Test Report for FCC 47 CFR part §15.247

Test Report no.:	20153885302-Ver 2.00	**Date of Report:**	Sept 30th. 2015
Number of pages:	Page 1 of 40	**Contact person:**	Amir Amininejad

Testing laboratory:	Telefication B.V. Edisonstraat 12a 6902 PK Zevenaar The Netherlands Tel. +31 316583180 Fax. +31 316583189	**Client:**	TechNed Benelux Veersteeg 15 4212 LR Spijk The Netherlands Tel. +31 183631295 Fax.+31 1836 31778 Contact Person: M. Geluk

Tested device(s):	IP-68 mobile phone TechNed EX-SM14 Build number: EX0150_20141106_M312_SP BB ver.: MOLY.WR8.W1248.MD.WG.MP.V28.P1 (Detailed information for each device is listed in section 1).
Testing has been carried out in accordance with:	CFR 47, FCC rules Parts 15, FCC Public Notice. 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 10 years at Telefication Netherland.
Test Results:	The results of the inspection are described on the following pages, where "conformity" in the Summary List means that test specification test purposes were verified and the tested device conforms to the applied standards. All performed tests are validated and the dates of testing are always available within internal documentation at Telefication. In cases where "declaration" is printed the required documents are available in the customer's documentation. This test result relates only to those tested devices mentioned in this document.
Accreditation	Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Designation number is: NL0001

Date of Signature: **30-09-2015**

RF Test Laboratory Manager
Amir Amininejad

1 Revision record sheet

Version	Date	Remarks	By
2.00	25-09-2015	On page 6: nominal powers of BT and WLAN added; actual operating frequency ranges of BT and WLAN added	P.A. Suringa
1.50	2015 09 21	Full revision	R.van.Barneveld
1.00	2015 09 11	Version for first release	A. Amininejad
0.50	2015 08 17	Draft version for peer review	A. Amininejad

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SUMMARY OF REQUIRED TEST CASES FOR BT ACCORDING TO (15.247):

FCC (DSS)	IC	Conducted / Radiated	Limit	Verdict	Ref
15.247(a)(1)	RSS-210 A.8.4(2)	Number of Channels	≥ 15 Ch.	Pass	5.1
15.247(a)(1)	RSS-210 A.8.1(b)	Hopping Channel Separation	≥ 2/3 of 20 dB BW	Pass	5.2
15.247(a)(1)	RSS-210 A.8.1(d)	Dwell time of each channel	≤ 0.4 sec. in 31.6 s period	Pass	5.3
-	RSS-GEN 4.6.1	99% bandwidth	--	Pass	5.4
15.247(b)(1)	RSS-210 A.8.1(b)	Peak Output Power	≤ 125 mW	Pass	5.5
15.247(d)	RSS-210 A.8.5	Conducted band edges	≤ 20 dBc	Pass	5.7
15.247(d)	RSS-210 A.8.5	Conducted spurious emission	≤ 20 dBc	Pass	5.7
15.207	RSS-GEN 8.8	Radiated AC conducted spurious emissions	see plot	Pass	5.7

2 General Description

2.1 Applicant

TechNed Benelux, Veersteeg 15, 4212 LR Spijk, The Netherlands

2.2 Manufacturer

TechNed Benelux, Veersteeg 15, 4212 LR Spijk, The Netherlands

2.3 Tested Equipment under Test (EUT)

Device type:	Mobile Phone
Brand Name	Rough Pro
Model Name	EX0150_20141106_M312_SP EX-SM14
FCC ID	2AD2CEX-SM14
EUT support Radio applications	GSM850, PCS1900,GPRS,WCDMA BII and B V, WLAN 2.4GHz IEEE802.11b,g,N HT20, Bluetooth 1.0, Bluetooth LE v. 4.0
DUT no.:	DUT#0005 and DUT#0004
Device type:	Mobile Phone IP-68 EX-SM14
SN/ IMEI number:	860636000507855 and 860636000607853
Hardware version/ Build number:	EX0150_20141106_M312_SP EX0150_20141106_M312_SP
Software version:	Android 4.2.2
Test software / firmware	EX0150_20141106_M312_SP

Date of receipt:	June 3rd. 2015
Date of tests started:	May 22nd. 2015
Date of tests ended:	Aug 20th. 2015

2.4 Product Specification subjective to this standard

Tx Frequencies	GSM850: 824.2 MHz ˜ 848.8 MHz GSM1900: 1850.2 MHz ˜ 1909.8 MHz WCDMA Band II: 1712.4 MHz ˜ 1752.6 MHz WCDMA Band V: 826.4 MHz ˜ 1907.6 MHz Bluetooth : 2402 MHz ˜ 2480 MHz Bluetooth LE: 2402 MHz ˜ 2480 MHz WLAN: 2412 MHz ˜ 2462 MHz
Rx Frequency	GSM850: 869.2 MHz ˜ 893.8 MHz GSM1900: 1930.2 MHz ˜ 1989.8 MHz WCDMA Band II: 1932.4 MHz ˜ 1987.6 MHz WCDMA Band V: 871.4 MHz ˜ 891.6 MHz Bluetooth : 2402 MHz ˜ 2480 MHz Bluetooth LE: 2402 MHz ˜ 2480 MHz WLAN: 2412 MHz ˜ 2462 MHz
Maximum Output power to Antenna	GSM/GPRS: 31 dBm GSM1900: 28 dBm WCDMA Band II: 23.5 dBm WCDMA Band V: 23.5 dBm Bluetooth: 8 dBm IEEE 802.11b: < 18.5 dBm IEEE 802.11g: 15.5 dBm IEEE 802.11n (HT20): 15.5 dBm
Antenna Type	Integrated antenna: Monopole FPC; Antenna Gain: GSM -2,4 dBi; WCDMA -2.5 dBi Bluetooth: 2.5 dBi WLAN: 2.5 dBi
Type of Modulation	GSM/GPRS: GMSK EDGE: GMSK/8PSK WCDMA: QPSK (UL) HSUPA: QPSK (UL) Bluetooth: GFSK WLAN: DSSS/OFDM

2.5 Modification of the EUT

In order to be able to do the conducted tests, EUT is being modified by:

a) Soldering a 50 Ohm impedance matched coaxial cable to the antenna pads of the device, disconnecting the integrated antenna terminals. A SMA female connector is added to the other end of the RF coaxial cable (pigtail).

b) Battery terminal taken out from the EUT for variations of Supply voltage.

The modification is done following Device manufacturing instructions. The task of modification is performed using external company Techniveau:

Techniveau
Bijsterhuizen 2414
6604 LL Wijchen
Tel. +31 (0)6 21 551 223
www.techniveau.nl
info@techniveau.nl

2.6 Testing Location

Test Site	Telefication BV
Test Site location	Edisonstraat 12a 6902 PK Zevenaar The Netherlands Tel. +31 316583180 Fax. +31 316583189
Test Site FCC Designation No.	NL0001

2.7 Applicable Standards

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

- FCC Part 15 Subpart C §15.247 and §15.207
- Public Notice DA 00-705

Observations and remarks:

All tested items were verified and recorded according to the standards and no deviations were identified during the test.

2.8 Conclusions

The sample of the product showed **NO NON-COMPLIANCES** to the specifications stated in paragraph 7 of this report.

The results of the tests as stated in this report, are exclusively applicable to the product item as identified in this report. Telefication accepts no responsibility for any stated properties of product items in this test report, which are not supported by the tests as specified in paragraph 2.7 *"Applicable standards"*.

All conducted tests are performed by:

Name : A. Amininejad

Review of test methods and report by:

Name : ing. P.A. Suringa

The above conclusions have been verified by the following signatory:

Date : 30 September 2015

Name : A. Amininejad

Function : Operational Manager Radio Laboratory

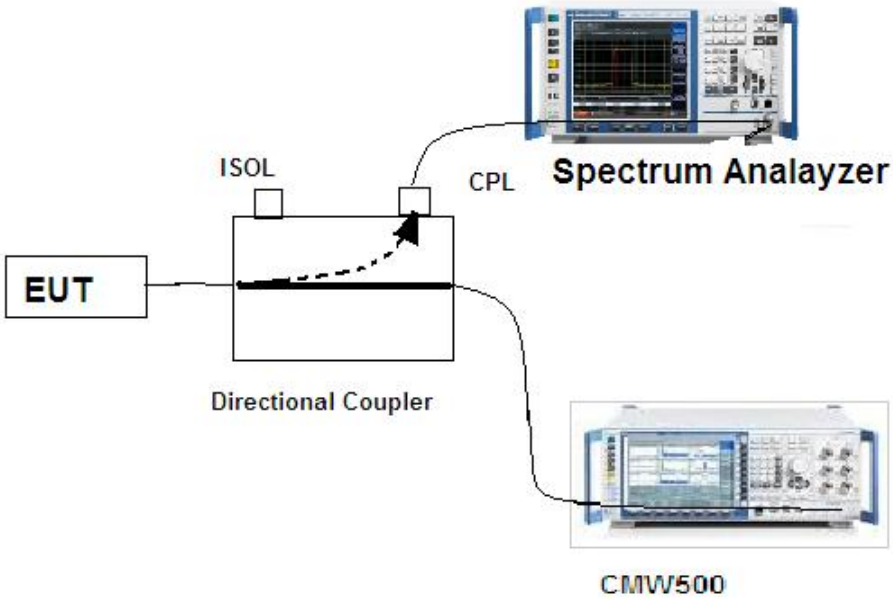
Signature :

3 Test Configuration of the EUT (Equipment under Test)

3.1 Test mode

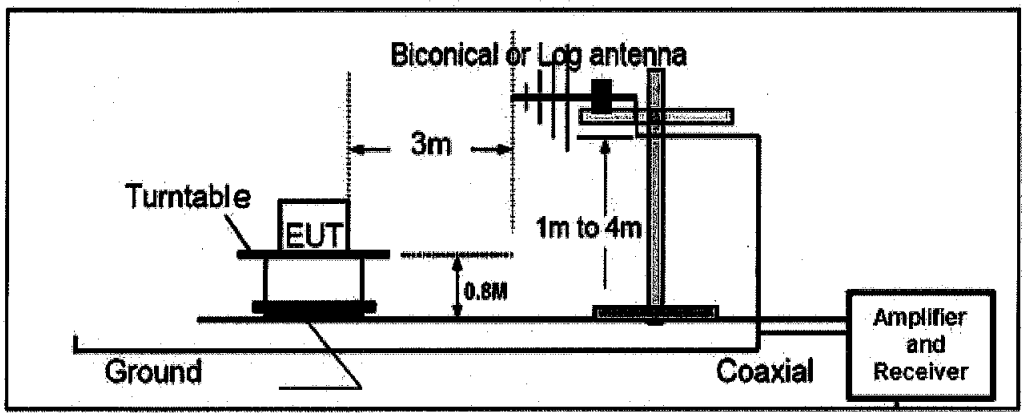
The EUT is configured to transmit at its maximum power. Frequency range from 30 MHz up to 10th Harmonic of the Fundamental Frequencies at low, mid and high channel where examined.

3.2 Conducted Test setup diagram

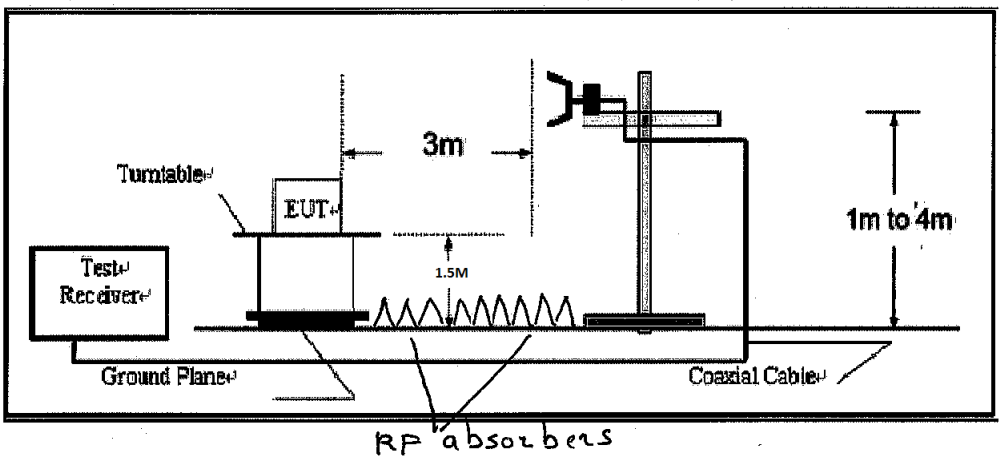


3.3 Radiated Test setup within a SAC Chamber

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



3.4 Equipment used in test setup

No 1:	CMW500 Wideband Radio Communication Tester
Manufacturer:	Rohde & Schwarz
Serial number	1201.0002K50
TE number	TE 01286
No 2:	HMP2020 Programmable Power Supply
Manufacturer:	Rohde & Schwarz
TE number	TE 01270
No 3:	Hewlett Packard 83650B Signal Generator 10 MHz – 50 GHz
Manufacturer:	Hewlett Packard
TE number	TE 00487
No 4:	FSV Signal Analyzer 10 Hz- 40 GHz
Manufacturer:	Rohde & Schwarz
TE number	TE 01269
No 5:	VT4002 EMC Climate Chmber
Manufacturer	Vötsch Industrietechnik GmbH
Serial number	56600930
TE number	TE 01288
No 6:	Low insertion loss and VSWR DC – 40 GHz Directional Coupler
Manufacturer:	Marki CA-40 1443
Serial number	TE 01278
TE number	
No 7:	FS735/1 10 MHz distribution Amplifier
Manufacturer:	Stanford Research Systems
TW number	TE 01281
No 8:	USB to RS232 converter
Manufacturer:	Targus
Serial number	PA088
No 9:	USB to GPIB interface adopter
Manufacturer:	National Instruments
TE number	TE 01283
No 10:	FSP- Signal Analyzer 9KHz- 40 GHz
Manufacturer:	Rohde & Schwarz
TE number	TE 11125
No 11:	BiconiLog Antenna 30MHz-2GHz
Manufacturer:	Chase
TE number	TE 00967

No 12:	Horn Antenna 1 GHz -18 GHz Model no. 3115
Manufacturer:	EMCO The Electro –Mechanics Co.
TE number	TE 00531
No 13:	SAC Chamber
Manufacturer:	Comtest Engineering BV
TE number	TE 00861
No. 14:	ESCI EMI Test Receiver 9KHz - 3 GHz
Manufacturer:	Rohde & Schwarz
TE number	TE 11128
No. 15:	ESH3 Z2 Mains CDN
Manufacturer:	Rohde & Schwarz
TE number	TE 000208
No. 16:	ESH3 Z2 Pulse limiter
Manufacturer:	Rohde & Schwarz
TE number	TE 00756

3.5 Explanation of the Measurement results for all conducted test items:

The Path loss between the DUT and the Spectrum Analyser at the frequency range of 30 MHz up to 40 GHz is measured and is stored in a transducer table.
This transducer table is used for a level offset of the spectrum analyser.
With this level offset, the spectrum analyser's reading will exactly be the RF output.

4 Tested Channels

4.1 Bluetooth Channels

Bluetooth Channels		F_{Low}	F_{Mid}	F_{High}
BT	Ch.	0	39	78
	F [MHz]	2402	2441	2480

5 Bluetooth Test results

5.1 Number of channels

5.1.1 Limits

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

5.1.2 Measurement instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.1.3 Test setup

As shown in chapter 3.2 of this report.

5.1.4 Test Procedure

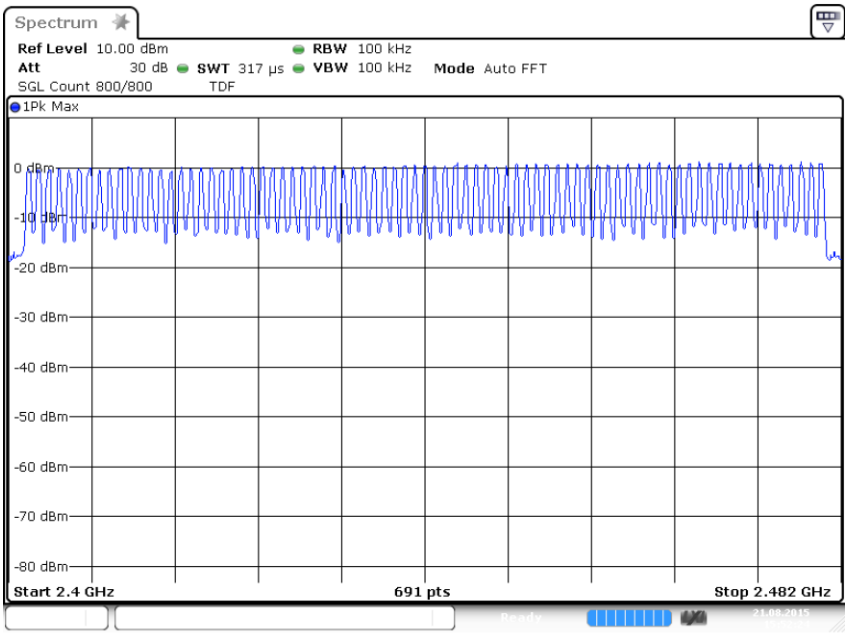
1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyser by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the EUT to maximum power and enable continuous transmission.
4. Enable the EUT hopping function.
5. Use the following spectrum analyser settings:
   Span = the frequency band of operation; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = Auto; Detector function = Peak; Trace = Max hold.
6. The number of hopping frequencies used is defined, as the number of total channel.
7. Record the measurement data derived from spectrum analyser.

5.1.5 Test results

No. of hopping channels	Adaptive frequency hopping	Limit for no. channels	Final verdict
79	20	n >15	Pass

See the plot on the next page.

Number of hopping channels.



5.2 Hopping Channel Separation

5.2.1 Limits

Frequency hopping systems operating in the 2400-2483.5 band may have hopping channel carrier frequencies that are separated by 25 kHz or 2/3 of the 20 dB bandwidth of the hopping channel, whichever is greater.

5.2.2 Measurement instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.2.3 Test setup

As shown in chapter 3.2 of this report.

5.2.4 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyser by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the EUT to maximum power and enable continuous transmission.
4. Enable the EUT hopping function.
5. Use the following spectrum analyser settings:
   Span = Wide enough to capture the peaks of two adjacent channels; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = Auto; Detector function = Peak; Trace = Max hold.
6. Measure and record the results in the test report.

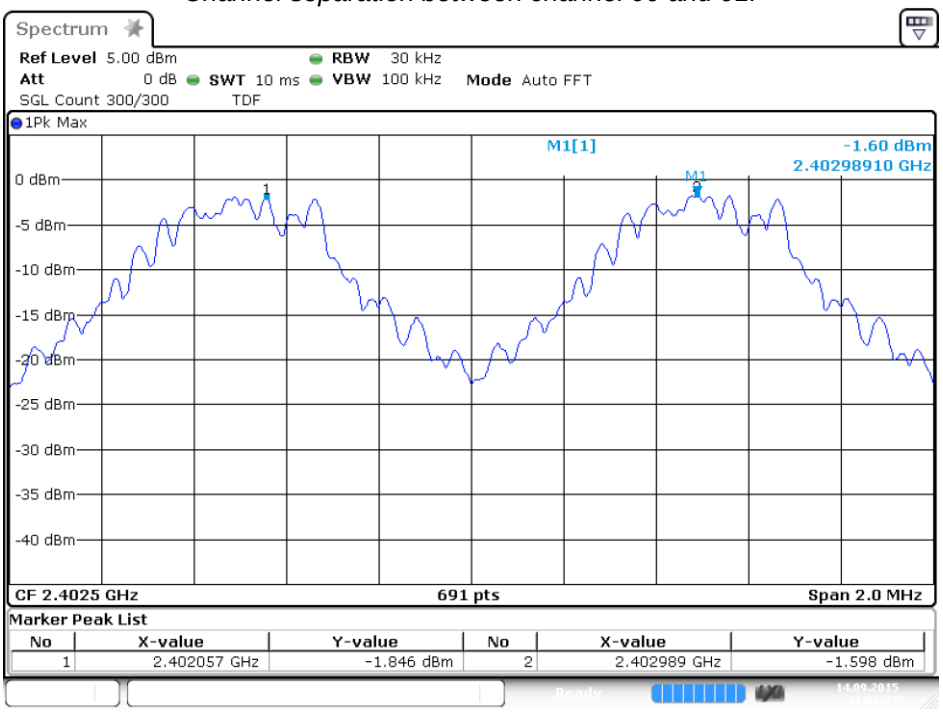
5.2.5 Test results

Note: This test has to be done for both low, mid and high channels. This means separation of Channels 0 - 1; Channel 39 - 40 and finally 77 - 78.

TX Channel	Frequency [MHz]	Frequency Separation [MHz]	Packet type	Final verdict	Limit [MHz]
00	2402	0.932	BR-DH1	Pass	2/3 of 20 dB BW
39	2441	0.999	BR-DH1	Pass	2/3 of 20 dB BW
78	2480	1.068	BR-DH1	Pass	2/3 of 20 dB BW
Uncertainty	+ 13 kHz / - 13 kHz				

See the plots on the next page.

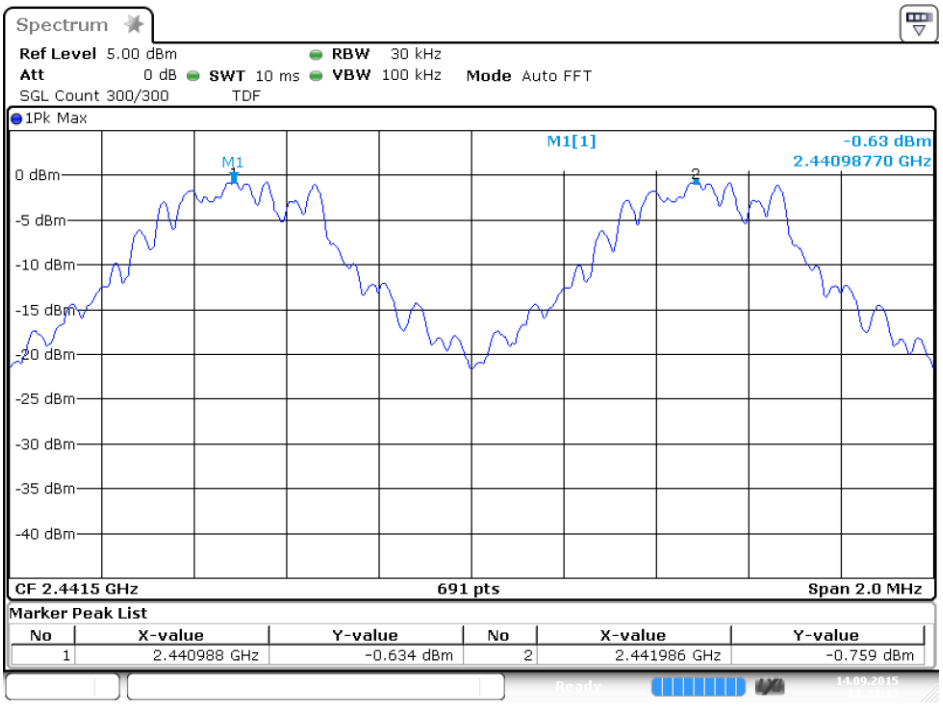
Channel separation between channel 00 and 01.



Hopping Channel Separation

Date: 14.SEP.2015 11:01:18

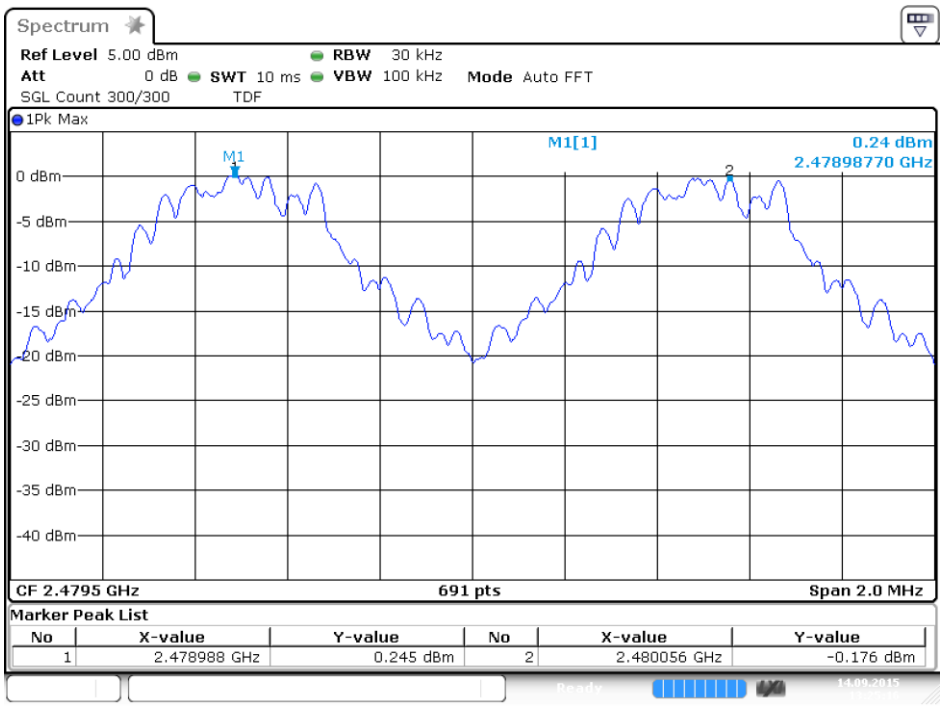
Channel separation between channel 39 and 40.



Hopping Channel Separation

Date: 14.SEP.2015 13:24:14

Channel separation between channel 77 and 78.



Hopping Channel Separation

Date: 14.SEP.2015 13:25:16

5.3 Dwell time measurement

5.3.1 Limits

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by number of hopping channels employed.

5.3.2 Measurement instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.3.3 Test setup

As shown in chapter 3.2 of this report.

5.3.4 Test Procedure

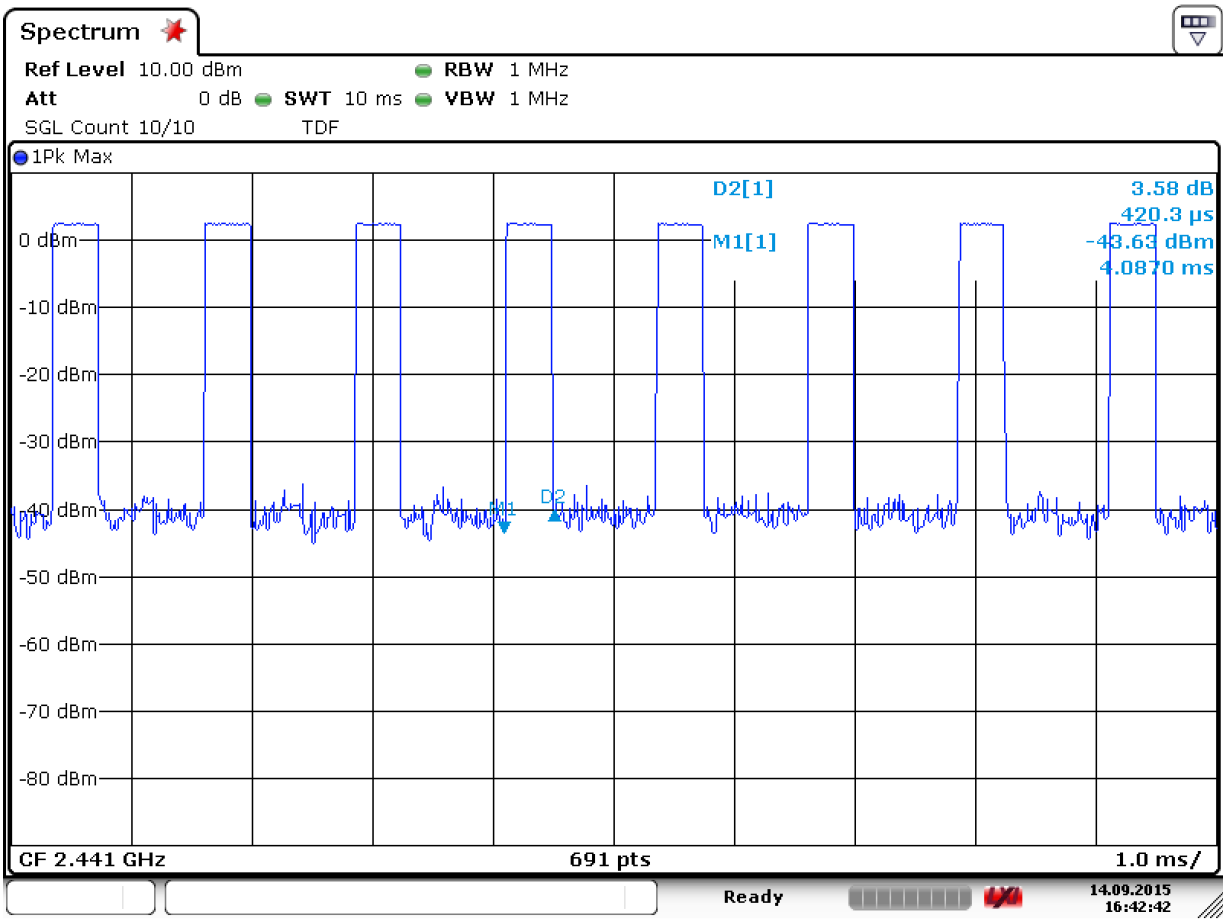
1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyser by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the EUT to maximum power setting and enable continuous transmission.
4. Enable the EUT hopping function.
5. Use the following spectrum analyser settings:
   Span = Zero span, centred on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Sweep = Large enough to capture the entire dwell time per hopping channel; Detector function = Peak; Trace = Max hold.
6. Measure and record the results in the test report.

5.3.5 Test results

Mode	Number of hopping channels	Number of hops during occupancy time	Package transfer time [ms]	Dwell Time [ms]	Limit [sec,]	Verdict
Normal	79	640	0.420	268.8	0.4	Pass
Uncertainty	+0.1µs / -0.1µs					

See the plots on the next page.

Dwell time measurement.



Remarks:

In normal mode, hopping rate for Bluetooth is 1600 hops/s in 79 hopping channels. With channel hopping rate (1600/(79)) Occupancy time limit of 0.4s in (0.4 x79) sec.
Hops over occupancy time comes to: (1600/(79)) x (0.4 x79) = 640 hops.

So in short during this test case, only the package transfer time being measured then the measured time gets multiplied by number of hops over occupancy time, to get the desired dwell time.

5.4 99% Occupied bandwidth and 20dB bandwidth measurement

5.4.1 Description of the 99% bandwidth and 20 dB bandwidth measurement

The 99% occupied bandwidth is the width of a frequency band such that below the lower and above the upper frequency limits, the mean power emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.
The emission bandwidth is defined as the width of the signal between two points, located at two side of the carrier frequency, outside of which all emissions are attenuated at least by 20 dB bellow the transmitter power.

5.4.2 Measuring instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.4.3 Test setup

As shown in chapter 3.2 of this report.

5.4.4 Test procedure

1. The EUT is connected to a system simulator and a spectrum analyser via a directional coupler.
2. The path loss is compensated to the each measurement. This is done through the initial path compensation procedure starting from 30 MHz up to the 10th harmonics of the fundamental transmitter frequency.
3. For the 99% Occupied bandwidth measurement. The spectrum analyser settings are: RBW= 1% of the span, VBW= 3*RBW, Detector = Sample, Trace =Max hold.

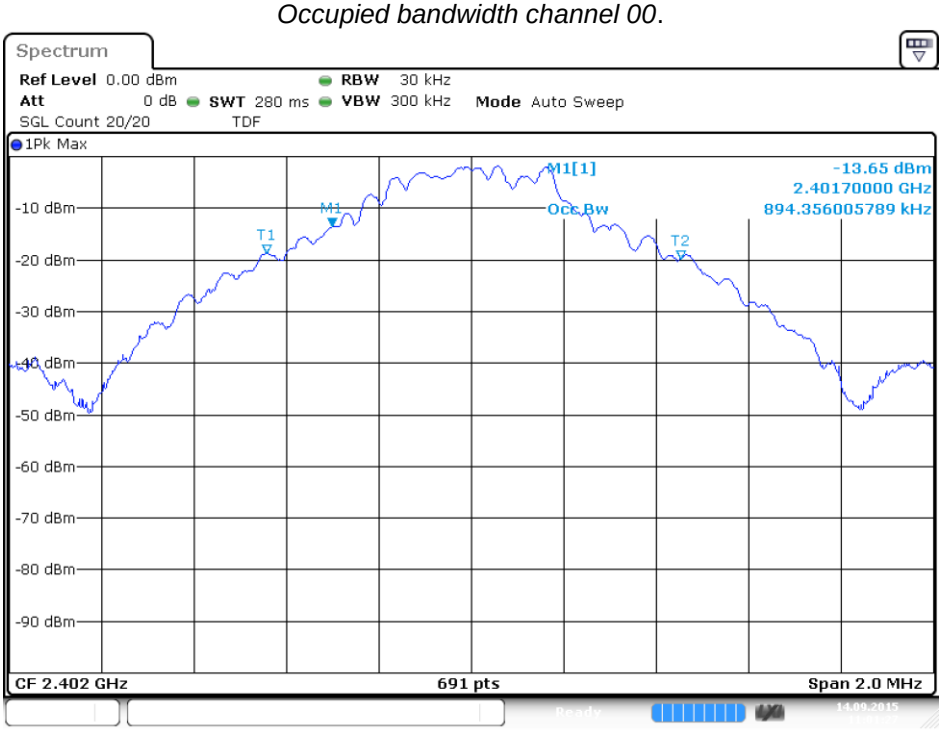
4. For the 20 dB bandwidth measurement. The spectrum analyser settings are: RBW= 1% of Emission Bandwidth (20 dB Bandwidth), VBW=3*RBW, Detector = Peak, Trace = Max hold.

5.4.5 Test results

TX channel	Frequency [MHz]	Packet type	99% OBW [kHz]	20 dB BW [kHz]
00	2402	BR-DH1	894,36	949.30
39	2441	BR-DH1	888.57	940.70
78	2480	BR-DH1	894.36	949.30
Uncertainty	+4.5 kHz / -4.5 kHz			

See the plots on the next page.

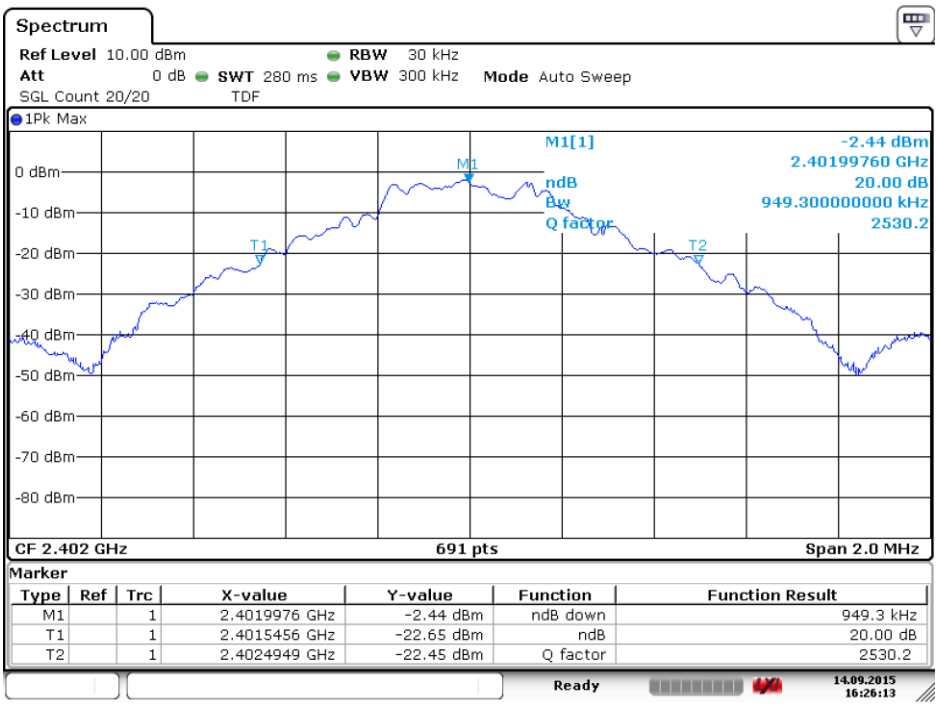
Occupied bandwidth channel 00.



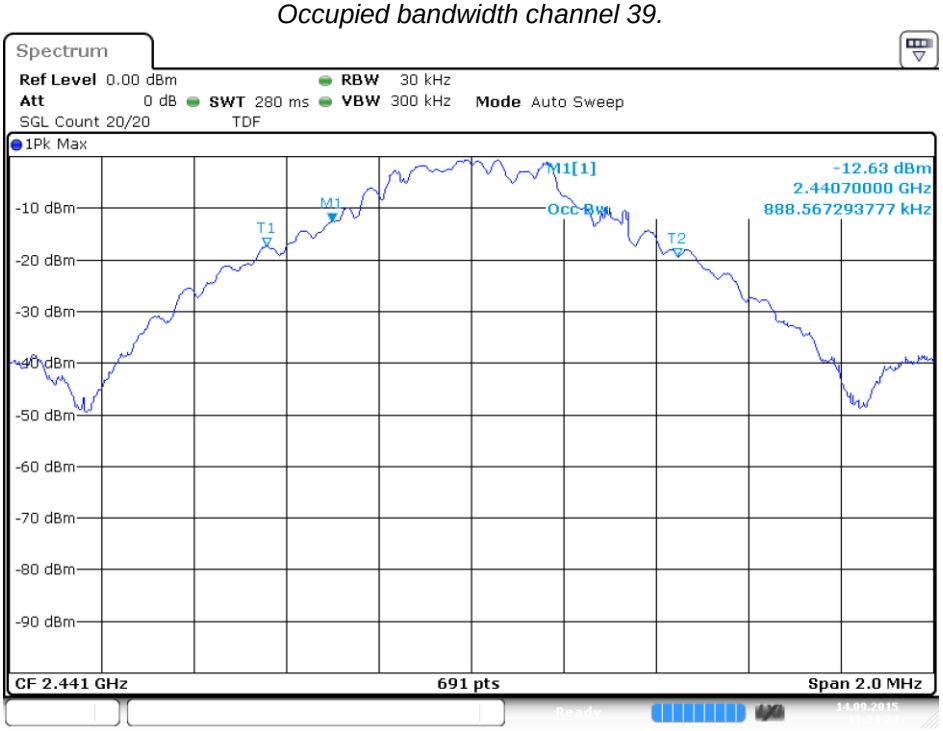
Bt Channel: 0 : Measure Occupied Bandwidth

Date: 14.SEP.2015 11:01:28

20 dB Bandwidth channel 00.



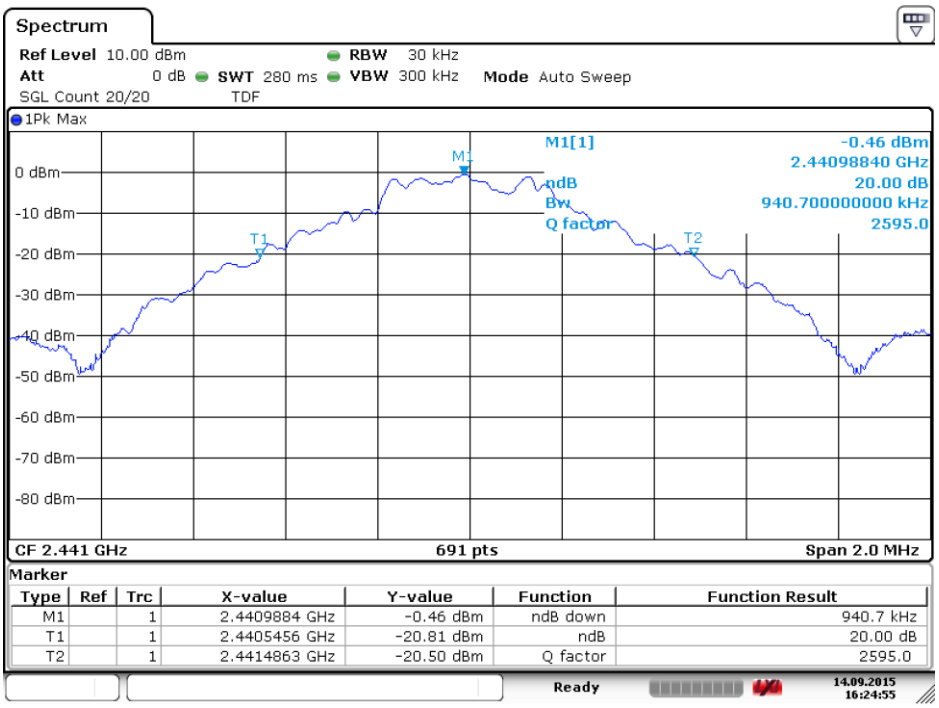
Occupied bandwidth channel 39.



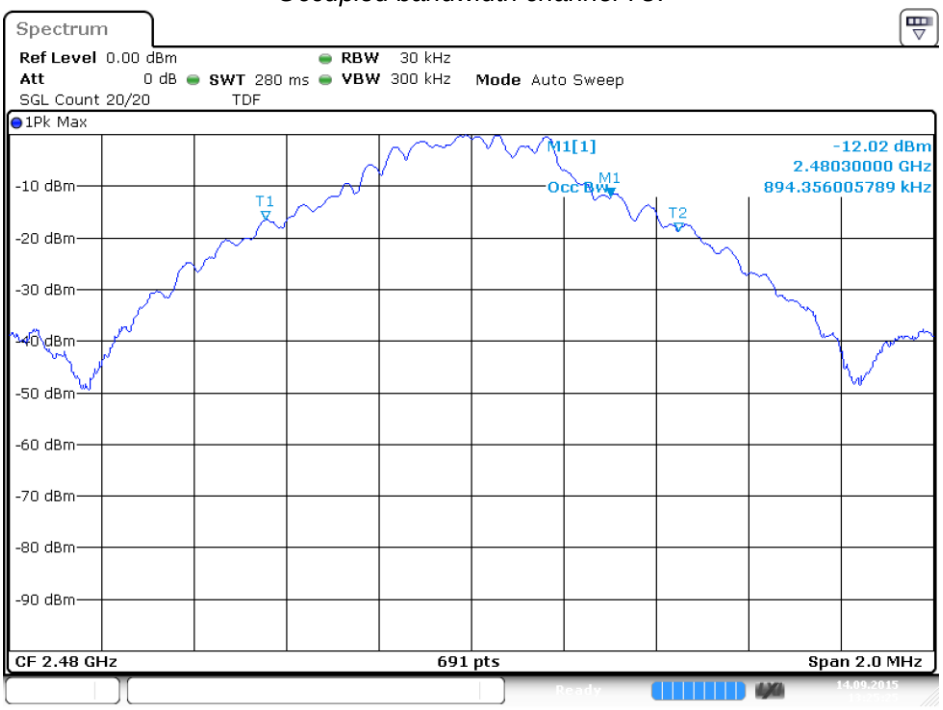
Bt Channel: 39 : Measure Occupied Bandwidth

Date: 14.SEP.2015 13:24:24

20 dB Bandwidth channel 39.



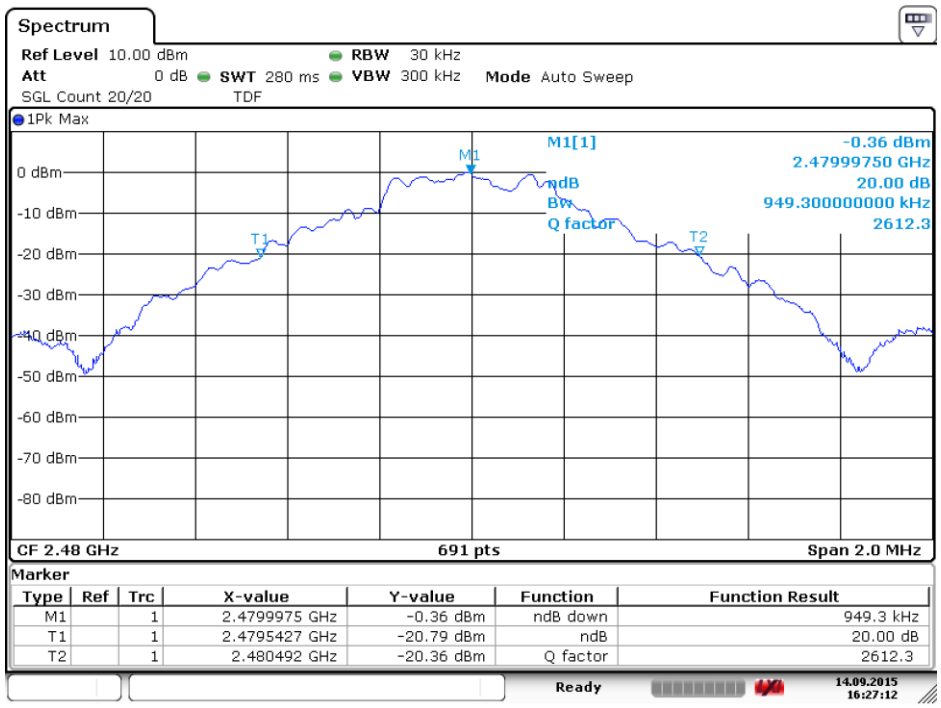
Occupied bandwidth channel 78.



Bt Channel: 78 : Measure Occupied Bandwidth

Date: 14.SEP.2015 13:25:26

20 dB Bandwidth channel 78.



5.5 Peak Output Power Measurement

5.5.1 Limit

For systems using digital modulation in the 2400-2483.5 MHz band, the limit for the peak output power is 30 dBm. If transmitting antenna of directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point to point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

5.5.2 Measuring instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.5.3 Test setup

As shown in chapter 3.2 of this report.

5.5.4 Test procedure

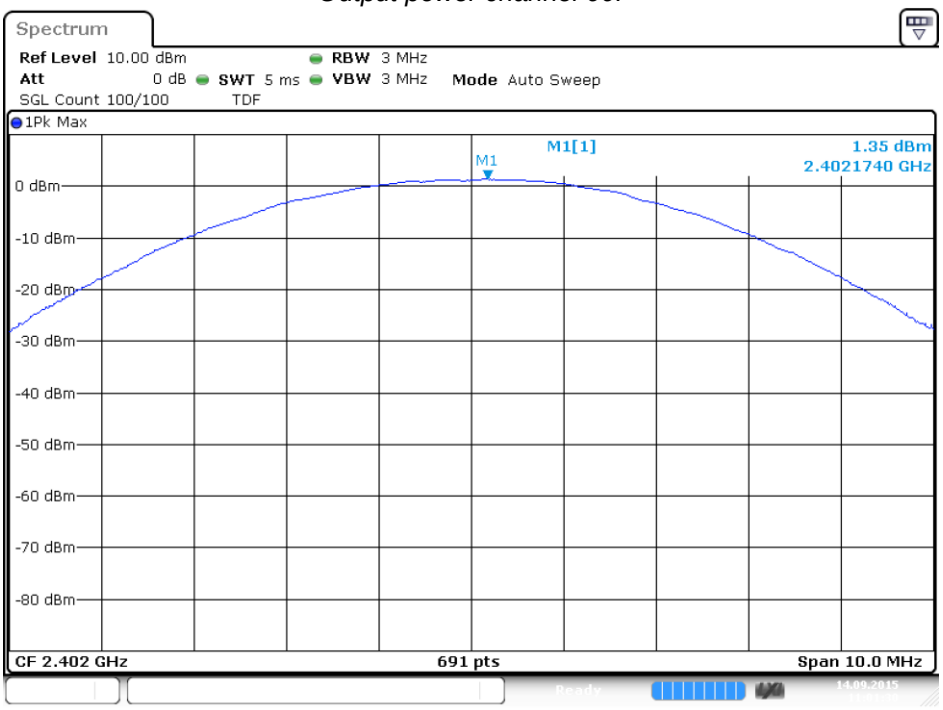
1. The testing follows the measurement Procedure of FCC Public notice DA 00-705.
2. The RF output of EUT was connected to the SA by RF cable through the directional coupler. The path loss was compensated to the results for each measurement.
3. Set the maximum power settings and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

5.5.5 Test results

TX Channel	Frequency [MHz]	Packet type	Cond. RF power [dBm]	EIRP [dBm]	Final verdict	Limit [dBm]
00	2402	BR-DH1	1.35	3.85	Pass	30
39	2441	BR-DH1	2.47	4.97	Pass	30
78	2480	BR-DH1	3.18	5.68	Pass	30
Uncertainty	+0.71 / -0.71 dB					

Note: For the calculation of the EIRP, 2.5 dBi antenna gain is included.

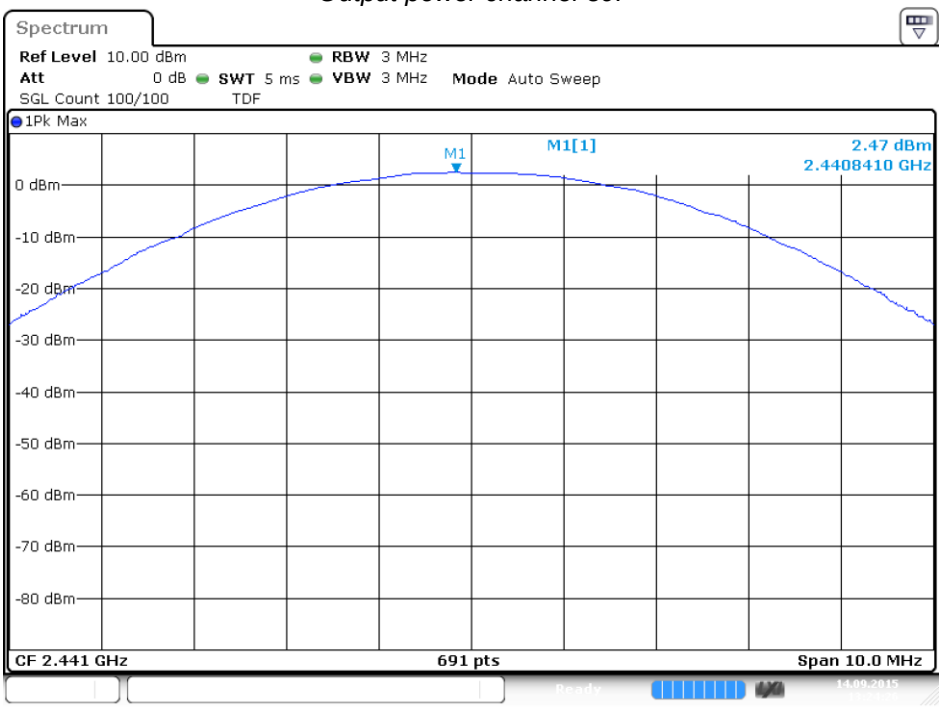
Output power channel 00.



Bt Channel: 0 : Measure DUT output power

Date: 14.SEP.2015 11:01:30

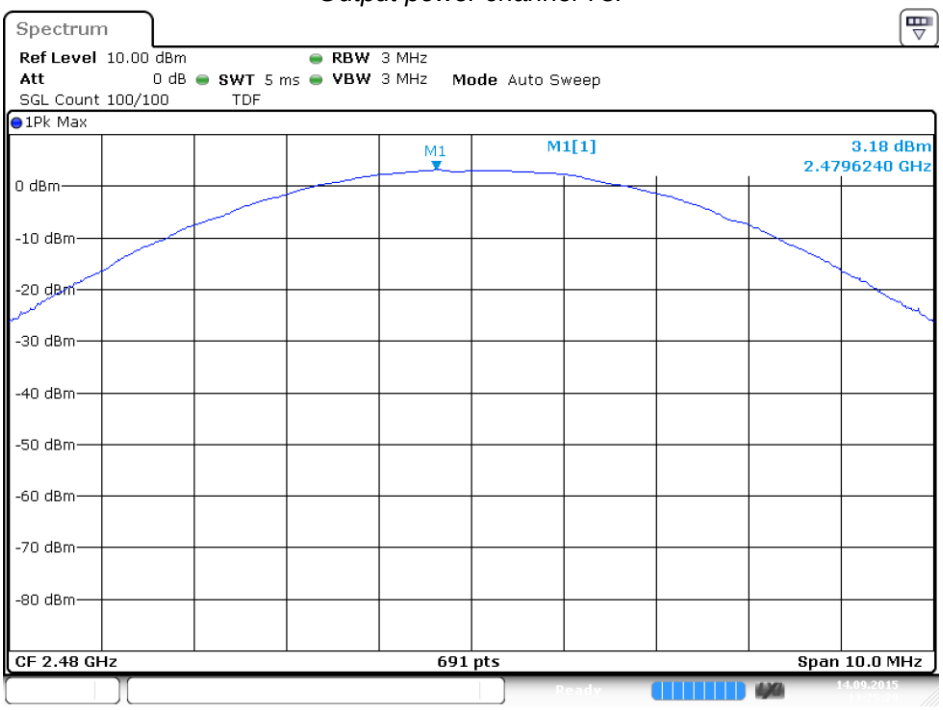
Output power channel 39.



Bt Channel: 39 : Measure DUT output power

Date: 14.SEP.2015 13:24:26

Output power channel 78.



Bt Channel: 78 : Measure DUT output power

Date: 14.SEP.2015 13:25:28

5.6 Radiated spurious emissions and band edges

5.6.1 Limit

In any 100 kHz bandwidth outside the operating frequency band, the RF power 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 a RF conducted or a radiated measurement.

5.6.2 Measuring instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.6.3 Test setup

As shown in chapter 3.3 of this report.

5.6.4 Test procedure

According to FCC Public Notice DA 00-705, page 6.
Deviating from this publication a RBW of 100 kHz instead of 1 MHz is used.

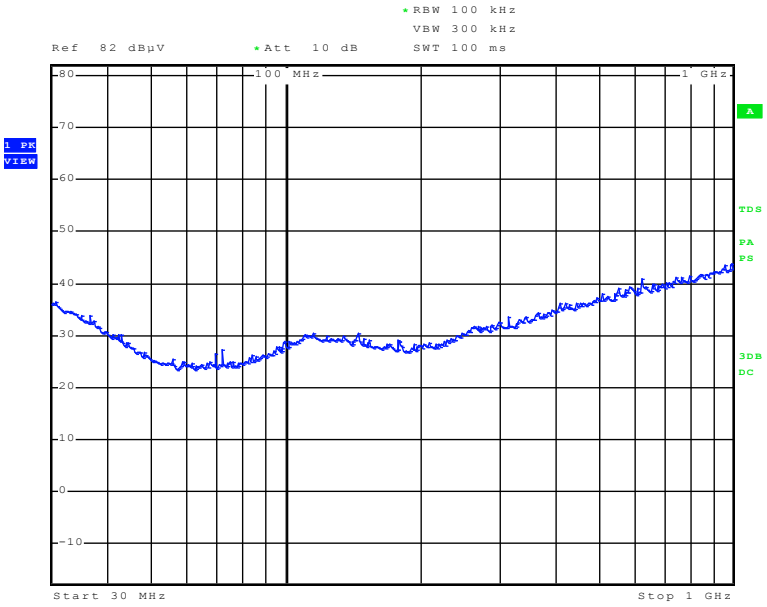
Note: A pre-scan has been conducted to determine the worst-case mode from all possible combinations of available modulations and antenna ports. Following channel(s) were selected for final test as listed below:

EUT configure mode	Available channels	Tested channels	Data rate (Mbps)
Powered by adaptor	0 to 78	0, 39, 79	3.0

5.6.5 Test results

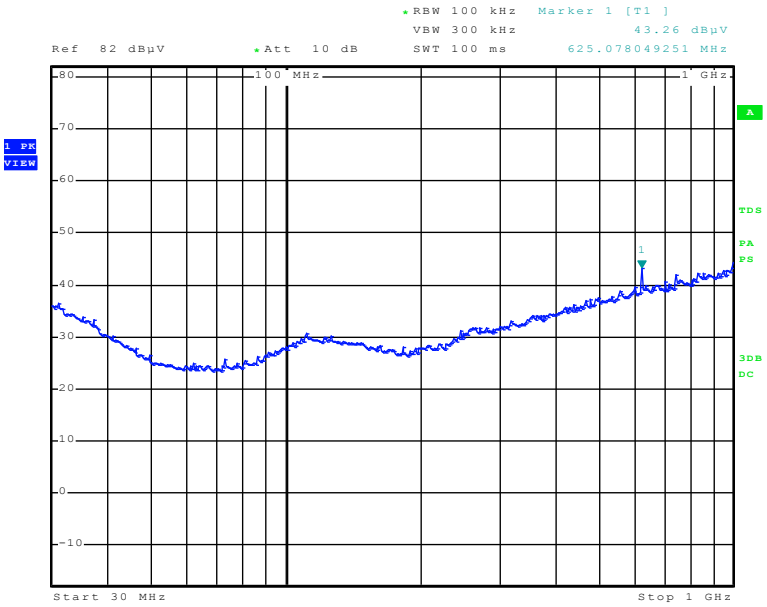
BT TX channel 00

Horizontal polarization



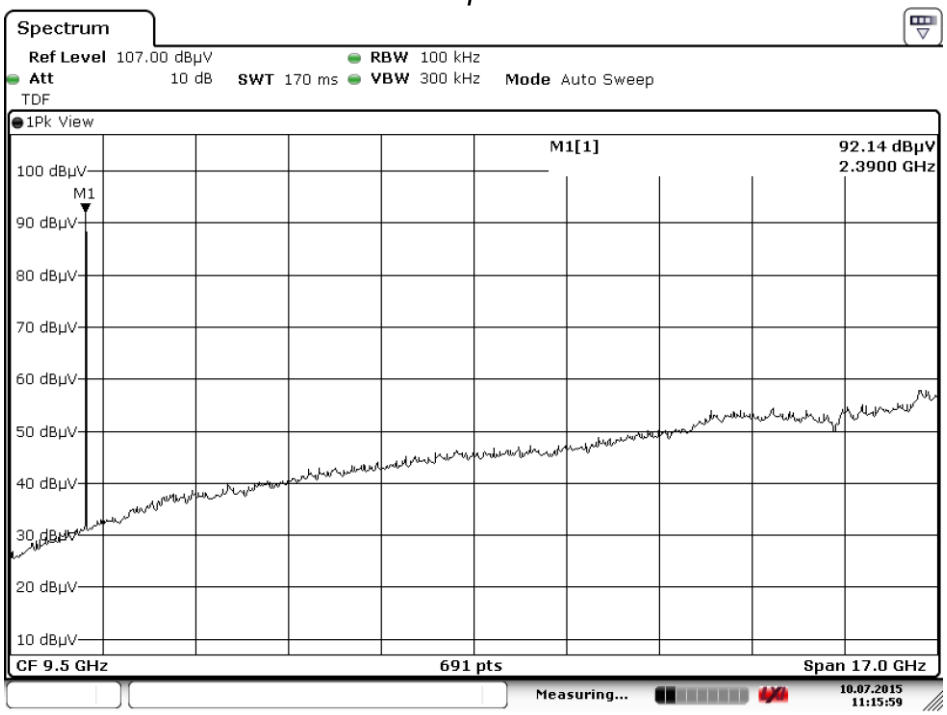
Date: 15.JUL.2015 15:21:05

Vertical polarization



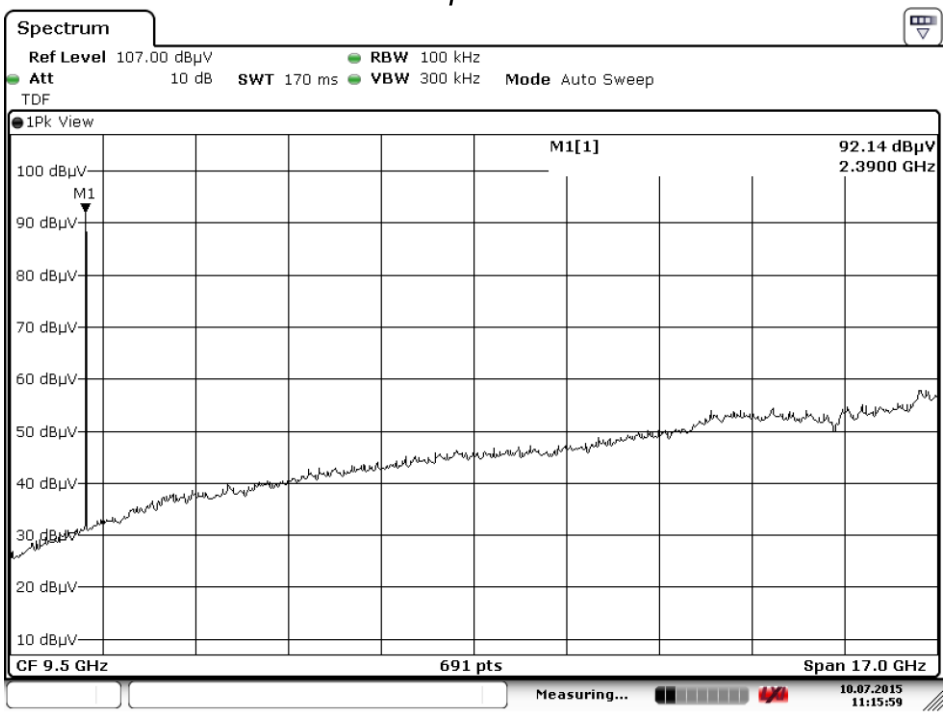
Date: 15.JUL.2015 15:50:59

Horizontal polarization



Date: 10.JUL.2015 11:15:59

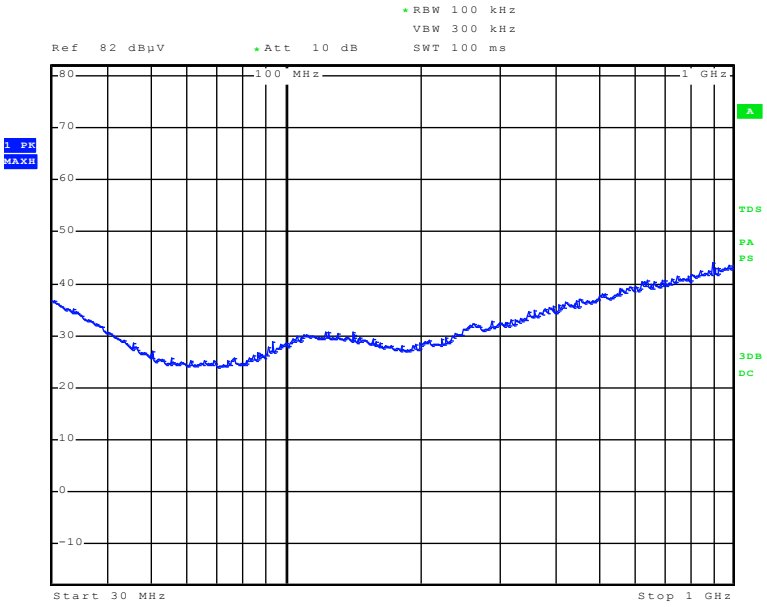
Vertical polarization



Date: 10.JUL.2015 11:15:59

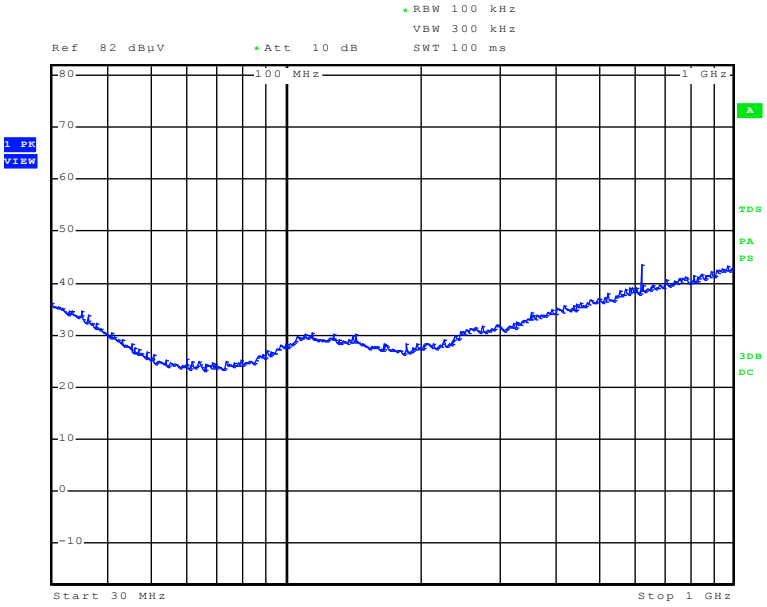
BT TX channel 39:

Horizontal polarization



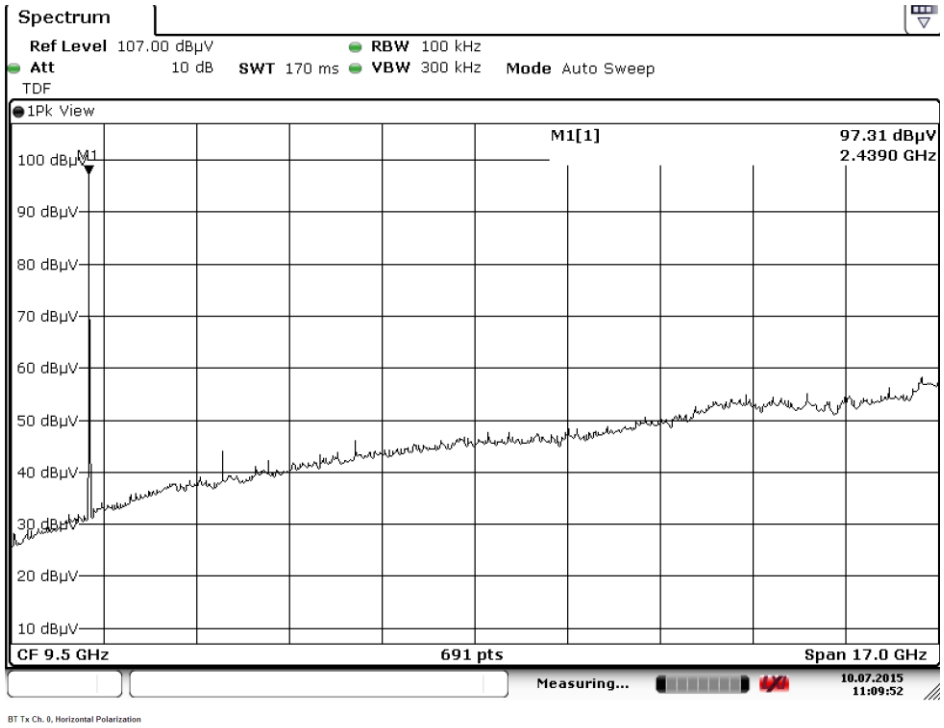
Date: 15.JUL.2015 15:05:43

Vertical polarization



Date: 15.JUL.2015 15:36:35

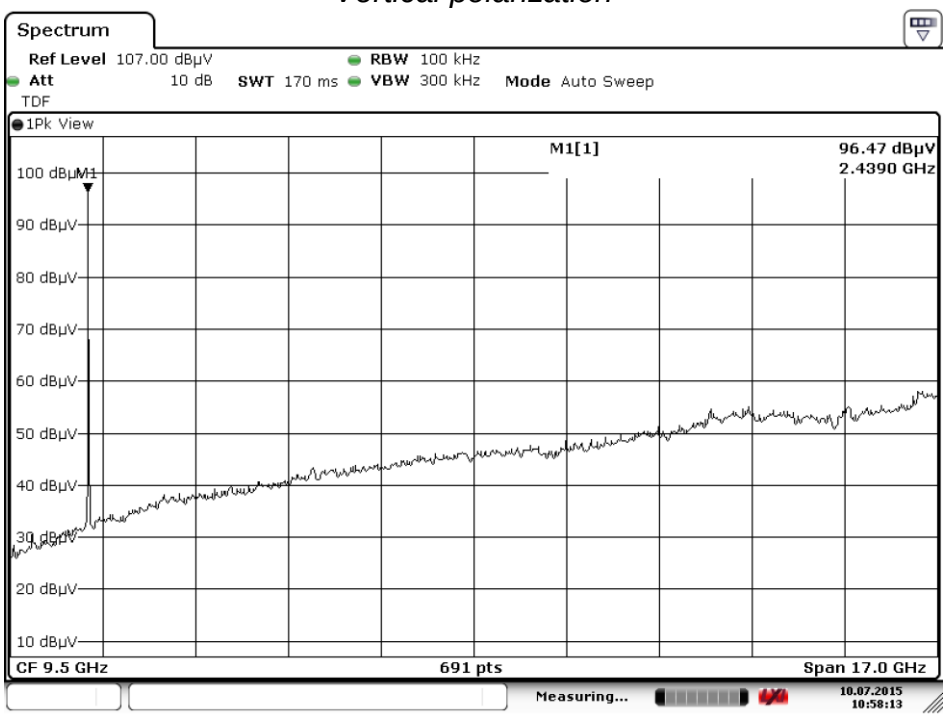
Horizontal polarization



BT Tx Ch. 0, Horizontal Polarization

Date: 10.JUL.2015 11:09:52

Vertical polarization

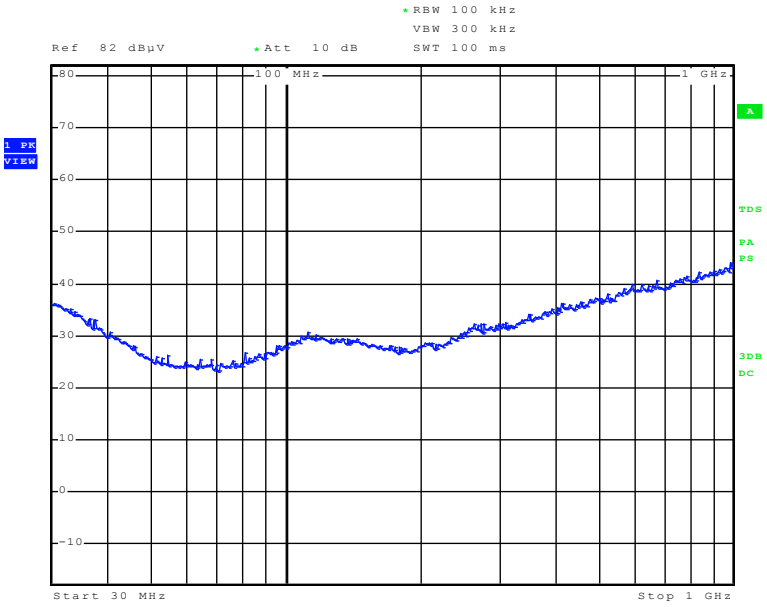


BT TX Vertical polarization Ch. 39

Date: 10.JUL.2015 10:58:12

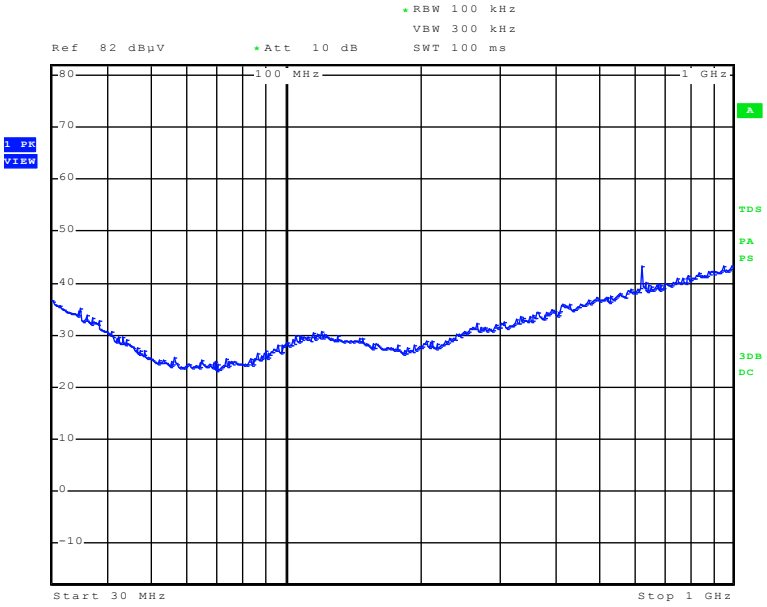
BT TX channel. 78:

Horizontal polarization



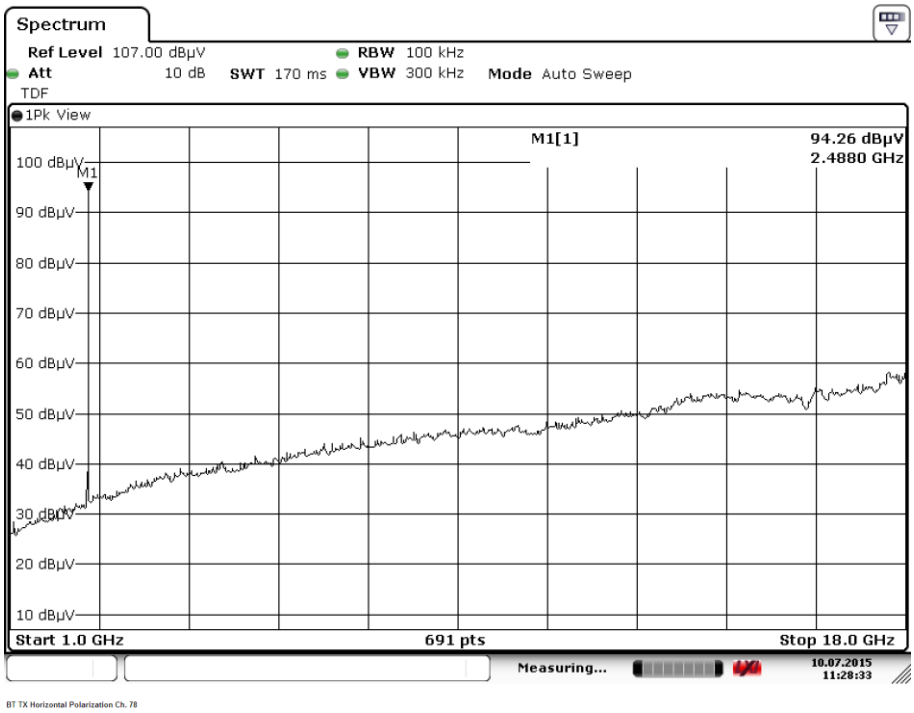
Date: 15.JUL.2015 15:30:22

Vertical polarization



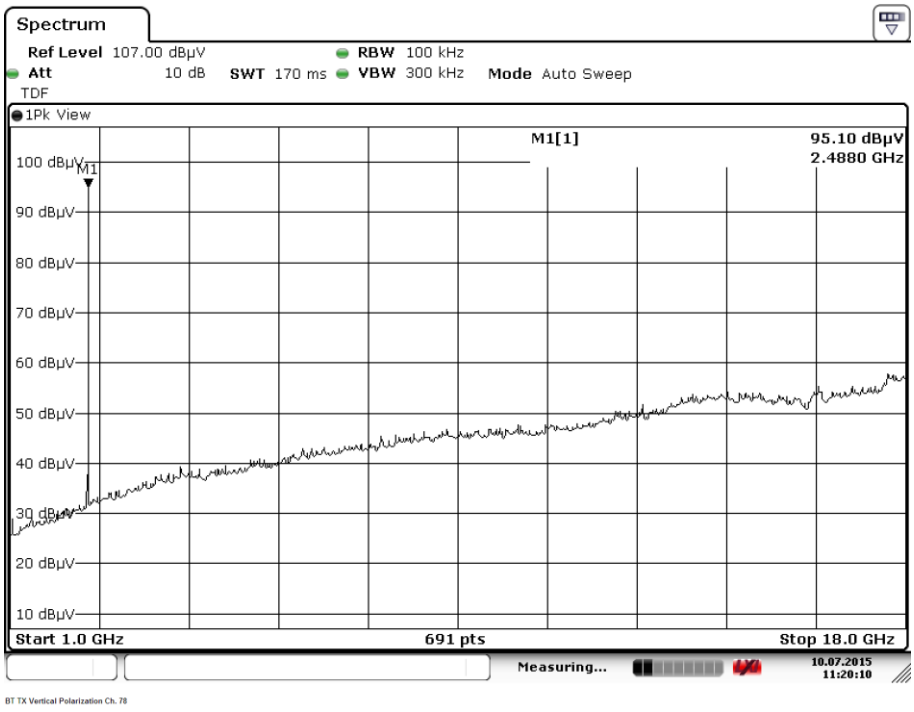
Date: 15.JUL.2015 15:44:02

Horizontal polarization



Date: 10.JUL.2015 11:28:32

Vertical polarization

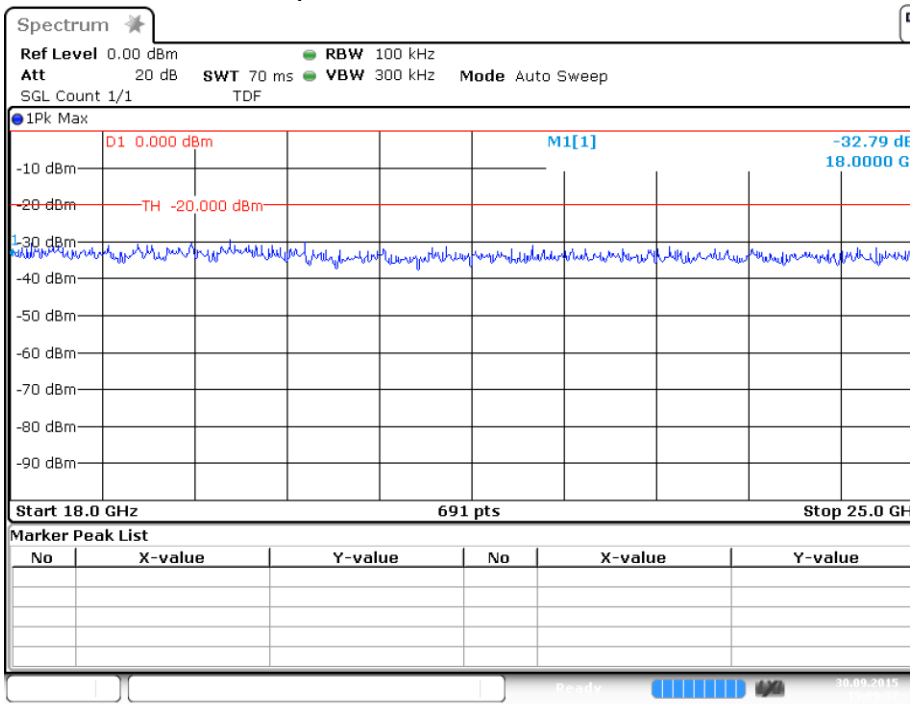


Date: 10.JUL.2015 11:20:10

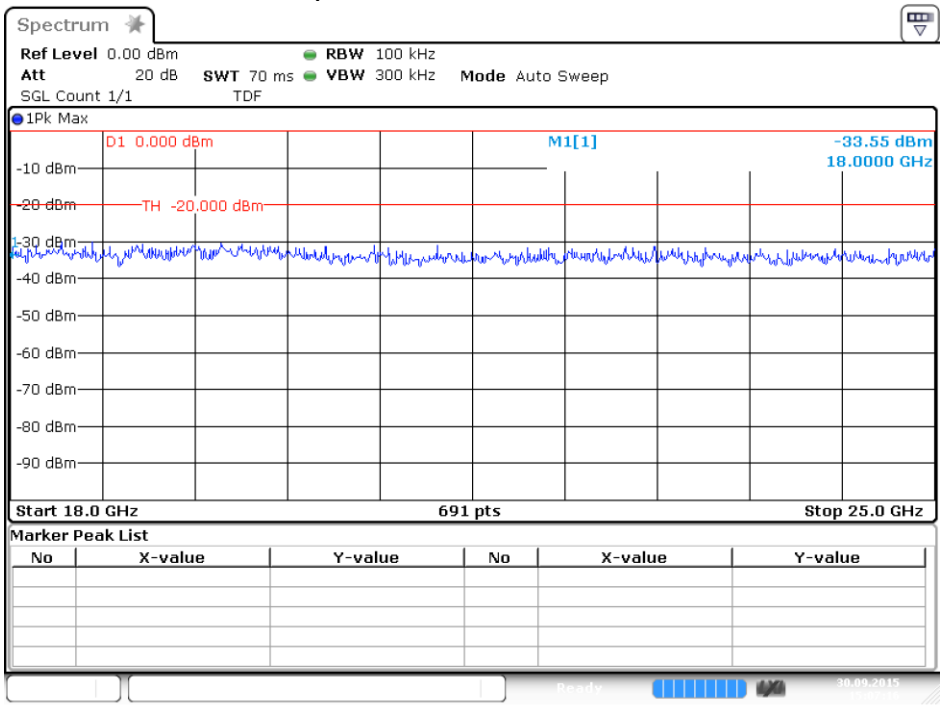
All channels, horizontal and vertical polarizations (18 ≤ F < 26 GHz)

Since no emissions higher than on the third harmonic frequency are found, as shown in the preceding graphs, measurements in the frequency range 18 to 26 GHz were considered not necessary. To confirm this an conducted pre-scan has been done, which can be seen in the plot on the next page.

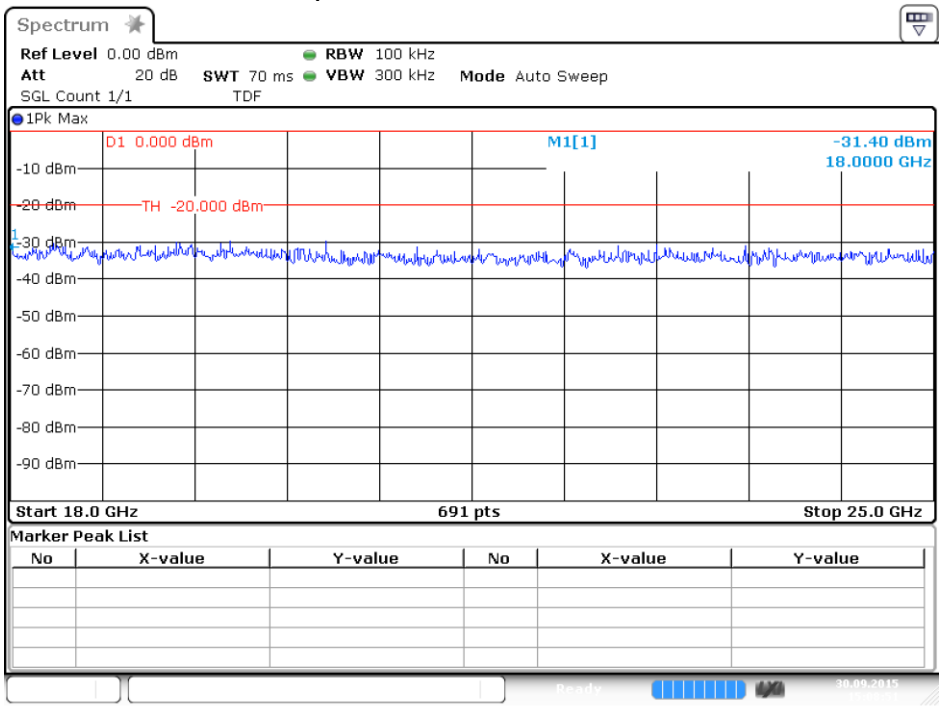
Pre-scan channel 0,18GHZ to 25 GHz



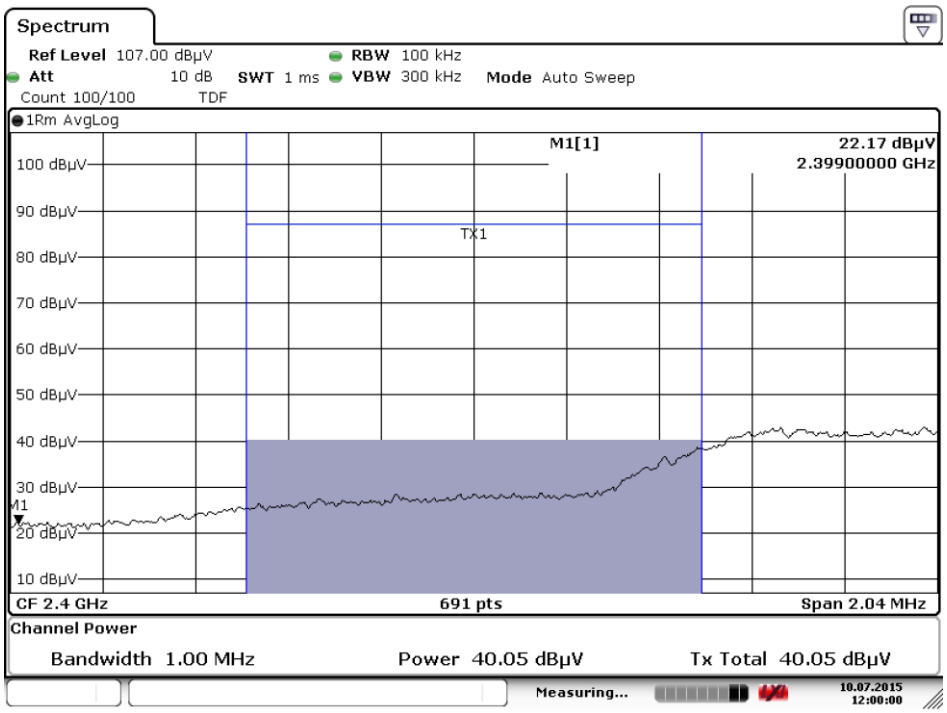
Pre-scan channel 39,18GHZ to 25 GHz



Pre-scan channel 78,18GHZ to 25 GHz



BT lower band edge, channel 00:



Date: 10.JUL.2015 11:59:59

Uncertainty:

Horizontal polarization	
30 – 200 MHz	4.5 dB
200 – 1000 MHz	3.6 dB
1000 – 18000 MHz	5.7 dB
Vertical polarization	
30 – 200 MHz	5.4 dB
200 – 1000 MHz	4.6 dB
1000 – 18000 MHz	5.7 dB

5.7 AC Conducted Emission Measurement

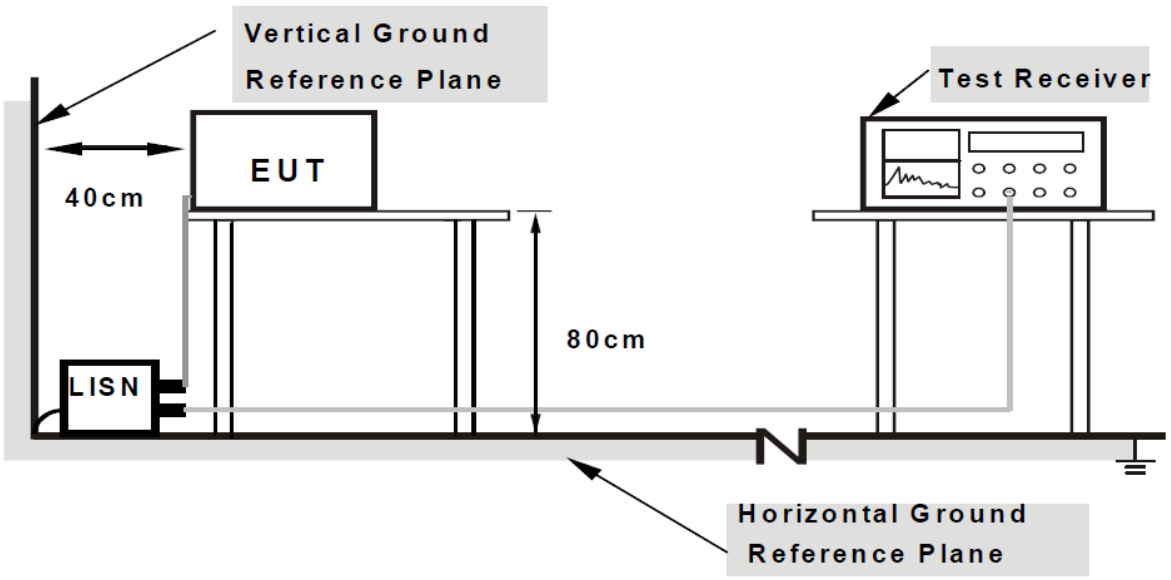
5.7.1 Limit

According to FCC part 15C, §15.207

5.7.2 Measuring instruments

The measuring instruments are listed in chapter 3.4 of this report.

5.7.3 Test setup

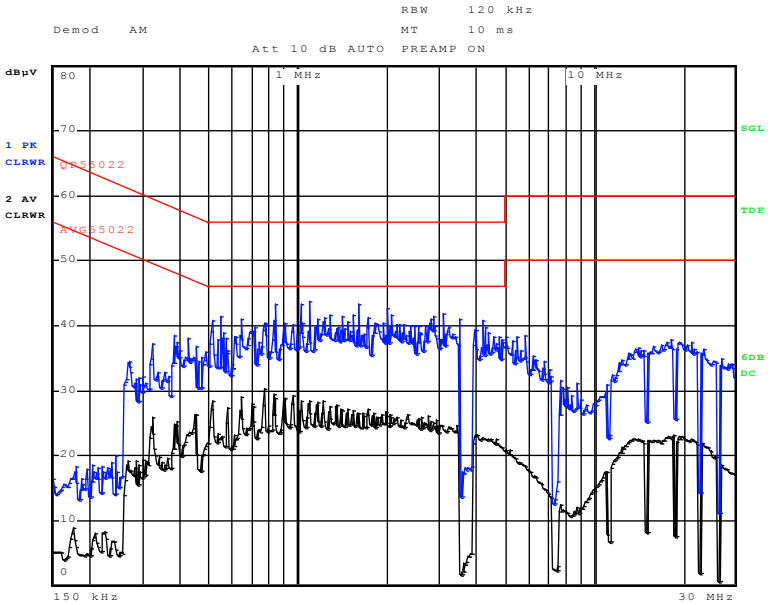


5.7.4 Test procedure

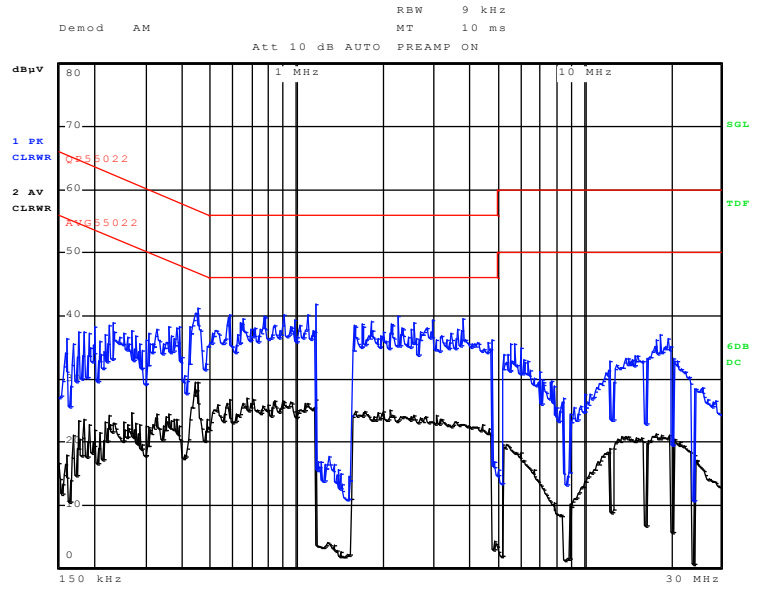
1. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 µH of coupling impedance for the measuring instrument.
2. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
3. The Frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit -20 dB) were not recorded.
4. All modes of operation were investigated and worst-case emissions are reported.

5.7.5 Test results for the USB Travel Charger

Neutral:

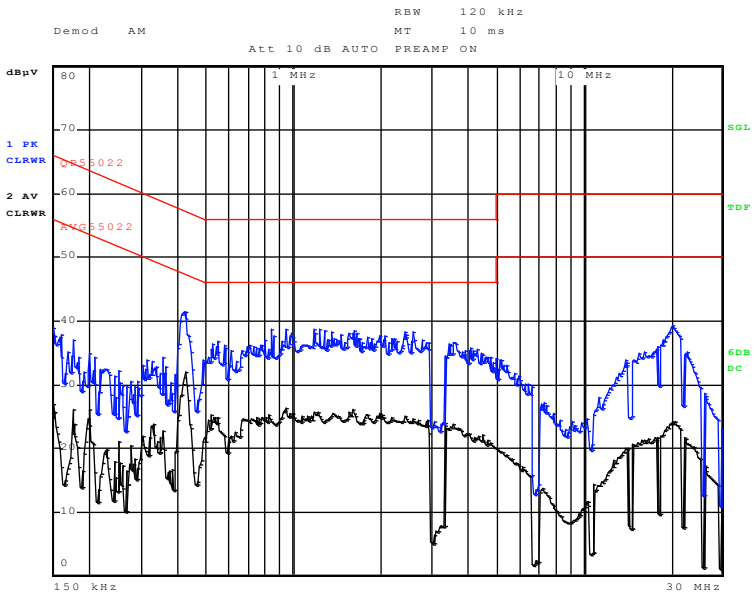


Phase:

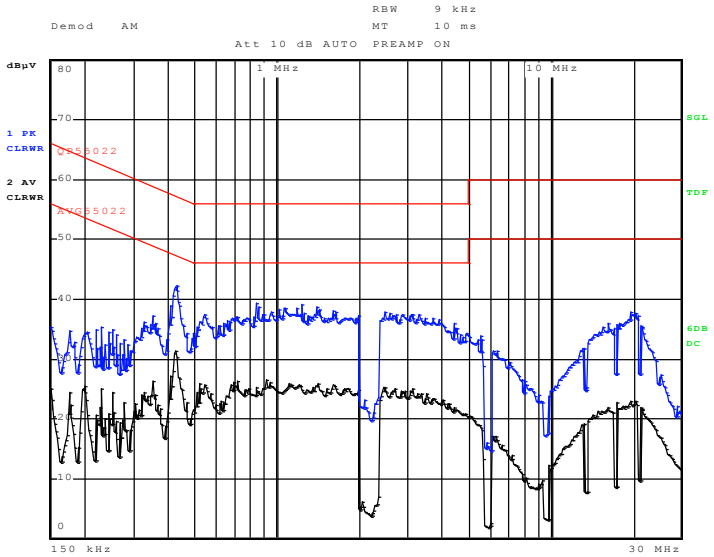


5.7.6 Test results for BC_EX_SM14_USB_Cable-1

Neutral:



Phase:



Uncertainty: + 3.1 / -3.1 dB

5.8 Antenna Requirement

According to FCC 15.03, 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. The use of permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of sections 15.211, 15.213, 15.217, 15.219 or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

This is the last page of this test report.