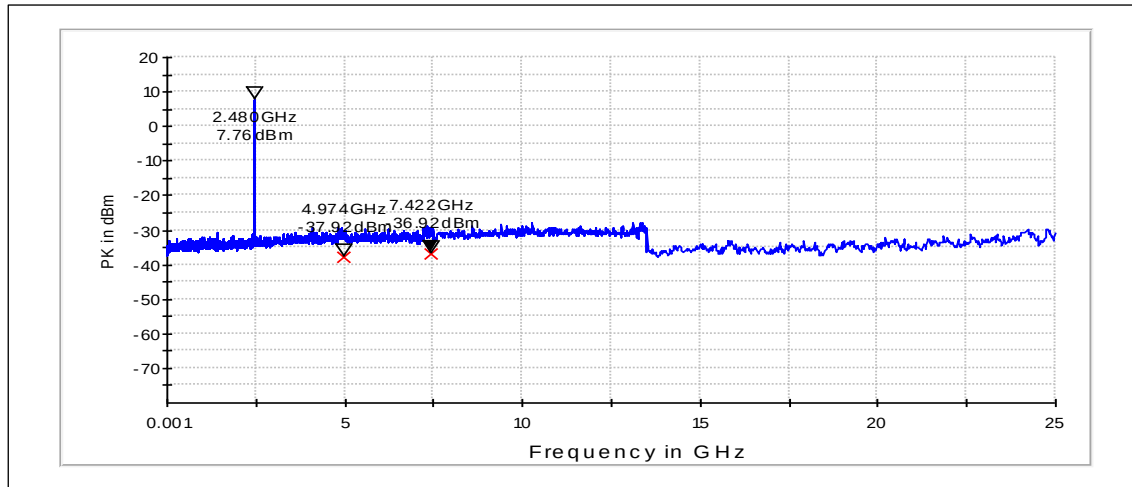
Channel 40 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4914.000	-39.58	PASSED
7332.000	-39.35	PASSED

Channel 78 / 2480 MHz

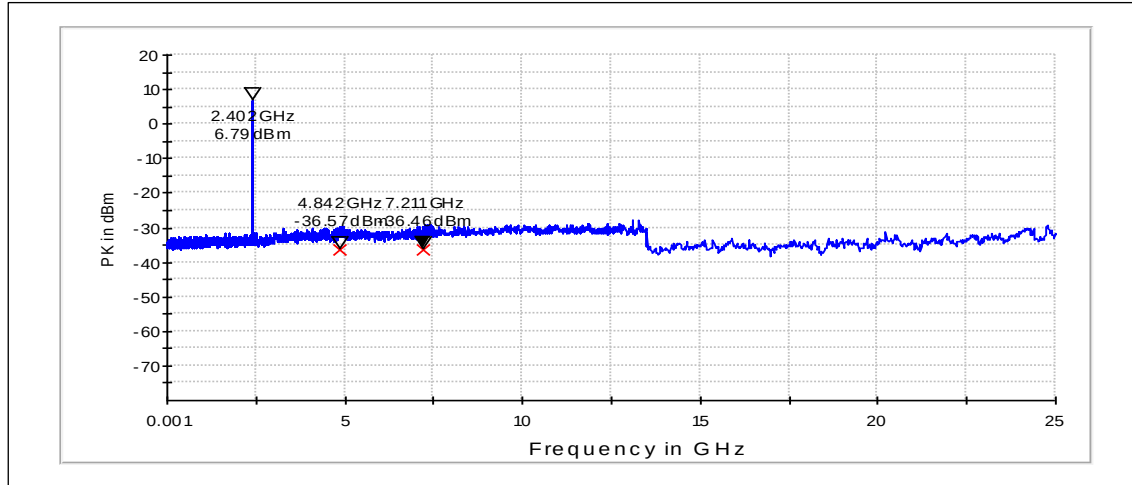


Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4974.400	-37.92	PASSED
7422.000	-36.92	PASSED

4.3.2 8DPSK modulation, PRBS packet type

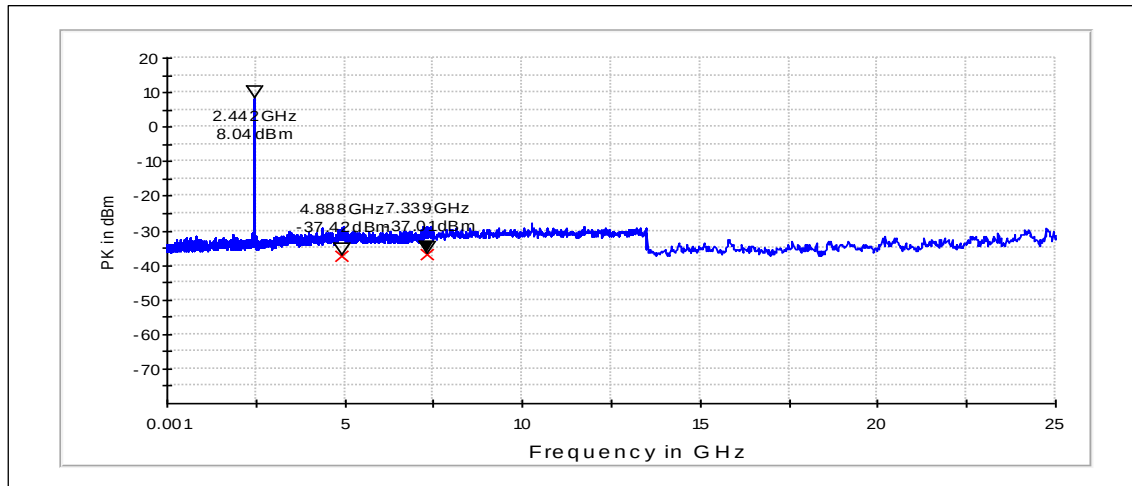
Channel 0 / 2402 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4842.000	-36.57	PASSED
7211.400	-36.46	PASSED

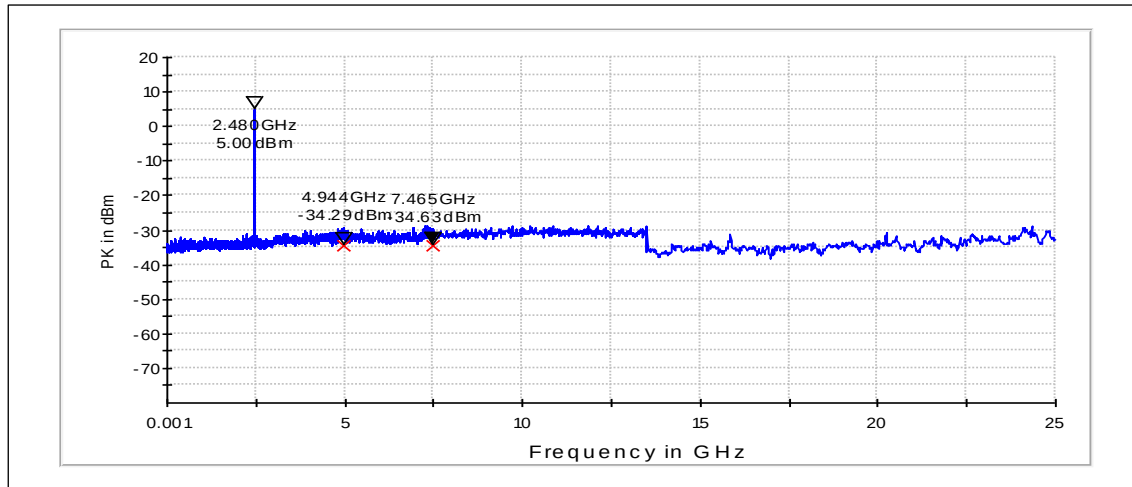
Channel 40 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4887.600	-37.42	PASSED
7338.600	-37.01	PASSED

Channel 78 / 2480 MHz



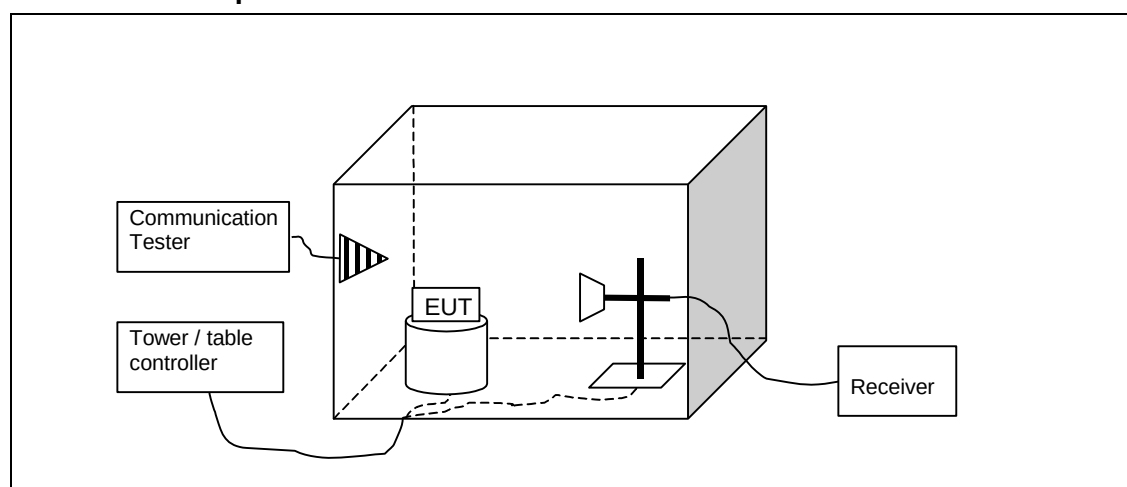
Peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	P [dBc]	Result
4944.400	-34.29	PASSED
7464.600	-34.63	PASSED

5. Spurious radiated emissions (FCC 15.247(d), 15.209, RSS-210 A8.5)

EUT with DUT number	RM-1078, DUT 54578
Accessories with DUT numbers	BL-5H, DUT 54577 ; AC-20U, DUT 53340 ; WH-108, DUT 54240
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23/54/101
Date of measurements	18-Aug-2014
Measured by	Fu Roger

5.1.1 Test setup



5.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210 as follows:
The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement results are obtained as described below:

$$E [dB\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

Limits for spurious radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [$\mu V/m$]	Limit [dB $\mu V/m$]	Detector
30 - 88	100	40	Quasi peak
88 – 216	150	43.5	Quasi peak
216 – 960	200	46	Quasi peak
960 – 1000	500	54	Quasi peak
Above 1000	500	54	Average
Above 1000	5000	74	Peak

5.3. Bluetooth test results

Channel 40 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
31.74	31.76	38.726	39.76	-8	40	8.24	PASSED
31.86	32.36	41.495	40.46	-8.1	40	7.64	PASSED
32.068	32.85	43.904	41.15	-8.3	40	7.15	PASSED
34.642	28.2	25.704	38.2	-10	40	11.8	PASSED
35.776	29.02	28.249	39.82	-10.8	40	10.98	PASSED
38.979	23.39	14.774	36.29	-12.9	40	16.61	PASSED
563.199	30.75	34.475	40.15	-9.4	46	15.27	PASSED

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10619.842	55.57	600.482	39.67	15.9	74	18.41	PASSED
10992.088	56.34	656.145	39.54	16.8	74	17.64	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10619.842	42.27	129.867	26.37	15.9	54	11.71	PASSED
10992.088	42.77	137.562	25.97	16.8	54	11.21	PASSED

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4804.6	42.39	131.674	41.19	1.2	74	31.59	PASSED
7207	49.83	310.099	40.03	9.8	95	45.4	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4804.6	29.28	29.107	28.08	1.2	54	24.7	PASSED
7207	35.71	61.024	25.91	9.8	---	---	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4961.3	44.29	163.87	42.89	1.4	74	29.69	PASSED
7440.7	50.56	337.287	39.76	10.8	74	23.42	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4961.3	31.11	35.934	29.71	1.4	54	22.87	PASSED
7440.7	37.02	70.958	26.22	10.8	54	16.96	PASSED

5.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
31.8	33.31	46.291	41.41	-8.1	40	6.69	PASSED
31.83	33.3	46.238	41.4	-8.1	40	6.7	PASSED
32.008	33.16	45.499	41.36	-8.2	40	6.84	PASSED
35.242	28.76	27.416	39.16	-10.4	40	11.24	PASSED
35.836	28.05	25.264	38.85	-10.8	40	11.95	PASSED
39.129	23.7	15.311	36.7	-13	40	16.3	PASSED
42.663	19.03	8.943	34.43	-15.4	40	20.97	PASSED
46.131	20.51	10.605	38.31	-17.8	40	19.49	PASSED
944.987	23.97	15.794	27.37	-3.4	46	22.05	PASSED
957.934	23.98	15.812	27.48	-3.5	46	22.04	PASSED

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4802.9	42.04	126.474	40.84	1.2	74	31.94	PASSED
7206.6	49.81	309.386	40.01	9.8	95	45.42	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4802.9	29.25	29.007	28.05	1.2	54	24.73	PASSED
7206.6	36.37	65.842	26.57	9.8	---	---	PASSED

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4959	44.28	163.682	42.98	1.3	74	29.7	PASSED
7438.9	49.94	314.051	39.14	10.8	74	24.04	PASSED

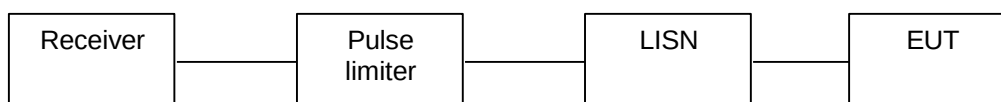
Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
4959	31.1	35.892	29.8	1.3	54	22.88	PASSED
7438.9	36.98	70.632	26.18	10.8	54	17	PASSED

6. AC powerline conducted emissions (FCC §15.207, RSS-210 7.2.4)

EUT with DUT number	RM-1078, DUT 54576
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	115/60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/52/100.3
Date of measurements	15-Aug-2014
Measured by	Dou Rubo

6.1. Test Setup



6.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-GEN as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

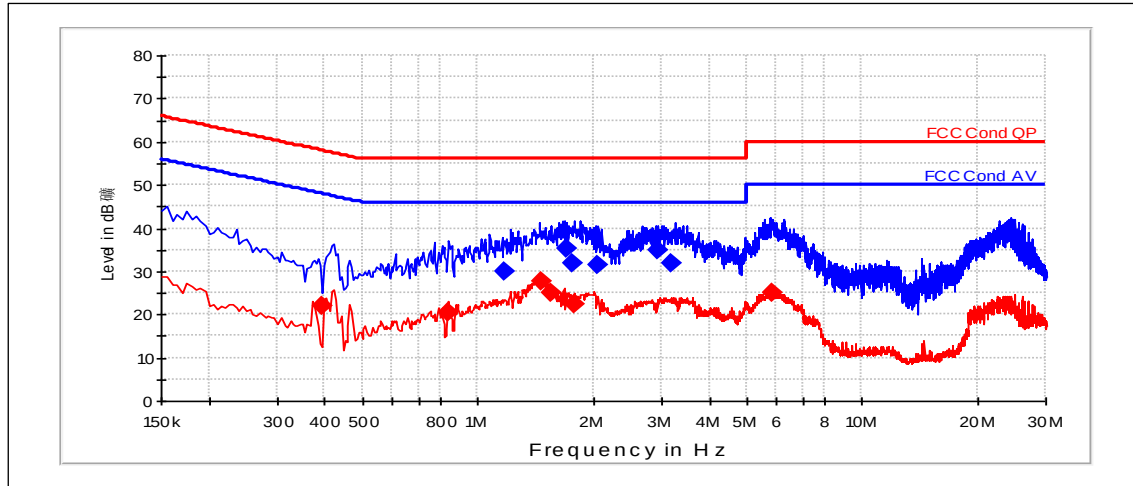
CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

6.3. Bluetooth Test results

6.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.17	30.11	N	PASSED
1.705	35.27	N	PASSED
1.76	31.93	N	PASSED
2.04	31.28	N	PASSED
2.92	34.97	L1	PASSED
3.2	31.8	N	PASSED

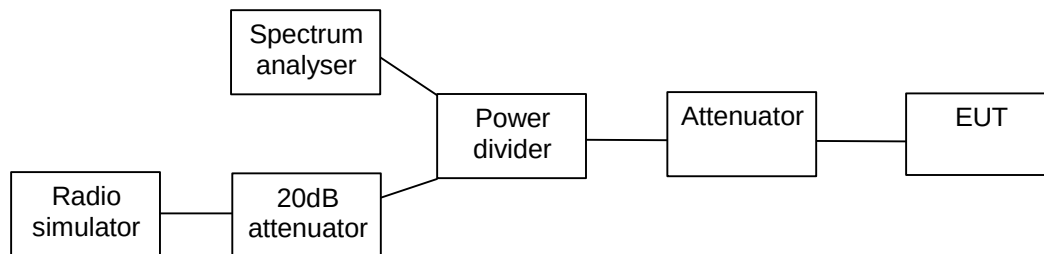
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.395	21.92	L1	PASSED
0.835	20.32	N	PASSED
1.47	27.85	N	PASSED
1.555	24.85	N	PASSED
1.79	22.49	N	PASSED
5.845	25.1	N	PASSED

7. 20dB(bandwidth) (FCC §15.247(a)(1), RSS-210 A8.1(a))

EUT with DUT number	RM-1078, DUT 54582
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/55/100.2
Date of measurements	14-Aug-2014
Measured by	Dou Rubo

7.1. Test Setup



7.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for 20 dB bandwidth measurements

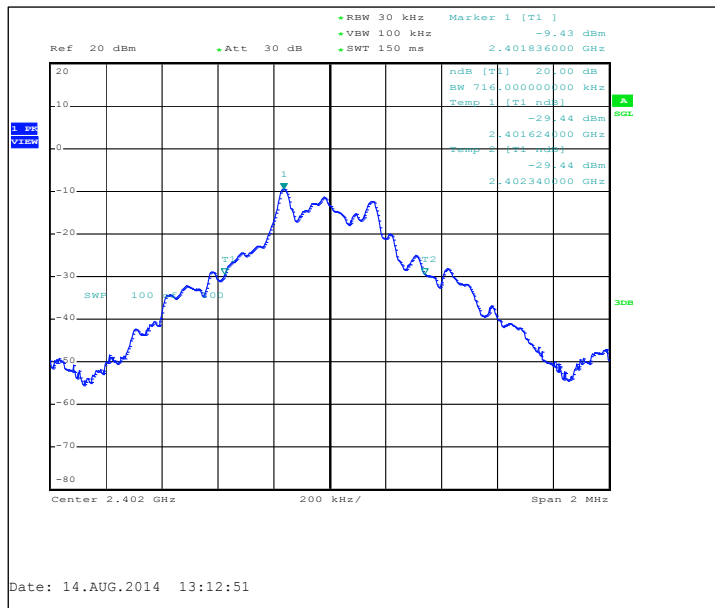
Limit [MHz]
N/A

7.3. Bluetooth Test results

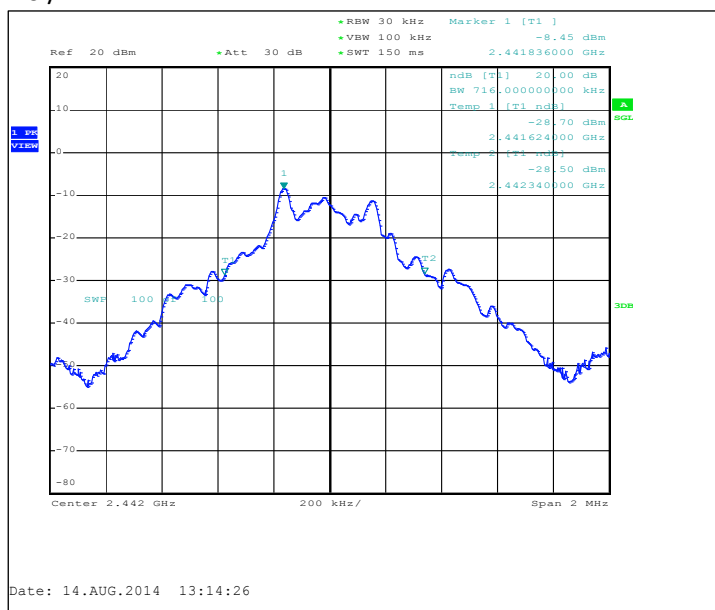
7.3.1 GFSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]
0 / 2402	716
40 / 2442	716
78 / 2480	716

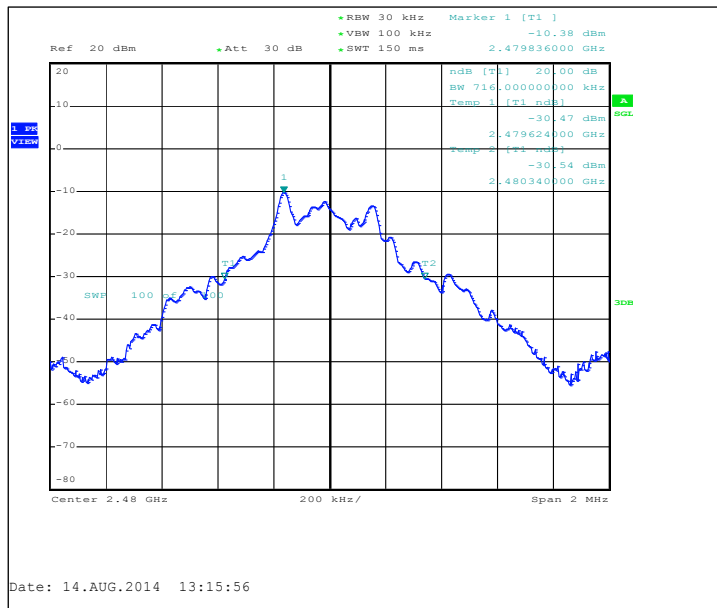
0 / 2402



40 / 2442



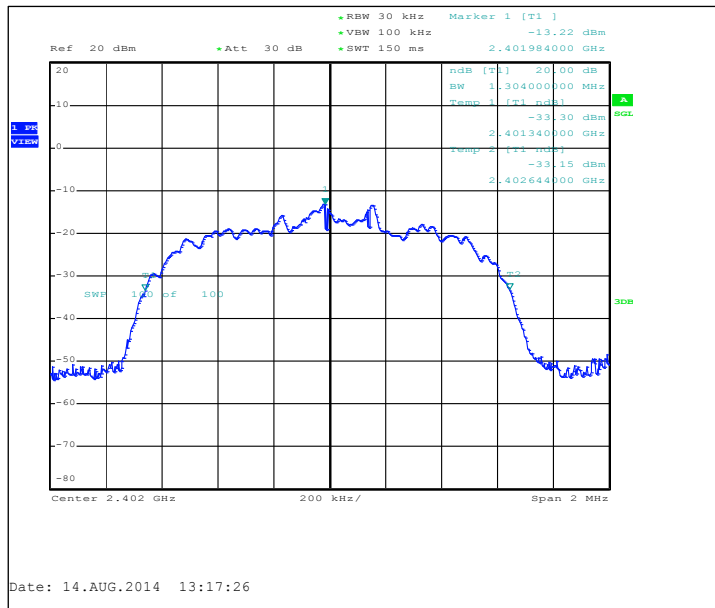
78 / 2480



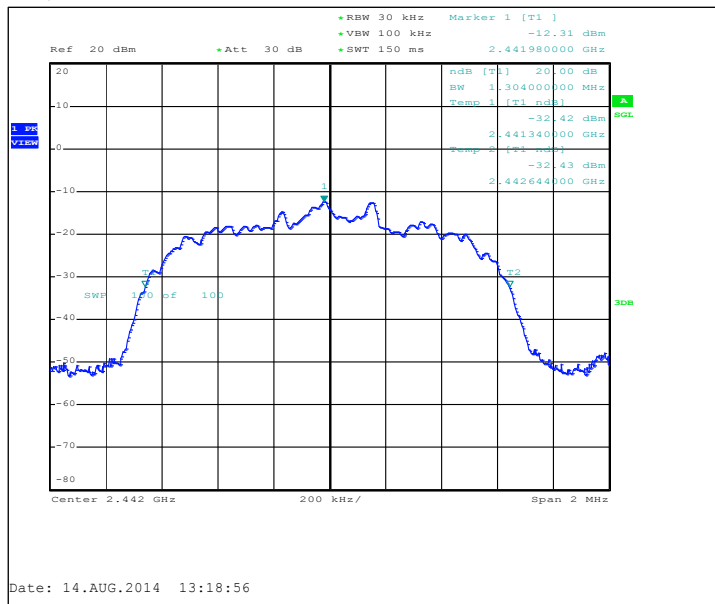
7.3.2 8DPSK modulation, PRBS packet type

Channel / f_c [MHz]	20 dB bandwidth [kHz]
0 / 2402	1304
40 / 2442	1304
78 / 2480	1300

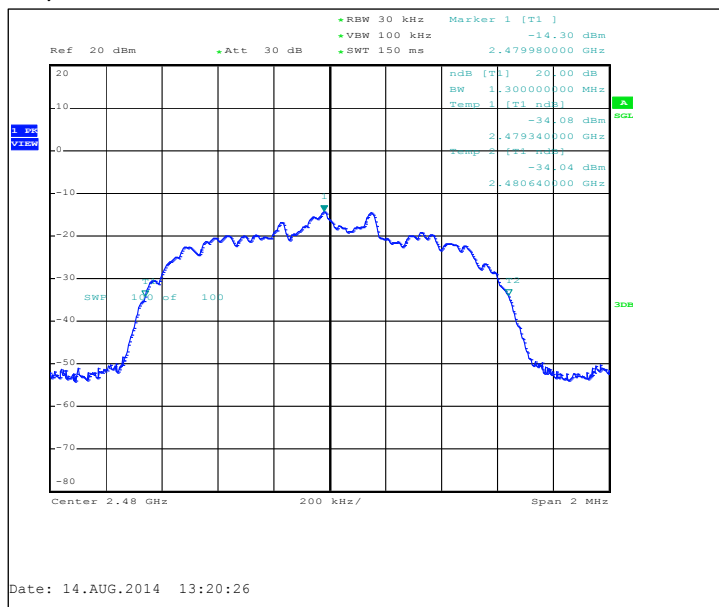
0 / 2402



40 / 2442



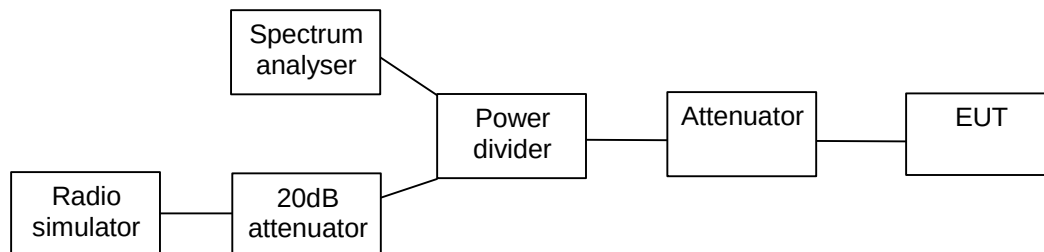
78 / 2480



8. Carrier frequency separation (FCC §15.247(a)(1), RSS-210 A8.1(b))

EUT with DUT number	RM-1078, DUT 54582
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/55/100.2
Date of measurements	14-Aug-2014
Measured by	Dou Rubo

8.1. Test Setup



8.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for carrier frequency separation measurements

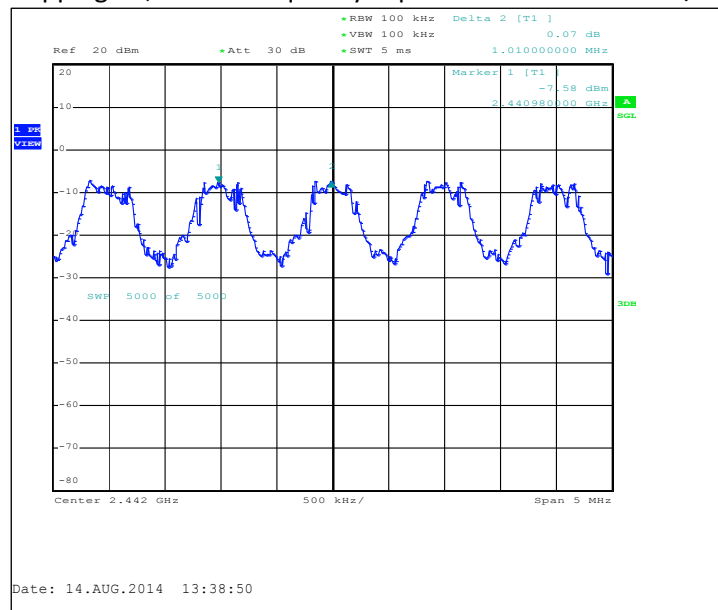
Limit [MHz]
≥ 0.025 or $2/3$ of the 20 dB bandwidth

8.3. Bluetooth Test results

8.3.1 GFSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1010	PASSED

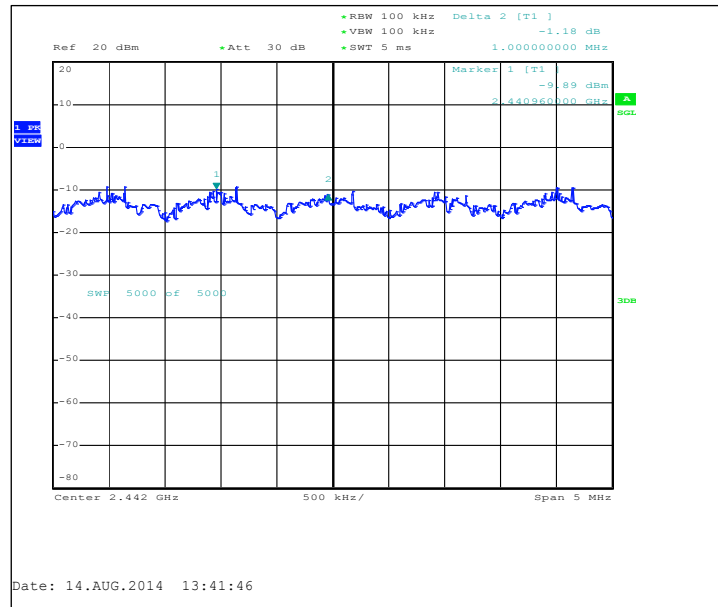
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



8.3.2 8DPSK modulation, PRBS packet type

Carrier frequency separation [kHz]	Result
1000	PASSED

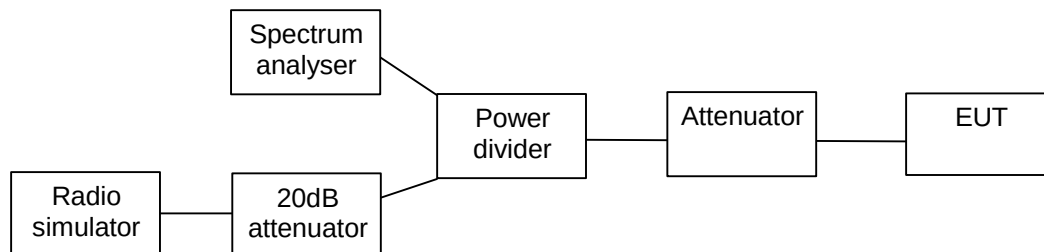
Hopping on, carrier frequency separation of channels 39 / 2441 MHz and 40 / 2442 MHz



9. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 A8.1(d))

EUT with DUT number	RM-1078, DUT 54582
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/55/100.2
Date of measurements	14-Aug-2014
Measured by	Dou Rubo

9.1. Test Setup



9.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for number of hopping frequencies measurements

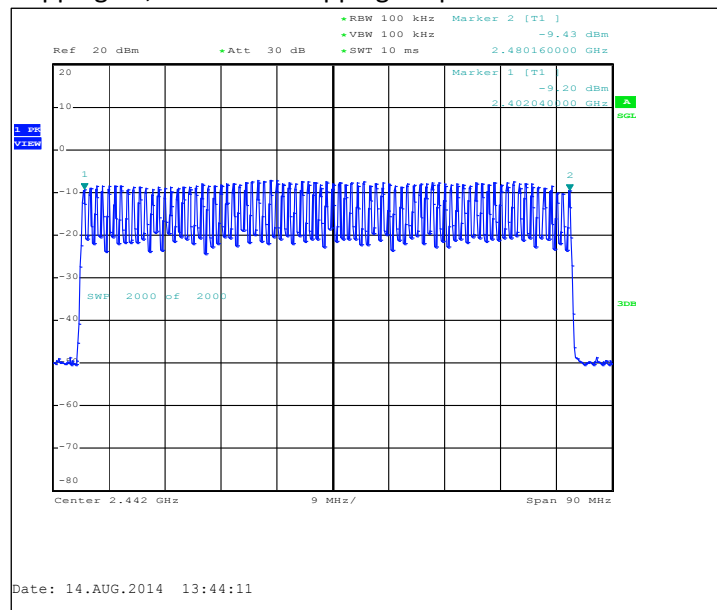
Limit [number]
≥ 15

9.3. Bluetooth Test results

9.3.1 GFSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
78	PASSED

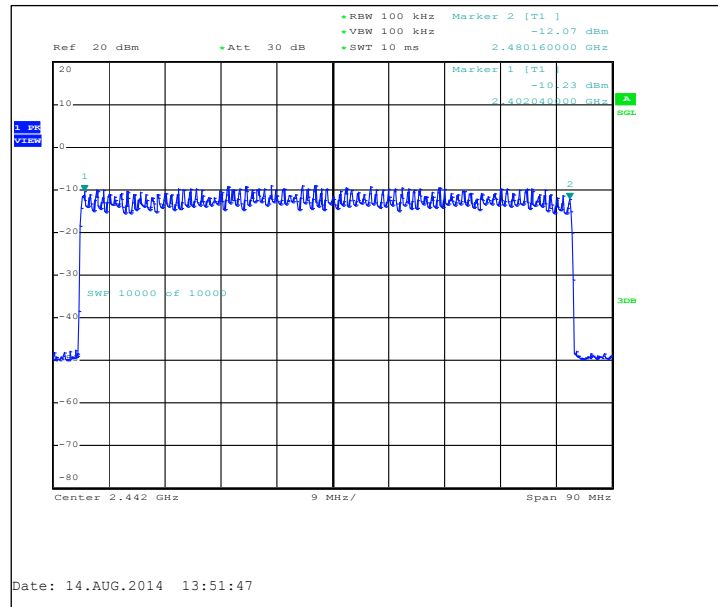
Hopping on, number of hopping frequencies



9.3.2 8DPSK modulation, PRBS packet type

Measured number of hopping frequencies	Result
78	PASSED

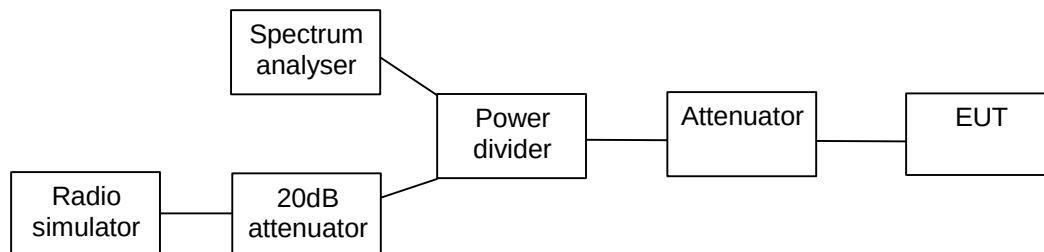
Hopping on, number of hopping frequencies



10. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 A8.1(d))

EUT with DUT number	RM-1078, DUT 54582
Accessories with DUT numbers	AC-20U, DUT 54581 ; BL-5H, DUT 54583 ; WH-108, DUT 54459
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/55/100.2
Date of measurements	14-Aug-2014
Measured by	Dou Rubo

10.1. Test Setup



10.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

The total time of occupancy is get by multiplying the measured number of transmissions occurred during 31.6 second period with the duration of one transmission.

Limits for time of occupancy measurements

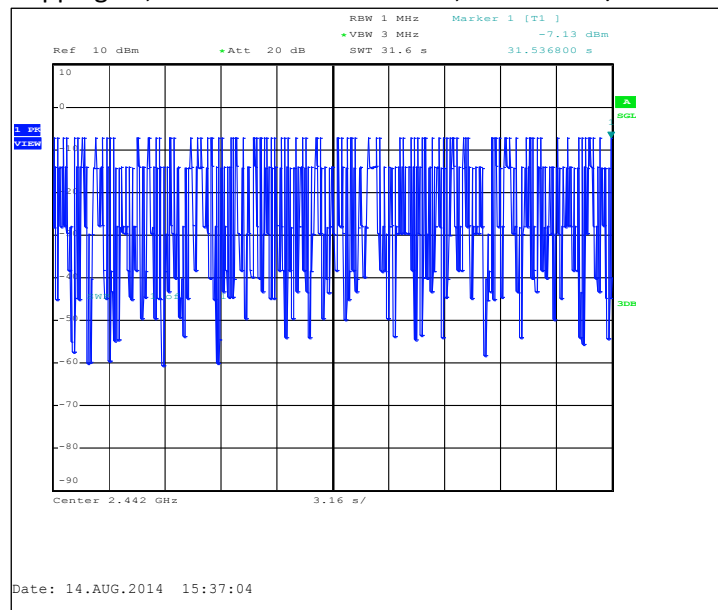
Limit [s]
≤ 0.4

10.3. Bluetooth Test results

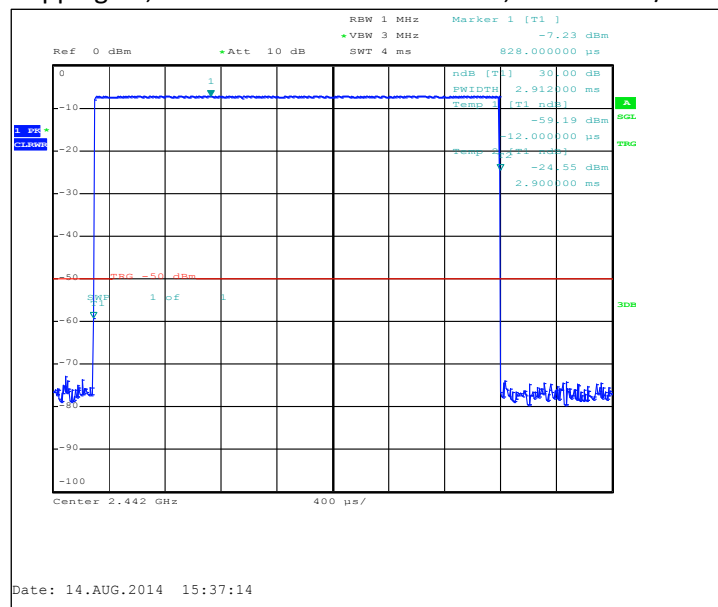
10.3.1 GFSK modulation, PRBS packet type

Measured number of transmissions	Duration of one transmission [ms]	Time of occupancy [s]	Result
90	2.912	0.262	PASSED

Hopping on, number of transmissions, channel 40 / 2442 MHz



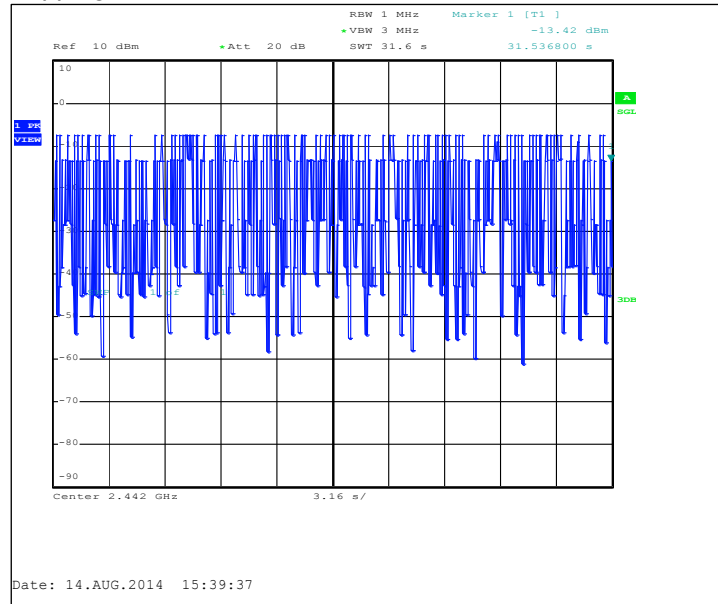
Hopping on, duration of one transmission, channel 40 / 2442 MHz



10.3.2 8DPSK modulation, PRBS packet type

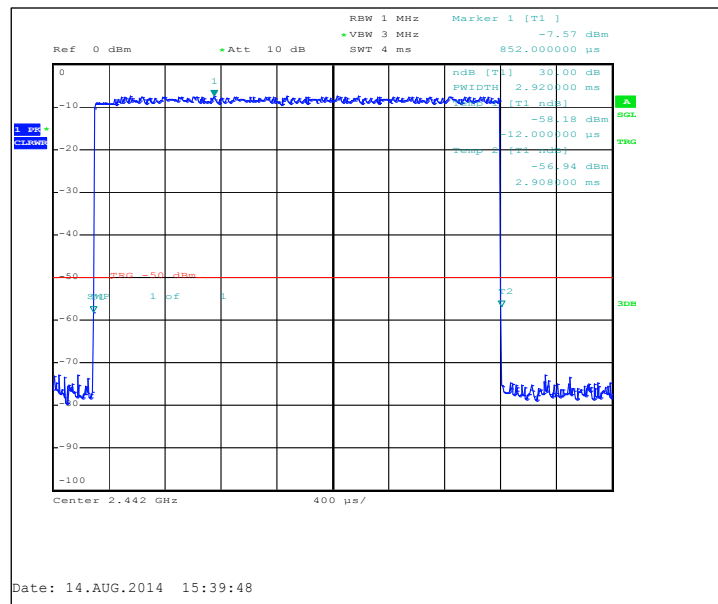
Measured number of transmissions	Duration of one transmission [ms]	Time of occupancy [s]	Result
136	2.92	0.397	PASSED

Hopping on, number of transmissions, channel 40 / 2442 MHz



Hopping on, duration of one transmission, channel 40 / 2442 MHz

channel 40 / 2442 MHz



11. Test Equipment

11.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCHW0020	DC Power supply	HP6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C, 15B
BJPCPT0069	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
BJPCTC0323	Signal Generator	SMR 27	R&S	22/24/27, 15C, 15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C, 15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C, 15R
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0062	AC Power source	6812B	HP	15C, 15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0082	Humidity and Temperature Sensor	175-H2	Testo	15B, 15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B, 15C
BJPCTC0089	Temperature Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIO-RS232 convertor	GPIO-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C
BJPCTC0127	AC Power source	SOYI-500VA	SOYI	15B, 15C
BJPCTC0128	Communication antenna	JTXLB-10180	A-INFOMW	22/24/27, 15B, 15C
BJPCTC0129	Communication antenna	JTXLB-10180	A-INFOMW	22/24/27, 15B, 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27, 15B, 15C
BJPCTC0136	Communication antenna	JTXLB-880-NF	A-INFOMW	15B, 15C
BJPCTC0306	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0305	GPIO converter	GPIO-RS232	NI	22/24/27, 15C
BJPCTC0304	Spectrum Analyser	FSV30	R&S	22/24/27, 15C
BJPCTC0309	GPIO-RS232 convertor	RS232	NI	22/24/27, 15C
BJPCTC0307	Dual channel battery/charger simulator	2306	KEITHLEY	22/24/27, 15C
BJPCTC0308	Dual channel battery/charger simulator	2306	KEITHLEY	22/24/27, 15C
BJPCTC0352	Signal Generator 20GHz	MG3692B	Anritsu	22/24/27, 15C
BJBDATC0169	Temperature Test chamber	VT4002	Votsch	22/24/27, 15C
BJPCTC0334	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0342	Communication Tester	CMU200	R&S	15B, 15C
BJPCTC0343	Power Splitter	1167A	Agilent	EN300328
BJPCTC0344	Power Splitter	1167A	Agilent	EN300328
BJPCTC0345	Power Splitter	1167A	Agilent	EN300328
BJPCTC0346	Attenuator	8496A	Agilent	EN300328
BJPCTC0347	Directional Coupler	4226-20	Narda	EN300328
BJPCTC0348	Signal generator	E4438C	Agilent	EN300328
BJPCTC0336	Signal Generator	SMP22	R&S	22/24/27, 15C

11.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCPT0072	Receiver	ESI B26	R&S	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCPT0150	High Pass Filter	WHKS1200-10SS	Wainwright	22/24/27, 15C, 15B
BJPCPT0151	Band Reject Filter	WRCD1880/2000-0.2/40-5SSK	Wainwright	24, 15B
BJPCPT0154	Band Reject Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright	15C, 15B
BJPCPT0166	Antenna	VUBA 9117	Swarzbeck	22/24/27
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C, 15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C, 15R
BJPCTC0007	Antenna	HL562	R&S	22/24/27, 15C, 15B
BJPCTC0029	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0034	Band Reject Filter	WRCT 800/880-0.2/40-5SSK	Wainwright	22, 15B
BJPCTC0049	Preamplifier	Blma 0118-1A-Bt	Bonn	22/24/27, 15C, 15B
BJPCTC0055	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0058	Bluetooth Tester	CBT	R&S	15C, 15B
BJPCTC0062	AC Power source	6812B	Hp	15C, 15B
BJPCTC0064	Band Reject Filter	WRCG1877/1883-1870/1890-40/6SS	Wainwright	24, 15B
BJPCTC0071	Multi-Device Controller	2090	EMCO	22/24/27, 15C, 15B
BJPCTC0072	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	ETS	22/24/27, 15C, 15B
BJPCTC0073	MAST	Model-TR/POL	ETS	22/24/27, 15C, 15B
BJPCTC0074	MAST	Model 2070-2	ETS	22/24/27, 15C, 15B
BJPCTC0075	Turntable	Model 2188	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0081	Humidity and Temperature Sensor	175-H2	Testo	15B, 15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B, 15C
BJPCTC0113	Receiver	ESI B26	R&S	22/24/27, 15B, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C
BJPCTC0124	Attenuator	SA18N200W-40	Fairview Microwave	-
BJPCTC0125	Loop Antenna	HFH2-Z2	R&S	15C
BJPCTC0126	Tripod	FHU-Z	R&S	15C
BJPCTC0128	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0133	Open Swith and contril unit	OSP 150	R&S	15B, 15C
BJPCTC0134	Open Swith and contril unit	OSP 150	R&S	15B, 15C
BJPCTC0135	Open Swith and contril unit	OSP 130	R&S	15B, 15C
BJPCTC0136	Communication antenna	JXTXLB-880-NF	A-INFOMW	15B 15C
BJPCTC0171	Broad-band Horn Antenna	BBHA9120 D	SCHWARZBECK MESS - ELEKTRONIK	22/24/27, 15C, 15B
BJPCTC0310	Horn Antenna	QSH20SMA	Q-par	22/24/27, 15C, 15B
BJPCTC0311	Horn Antenna	QSH18SMA	Q-par	22/24/27, 15C, 15B
BJPCTC0312	Relay Switch Unit	-	-	22/24/27, 15C, 15B
BJPCTC0313	High Pass Filter	WHKX1.0/15G-12SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0314	High Pass Filter	WHKX8.0/18G-88SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0315	High Pass Filter	WHKX3.0/18G-12SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0316	Preamplifier	AMT-5F-18002550-25-108	-	22/24/27, 15C, 15B
BJPCTC0317	Preamplifier	AMF-6D-02001800-29-20P	-	22/24/27, 15C, 15B
BJPCTC0350	Preamplifier	AMF-4D-01000800-30-29P	Miteq	22/24/27, 15C, 15B
BJPCTC0324	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
BJPCTC0329	Relay Switch Unit	-	-	22/24/27, 15C, 15B
BJPCTC0334	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0342	Communication Tester	CMU200	R&S	15B, 15C

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCTC0349	Preamplifier	AMF-4D-01000800-30-79P	Miteg	22/24/27, 15C, 15B
BJPCTC0350	Preamplifier	AMF-4D-01000800-30-29P	Miteg	22/24/27, 15C, 15B
BJPCTC0351	Preamplifier	AFS4-00101800	-	22/24/27, 15C, 15B