

Prüfbericht - Nr.: <i>Test Report No.:</i>	50353238 001	Auftrags-Nr.: <i>Order No.:</i>	180117682	Seite 1 von 72 Page 1 of 72
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2019.12.06	
Auftraggeber: <i>Client:</i>	Ring LLC 1523 26th St, Santa Monica, CA 90404, USA			
Prüfgegenstand: <i>Test item:</i>	Floodlight Battery			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	5B21S8			
Auftrags-Inhalt: <i>Order content:</i>	TÜV Rheinland – FCC/IC Service			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 2 February 2017 RSS-Gen Issue 5 March 2019 FCC Part15, Subpart B:2019 ICES-005:2018			
Wareneingangsdatum: <i>Date of receipt:</i>	2019.12.06			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000876441 001-002			
Prüfzeitraum: <i>Testing period:</i>	2020.03.14-2020.03.16			
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 1.1.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
2020.10.12 Caidong Xie/PE <i>Caidong Xie</i>		2020.10.12 Feng Liang/TC <i>Feng Liang</i>		
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
Sonstiges/ Other: Refer to the test report 50353239 001 for the conformance of Radio Frequency Exposure requirement. Refer to page 5 to 6 for more information.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
*Legende:	1= Sehr gut P(ass)=entspricht o.g. Prüfgrundlage(n) Legend: 1= very good P(ass) = passed a.m. test specification(s)	2 = gut 2 = good 3= befriedigend F(ail)= entspricht o.g. Prüfgrundlage(n) 3= satisfactory F(ail)= failed a.m. test specification(s)	4= ausreichend N/A = nicht anwendbar 4= sufficient N/A = not applicable	5 = mangelhaft N/T =nicht getestet 5 = poor N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>				

V04

TEST SUMMARY

4.1.1 ANTENNA REQUIREMENT

Result:

Pass

4.1.2 6dB AND 20dB BANDWIDTH MEASUREMENT

Result:

Pass

4.1.3 99% EMISSION BANDWIDTH MEASUREMENT

Result:

Pass

4.1.4 MAXIMUM PEAK CONDUCTED OUTPUT POWER

Result:

Pass

4.1.5 EQUIVALENT ISOTROPICALLY RADIATED POWER

Result:

Pass

4.1.6 PEAK POWER SPECTRAL DENSITY

Result:

Pass

4.1.7 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

Result:

Pass

4.1.8 CARRIER SEPARATION MEASUREMENT

Result:

Pass

4.1.9 THE NUMBER OF HOPPING CHANNELS

Result:

Pass

4.1.10 CHANNEL OCCUPANCY TIME

Result:

Pass

4.1.11 CONDUCTED EMISSION (AC POWER-LINE)

Result:

N.A

4.1.12 RADIATED EMISSION

Result:

Pass

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1 Test Sites

1.1 Test Facilities

Laboratory: TÜV Rheinland /CCIC(Ningbo) Co., Ltd.

1st Floor, Building 11, Scholar Innovation Park, No.1188 Zhongguan Road, Zhenhai District, Ningbo 315200 P.R. China.

The used test equipment is in accordance with CISPR 16-1 series standards for measurement of radio interference.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

No.	Equipment	Model	Inventory no.	Last cal. date	Cal. due date
1.	EMI test receiver	ESR7	101929	2019.11.26	2020.11.25
2.	Spectrum analyzer	FSV40	101412	2019.11.26	2020.11.25
3.	Pre-amplifier	SCU-18F	180051	2019.11.26	2020.11.25
4.	Horn antenna	HF907	102653	2017.08.03	2020.08.02
5.	Bilog Antenna	CBL6112D	49033	2018.04.13	2021.04.12

1.3 Measurement Uncertainty

Test Item	Expanded Measurement Uncertainty (k=2)
Conducted Emission (9-150kHz)	3.70dB
Conducted Emission (150k-30MHz)	3.30dB
Radiated Emission (30-1000MHz)	4.52dB
Radiated Emission (1-18GHz)	4.37dB

2 General Product Information

2.1 Product Function and Intended Use

The EUT(equipment under test) is a Floodlight Battery which support Bluetooth, LoRa DTS, LoRa FHSS and FSK HFSS function operated at 2400-2483.5MHz and 902-928MHz respectively. For the further information, refer to the user's manual.

Model list:

Model name	Function
5B21S8	Block A: BLE operated at 2.4GHz Block B: LoRa DTS, LoRa FHSS and FSK FHSS operated at 902-928MHz

2.2 Ratings and System Details

Power input	: DC 6V 4D Cells
Protection Class	: Class III
FCC ID	: 2AEUPBHAFB002
IC	: 20271-BHAFB002
HVIN	: 5B21S8
FVIN	: 1.7.16-56
PMN	: Floodlight Battery

Technical Specification of BLE

Technical Specification	BLE
Operating Frequency band	2402 – 2480 MHz
Bluetooth Core Version	Bluetooth Low Energy 4.2
Channel separation	2MHz
Extreme Temperature Range	-20°C ~ 55°C
Modulation	GFSK
Antenna Type	Internal Antenna
Antenna Gain(dBi)	0
Channel	0~39

Technical Specification of LoRa DTS

Technical Specification	LoRa DTS 500kHz 902.5-926.5MHz
Operating Frequency band	902 – 928 MHz
Extreme Temperature Range	-20°C ~ 55°C
Bandwidth(kHz)	500
Modulation	LoRa DTS
Antenna Type	Internal Antenna
Antenna Gain(dBi)	-2.0
Channel Separation (kHz)	800
Channel Number	31
Channel (MHz)	902.5, 903.3, 904.1, 904.9, 905.7, 906.5, 907.3, 908.1, 908.9, 909.7, 910.5, 911.3, 912.1, 912.9, 913.7, 914.5, 915.3, 916.1, 916.9, 917.7, 918.5, 919.3, 920.1, 920.9, 921.7, 922.5, 923.3, 924.1, 924.9, 925.7, 926.5

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Technical Specification of LoRa FHSS

Technical Specification	LoRa 125kHz FHSS 902.2-927.8MHz
Operating Frequency band	902 – 928 MHz
Extreme Temperature Range	-20°C ~ 55°C
Modulation	LoRa FHSS
Antenna Type	Internal Antenna
Antenna Gain(dBi)	-2.0
Channel Separation (kHz)	200
Channel Number	129
Bandwidth (kHz)	125
Hopping channel(MHz)	902.2-927.8

Technical Specification of FSK FHSS

Technical Specification	FSK150Kbps FHSS	FSK 50Kbps FHSS	FSK 250Kbps FHSS
Operating Frequency band	902 – 928 MHz		
Extreme Temperature Range	-20°C ~ 55°C		
Modulation	FSK FHSS		
Antenna Type	Internal Antenna		
Antenna Gain(dBi)	-2.0		
Channel Separation (kHz)	400	200	500
Channel Number	64	129	51
Data Rate (Kbps)	150	50	250
Hopping Channel(MHz)	902.4~927.6	902.2~927.8	902.5~927.5

2.3 Independent Operation Modes

The basic operation modes are:

Mode A: Transmitting continuously in a channel

Mode B: Hopping in a sequence of hopping channels and Transmitting

Mode C: Transmitting continuously or Receiving continuously in a channel, the worst case recorded

Mode D: Light working (The worst case recorded when having dimmer)

2.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit diagram for further information.

2.5 Submitted Documents

Circuit diagram, PCB layout, Labels, user's manual, etc.

3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The Mode Cs were adapted accordingly in reference to the instructions for use.

3.2 Test Operation and Test Software

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power was selected according to the instruction given by the manufacturer. The setting of the RF output power expected by the customer shall be fixed on the firmware of the final end product.

All testing were performed according to the procedures in ANSI C63.10: 2013.

Test Software EMC32 V10.30 was used in the radiated emission test.

3.3 Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model No.
notebook	Lenovo	T420

3.4 Countermeasures to achieve EMC Compliance

The tested sample contained noise suppression components as specified in the circuit diagram. No special measure is employed to achieve the requirement.

3.5 Test set-up

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

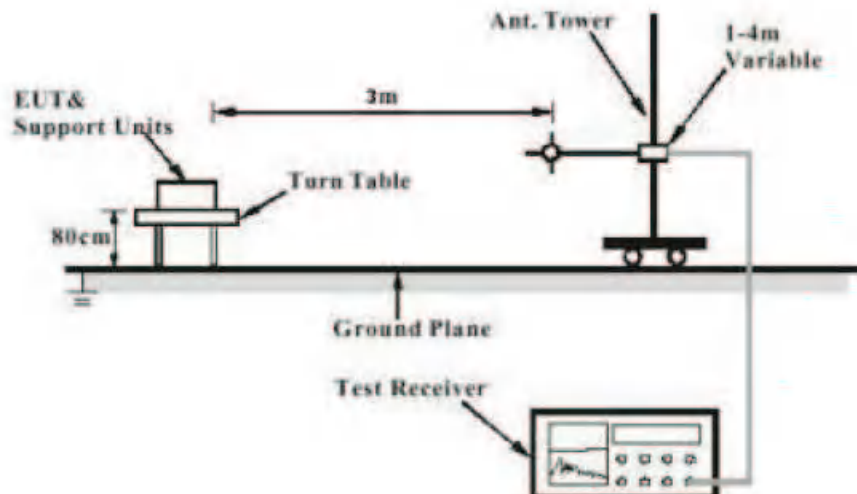


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

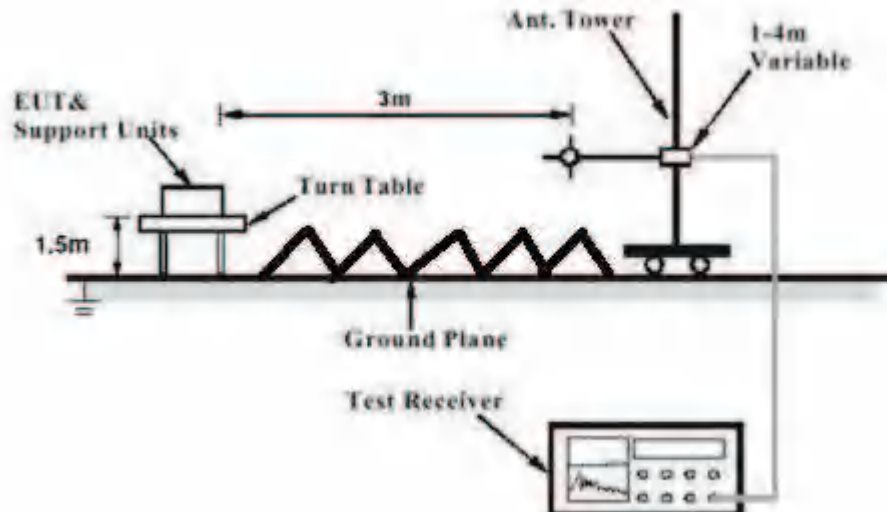
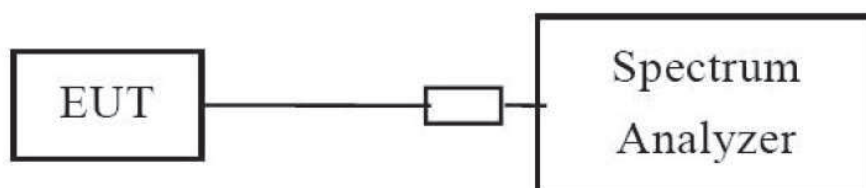


Diagram of Measurement Configuration for Conducted Transmitter Measurement



4 Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

Result:

Pass

Test Specification

Test standard

: FCC Part 15.203

The EUT has two internal antennas, which permanently attached and no consideration of replacement. Therefore, the EUT is considered sufficient to comply with the provision. Refer to EUT Photo for further details.

4.1.2 6dB and 20dB Bandwidth Measurement

Result:

Pass

Test Specification

Test standard : FCC Part 15.247(a)(1)(i), (a)(2)
RSS-247 Issue 2 February 2017 Clause 5.1, Clause 5.2

Basic standard : ANSI C63.10: 2013, clause 6.9.2
KDB558074 D01v05r02, clause 8.3.1.1

Limits : At least 500kHz for 6dB bandwidth(DTS)
Not more than 500kHz for 20dB bandwidth(FHSS)

Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020

Input voltage : DC 6V

Operational mode : Mode A

Test channel : Lo, Mi, Hi

Temperature : 22°C

Relative humidity : 55%

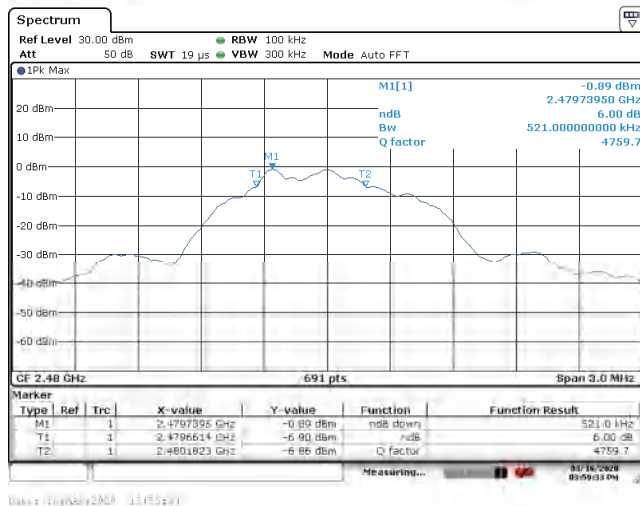
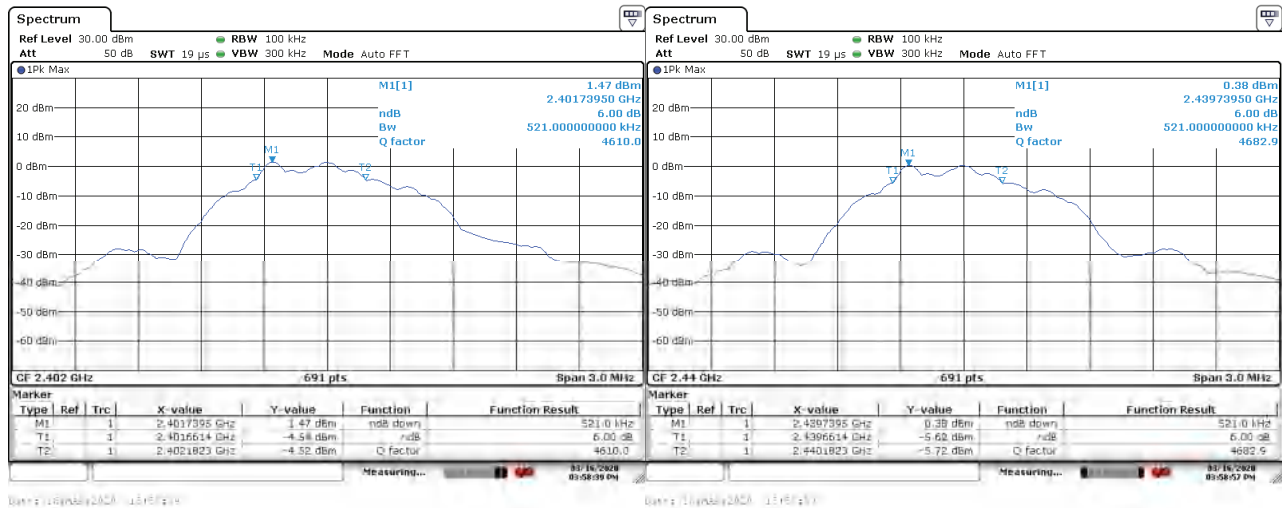
Atmospheric pressure : 101 kPa

Table 2: Test result of 6dB Bandwidth for BLE and LoRa DTS, 20dB Bandwidth for LoRa FHSS and FSK FHSS

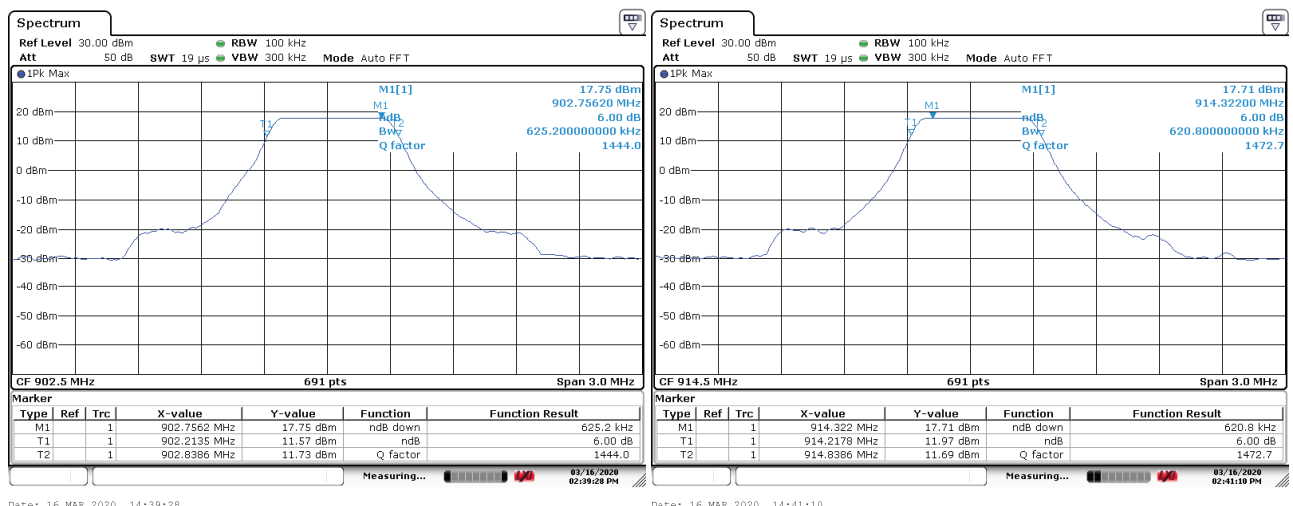
Modulation Type and Operation band	Channel	Channel Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
1. BLE 2402MHz~2480MHz 6dB Bandwidth	Low Channel	2402	521.00	500	Pass
	Mid Channel	2440	521.00	500	Pass
	High Channel	2480	521.00	500	Pass
2. LoRa 500kHz DTS 902.5MHz~926.5MHz 6dB Bandwidth	Low Channel	902.5	625.20	500	Pass
	Mid Channel	914.5	620.80	500	Pass
	High Channel	926.5	620.80	500	Pass
3. LoRa 125kHz FHSS 902.2-927.8MHz 20dB Bandwidth	Low Channel	902.2	151.23	500	Pass
	Mid Channel	915	147.61	500	Pass
	High Channel	927.8	143.99	500	Pass
4. FSK 150Kbps FHSS 902.4MHz~927.6MHz 20dB Bandwidth	Low Channel	902.4	175.11	500	Pass
	Mid Channel	914.8	177.28	500	Pass
	High Channel	927.6	176.56	500	Pass
5. FSK 50Kbps FHSS 902.2MHz~927.8MHz 20dB Bandwidth	Low Channel	902.2	109.99	500	Pass
	Mid Channel	915	109.99	500	Pass
	High Channel	927.8	108.54	500	Pass
6. FSK 250Kbps FHSS 902.5MHz~927.5MHz 20dB Bandwidth	Low Channel	902.5	280.80	500	Pass
	Mid Channel	915	279.30	500	Pass
	High Channel	927.5	279.30	500	Pass

Figure 1: 6dB&20dB Bandwidth Measurement

1. BLE, 6dB Bandwidth, 2402MHz~2480MHz



2. LoRa 500kHz DTS, 6dB Bandwidth, 902.5MHz~926.5MHz

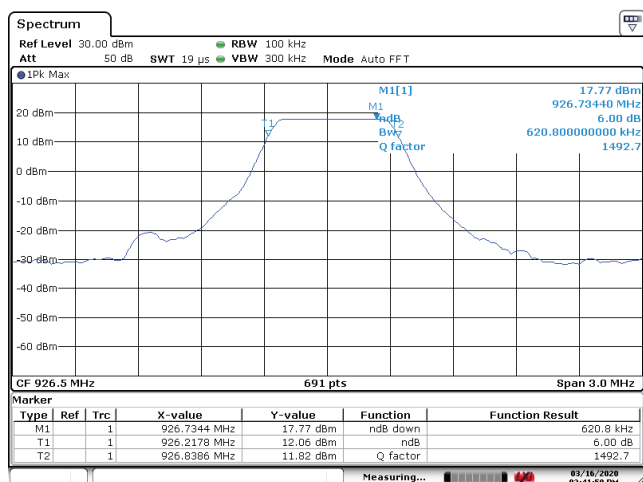


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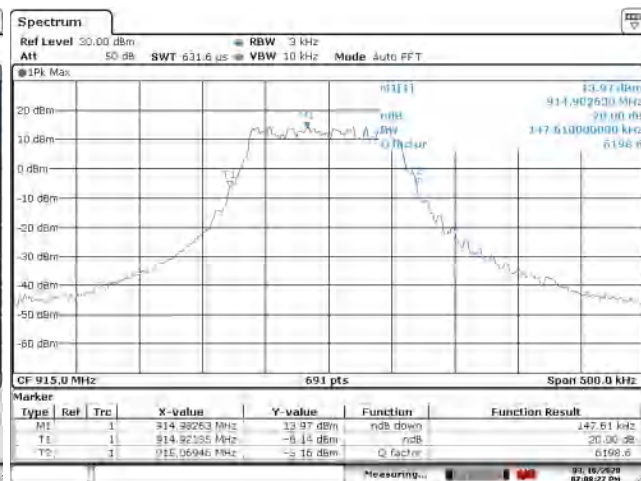


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3. LoRa 125kHz FHSS, 20dB Bandwidth, 902.2-927.8MHz



Date: 16.MAR.2020 14:41:50



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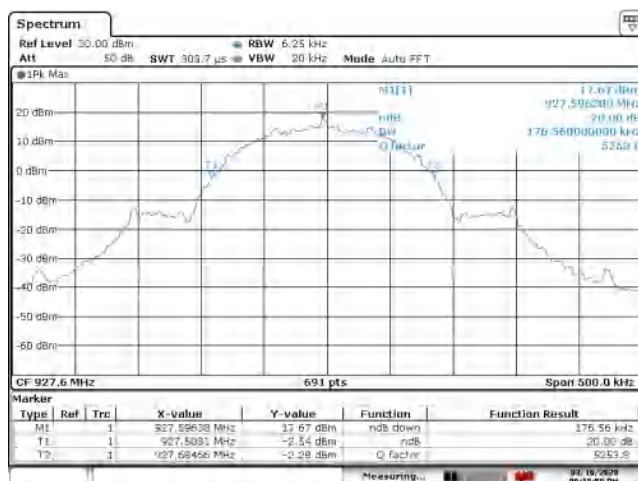
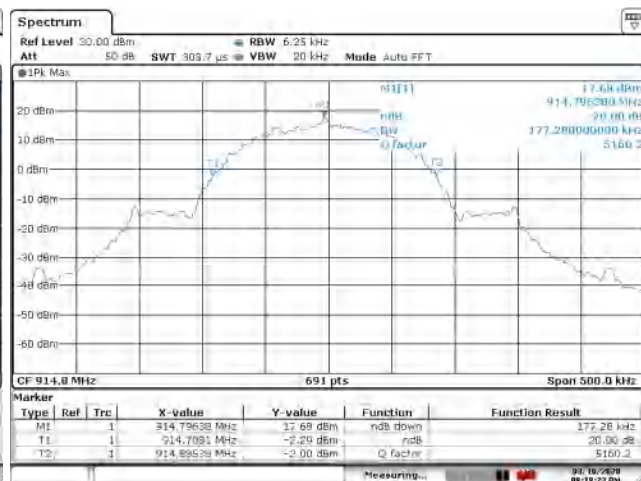
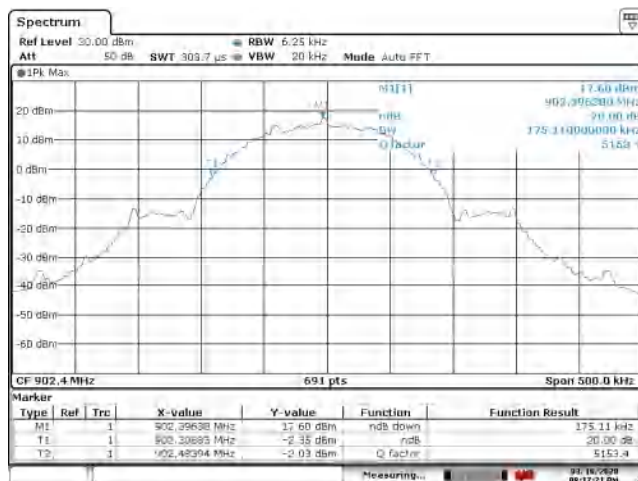
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4. FSK 150Kbps FHSS, 20dB Bandwidth, 902.4MHz~927.6MHz

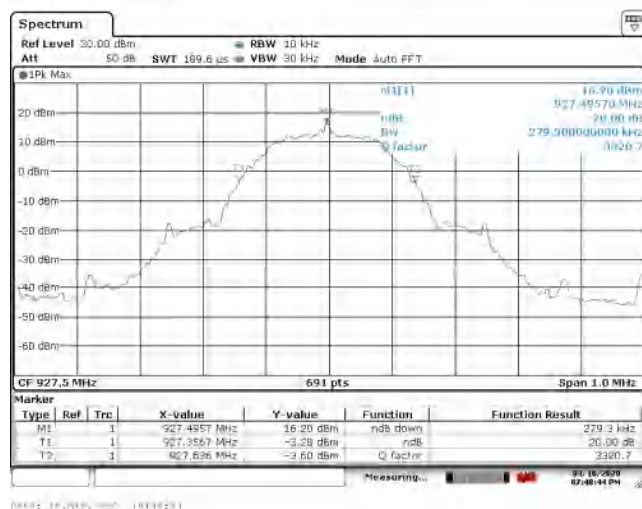
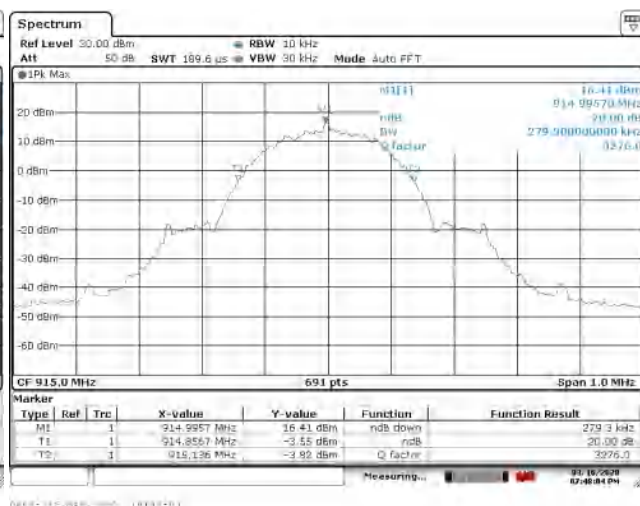
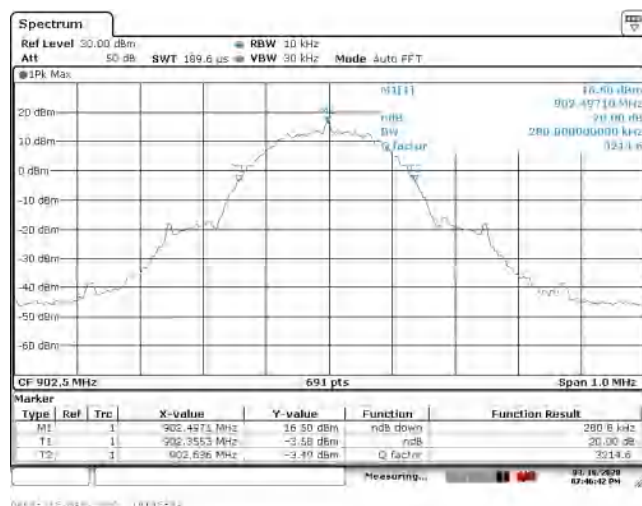


5. FSK 50Kbps FHSS, 20dB Bandwidth, 902.2MHz~927.8MHz





6. FSK 250Kbps FHSS, 20dB Bandwidth, 902.5MHz~927.5MHz



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4.1.3 99% Emission Bandwidth Measurement

Result:

Pass

Test Specification

Test standard : RSS Gen Issue 5 March 2019, clause 6.7
Basic standard : ANSI C63.10: 2013, clause 6.9.3
Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020
Input voltage : DC 6V
Operational mode : Mode A
Test channel : Lo, Mi, Hi
Temperature : 22°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

Table 3 Test result of 99% Emission Bandwidth for BLE, LoRa DTS, LoRa FHSS and FSK FHSS

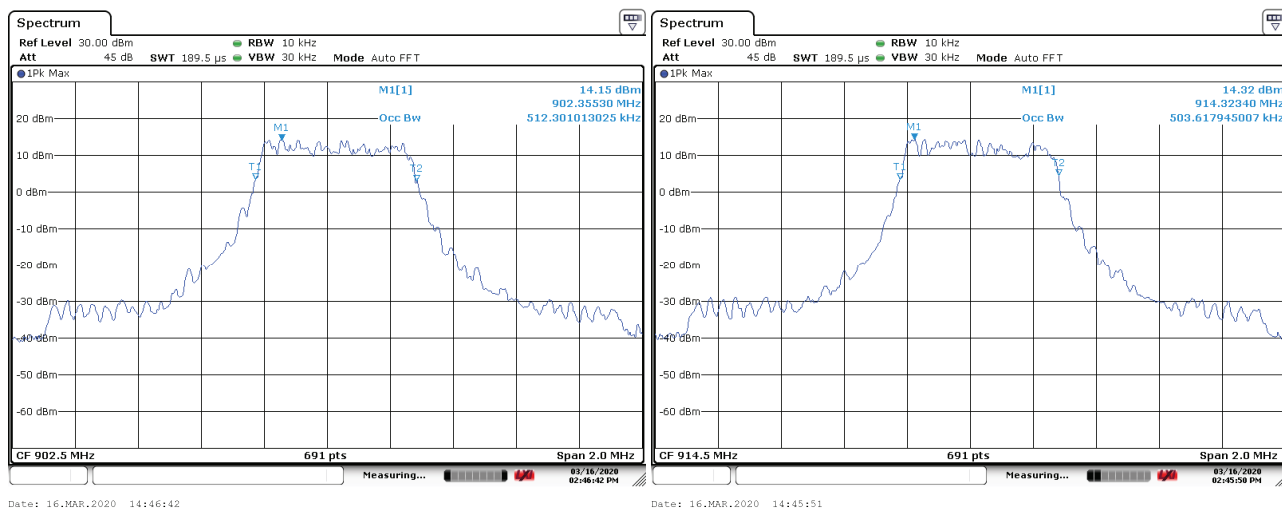
Modulation Type and Operation band	Channel	Channel Frequency (MHz)	Bandwidth (kHz)
1. BLE 2402MHz~2480MHz 99% Emission Bandwidth	Low Channel	2402	1046.31
	Mid Channel	2440	1046.31
	High Channel	2480	1046.31
2. LoRa 500kHz DTS 902.5MHz~926.5MHz 99% Emission Bandwidth	Low Channel	902.5	512.30
	Mid Channel	914.5	503.62
	High Channel	926.5	506.51
3. LoRa 125kHz FHSS 902.2MHz~927.8MHz 99% Emission Bandwidth	Low Channel	902.2	125.90
	Mid Channel	915	126.63
	High Channel	927.8	125.90
4. FSK 150Kbps FHSS 902.4MHz~927.6MHz 99% Emission Bandwidth	Low Channel	902.4	157.74
	Mid Channel	914.8	157.74
	High Channel	927.6	158.47
5. FSK 50Kbps FHSS 902.2MHz~927.8MHz 99% Emission Bandwidth	Low Channel	902.2	103.47
	Mid Channel	915	102.75
	High Channel	927.8	103.47
6. FSK 250Kbps FHSS 902.5MHz~927.5MHz 99% Emission Bandwidth	Low Channel	902.5	251.81
	Mid Channel	915	251.81
	High Channel	927.5	254.70

Figure 2: 99% Emission Bandwidth Measurement

1. BLE, 99% Emission Bandwidth, 2402MHz~2480MHz

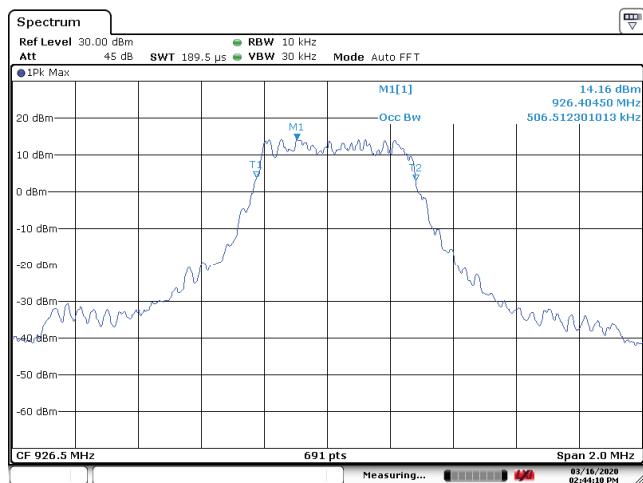


2. LoRa 500kHz DTS, 99% Emission Bandwidth, 902.5MHz~926.5MHz



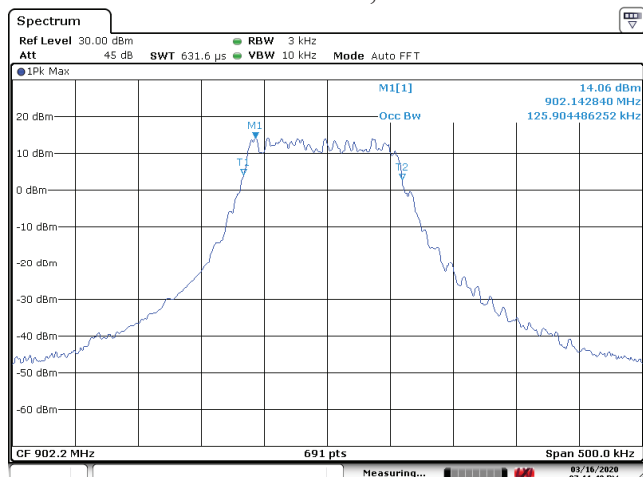
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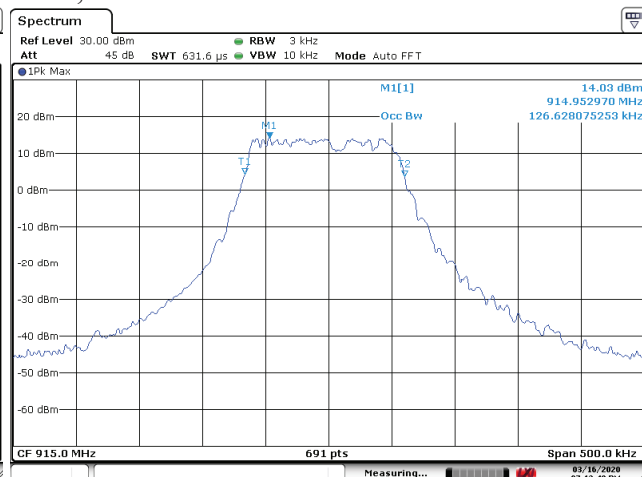


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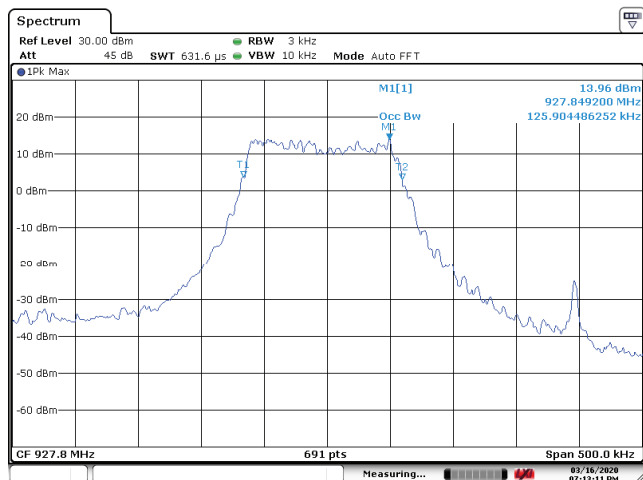
3. LoRa 125kHz FHSS, 99% Emission Bandwidth, 902.2MHz~927.8MHz



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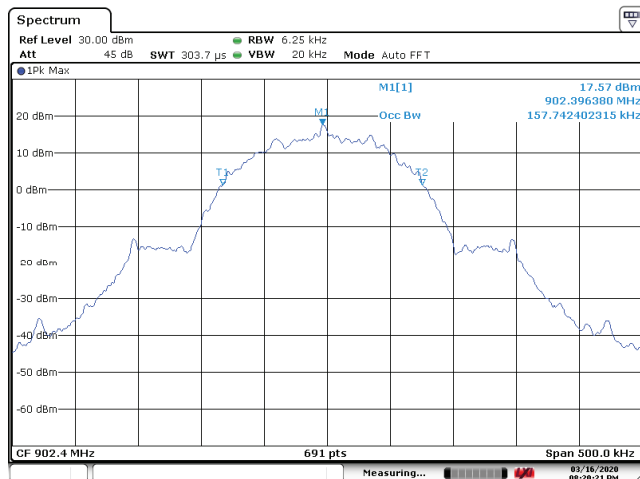


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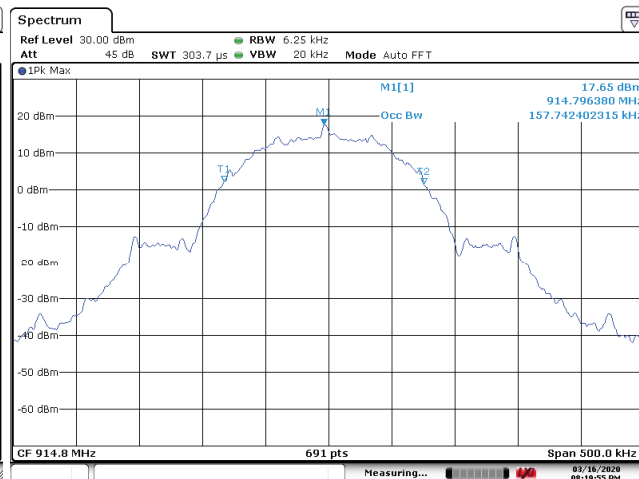


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4. FSK 150Kbps FHSS, 99% Emission Bandwidth, 902.4MHz~927.6MHz



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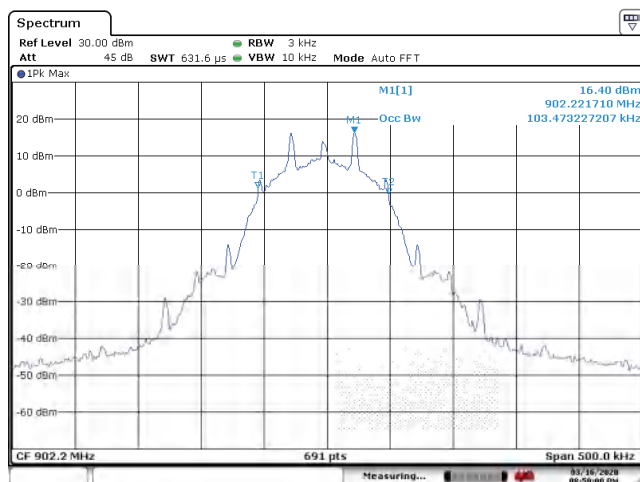


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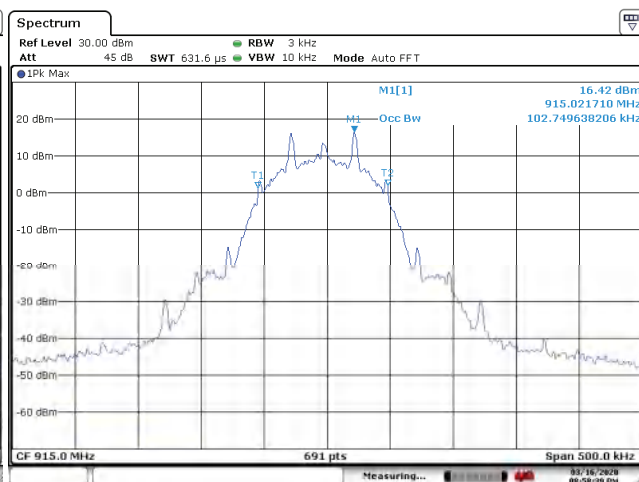


Date: 16.MAR.2020 20:19:25

5. FSK 50Kbps FHSS, 99% Emission Bandwidth, 902.2MHz~927.8MHz



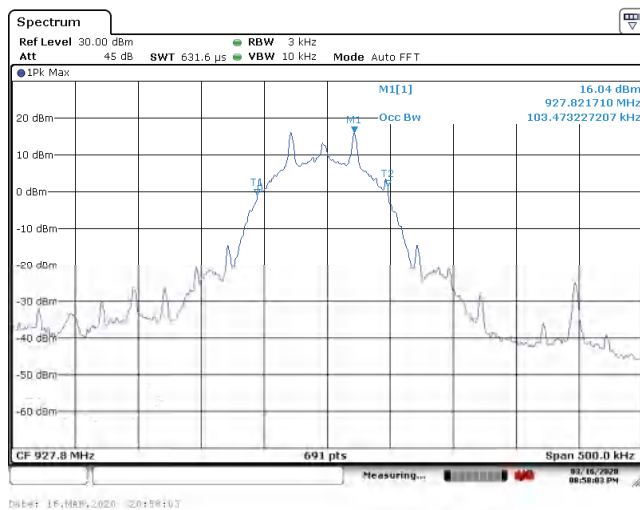
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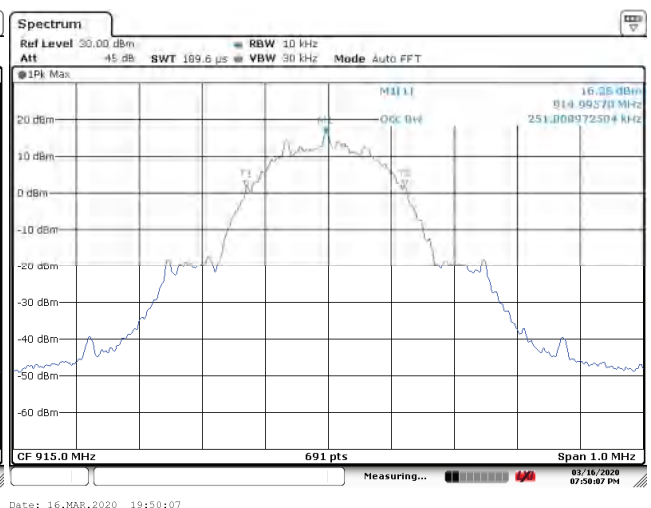
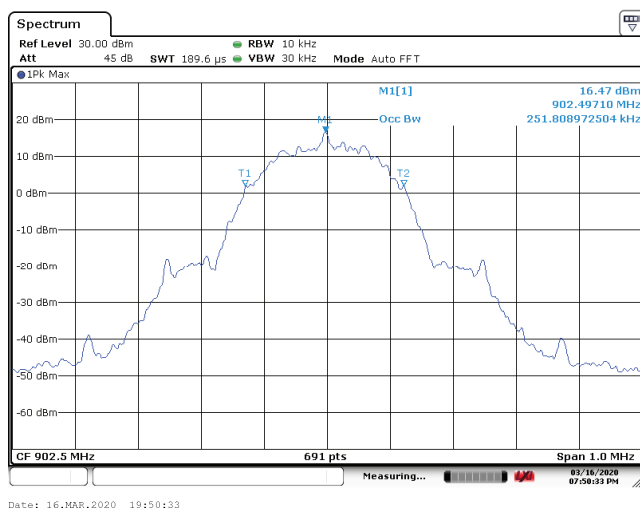
Date: 16.MAR.2020 20:58:39

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6. FSK 250Kbps FHSS, 99% Emission Bandwidth, 902.5MHz~927.5MHz



4.1.4 Maximum Peak Conducted Output Power

Result:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(2), (3)
RSS-247 Issue 2 February 2017 Clause 5.4(a), (d)

Basic standard : ANSI C63.10: 2013, clause 11.9.1
KDB558074 D01v05r02, clause 8.3.1.3

Limits : Not more than 1Watt(30dBm) for DTS in the band
902-928MHz and 2400-2483.5MHz;
Not more than 1Watt(30dBm) for FHSS with at least
50 hopping channels in the band 902-928MHz

Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020

Input voltage : DC 6V

Operational mode : Mode A

Test channel : Lo, Mi, Hi

Temperature : 22 °C

Relative humidity : 55%

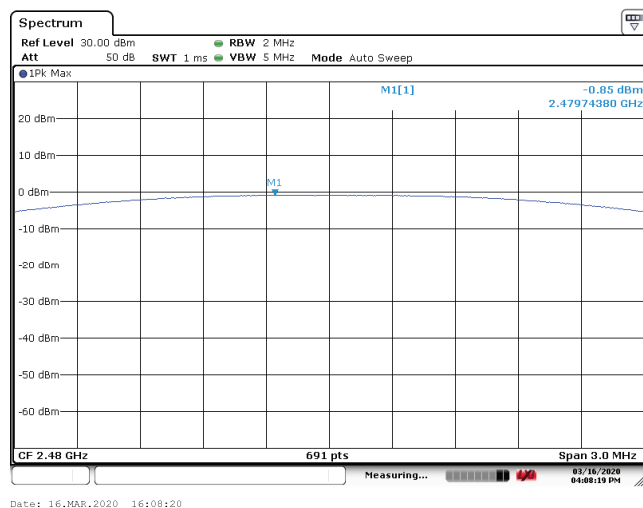
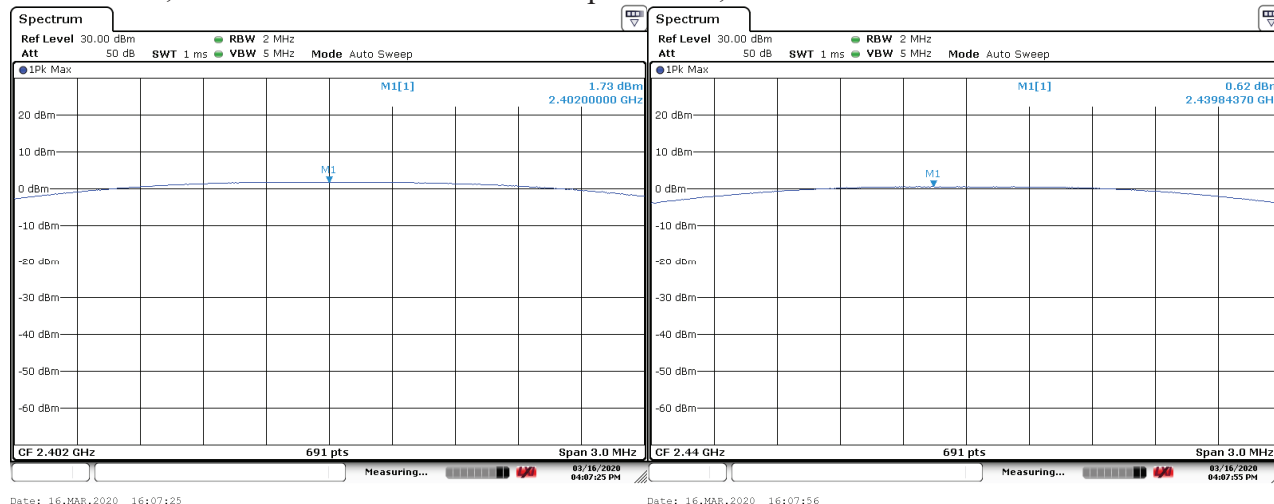
Atmospheric pressure : 101 kPa

Table 4: Test result of Maximum Peak Output Power for BLE, LoRa DTS, LoRa FHSS and FSK FHSS

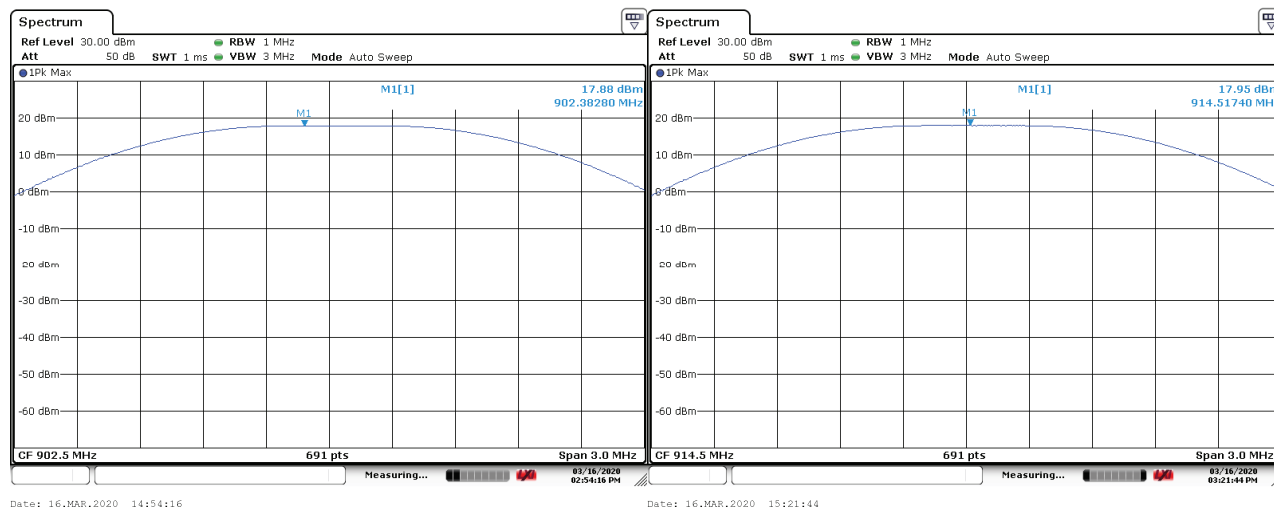
Modulation Type and Operation band	Channel	Channel Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
1. BLE 2402MHz~2480MHz	Low Channel	2402	1.73	30
	Mid Channel	2440	0.62	30
	High Channel	2480	-0.85	30
2. LoRa 500kHz DTS 902.5MHz~926.5MHz	Low Channel	902.5	17.88	30
	Mid Channel	914.5	17.95	30
	High Channel	926.5	17.90	30
3. LoRa 125kHz FHSS 902.2MHz~927.8MHz	Low Channel	902.2	16.80	30
	Mid Channel	915	16.73	30
	High Channel	927.8	16.51	30
4. FSK 150Kbps FHSS 902.4MHz~927.6MHz	Low Channel	902.4	18.00	30
	Mid Channel	914.8	18.01	30
	High Channel	927.6	18.10	30
5. FSK 50Kbps FHSS 902.2MHz~927.8MHz	Low Channel	902.2	17.37	30
	Mid Channel	915	17.34	30
	High Channel	927.8	17.36	30
6. FSK 250Kbps FHSS 902.5MHz~927.5MHz 20dB Bandwidth	Low Channel	902.5	16.71	30
	Mid Channel	915	16.56	30
	High Channel	927.5	16.44	30

Figure 3: Maximum peak Conducted Output Power

1. BLE, Maximum Peak Conducted Output Power, 2402MHz~2480MHz

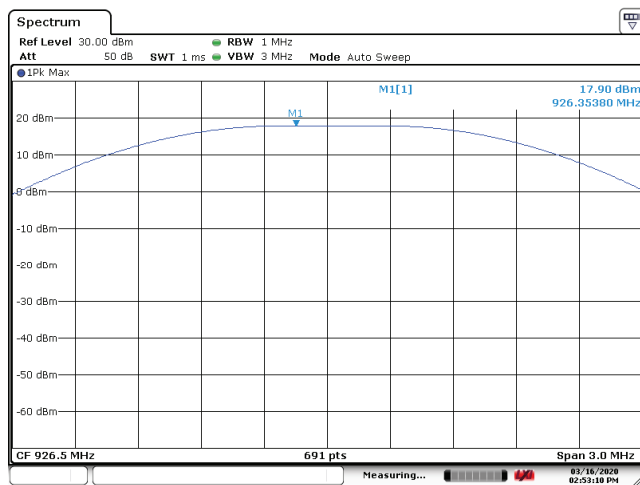


2. LoRa 500kHz DTS, Maximum Peak Conducted Output Power, 902.5MHz~926.5MHz



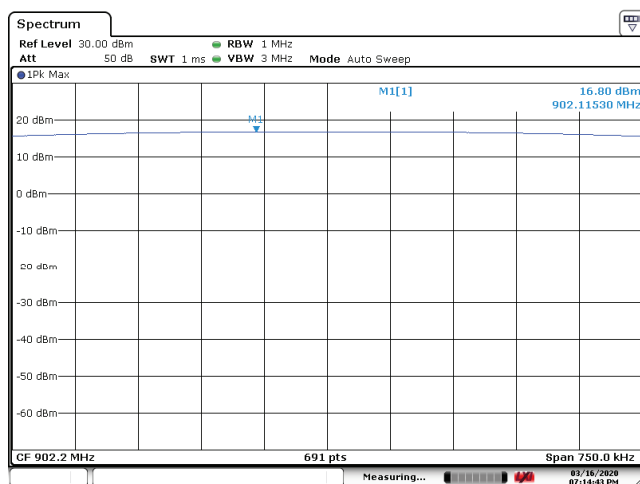
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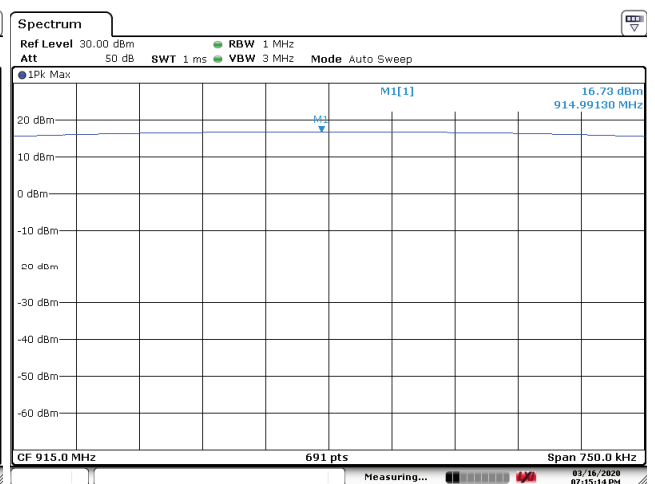


Date: 16.MAR.2020 14:53:10

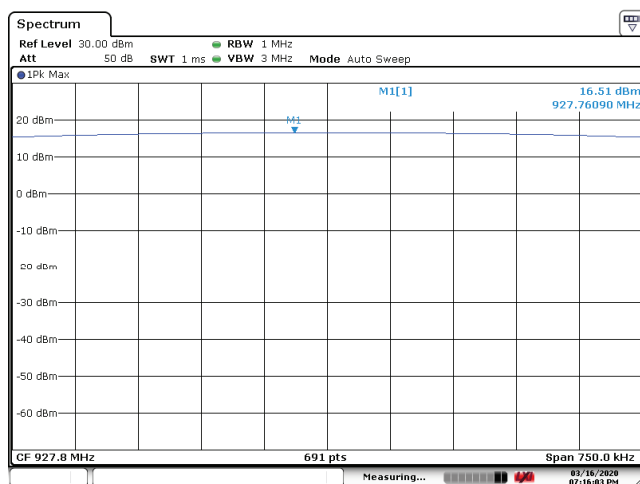
3. LoRa 125kHz FHSS, Maximum Peak Conducted Output Power, 902.2MHz~927.8MHz



Date: 16.MAR.2020 19:14:44



Date: 16.MAR.2020 19:15:15

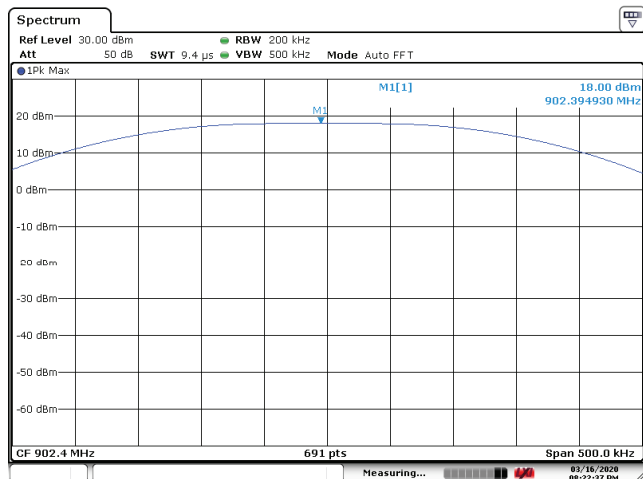


Date: 16.MAR.2020 19:16:04

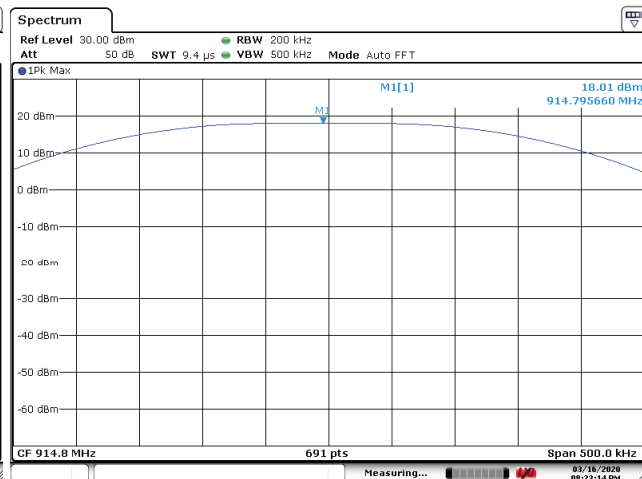
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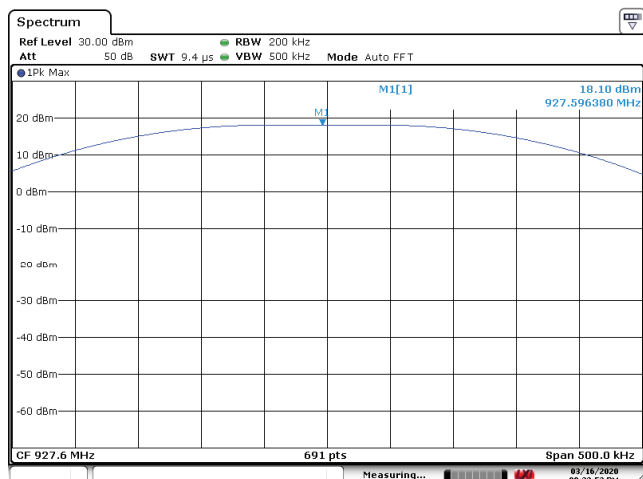
4. FSK 150Kbps FHSS, Maximum Peak Conducted Output Power, 902.4MHz~927.6MHz



Date: 16.MAR.2020 20:22:37

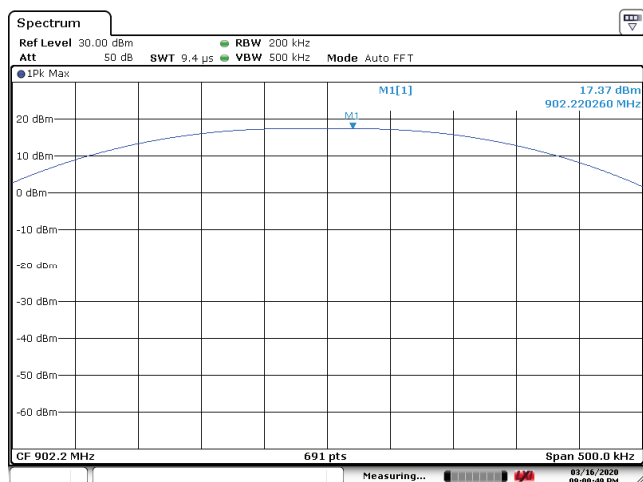


Date: 16.MAR.2020 20:23:14

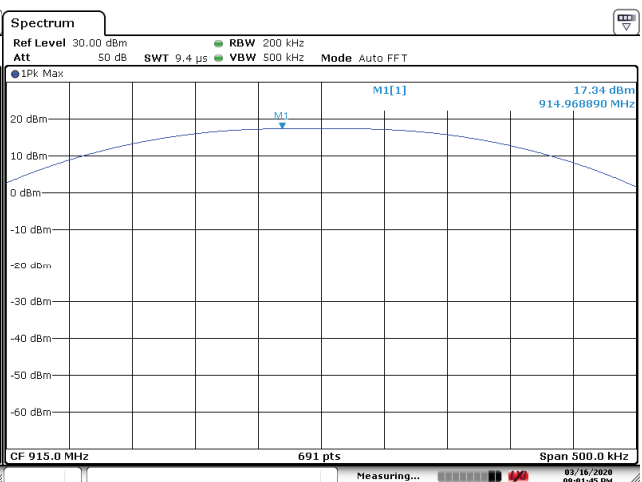


Date: 16.MAR.2020 20:23:53

5. FSK 50Kbps FHSS, Maximum Peak Conducted Output Power, 902.2MHz~927.8MHz



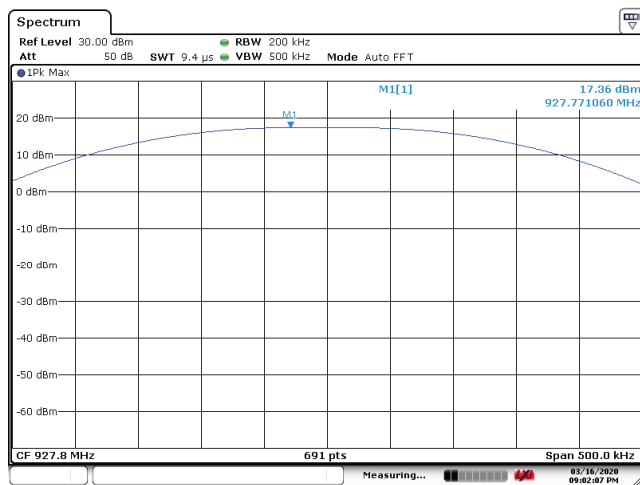
Date: 16.MAR.2020 21:00:49



Date: 16.MAR.2020 21:01:45

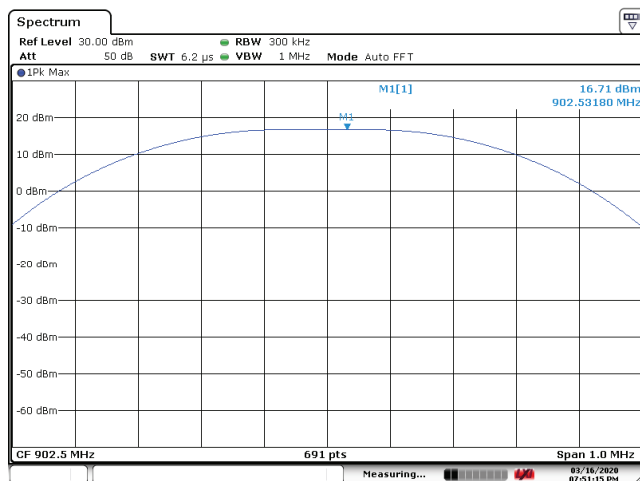
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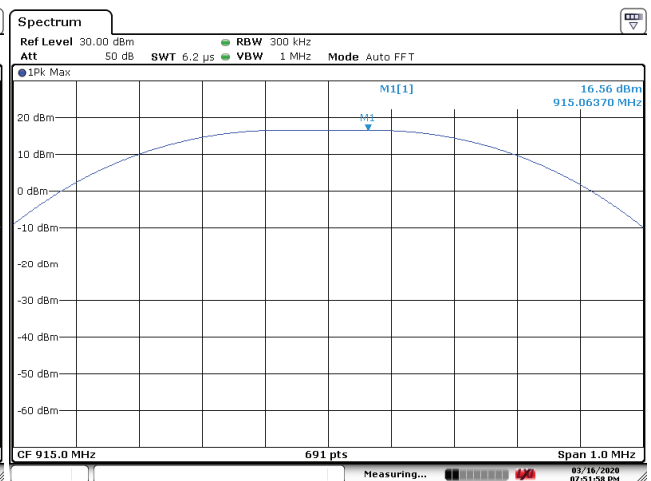


Date: 16.MAR.2020 21:02:07

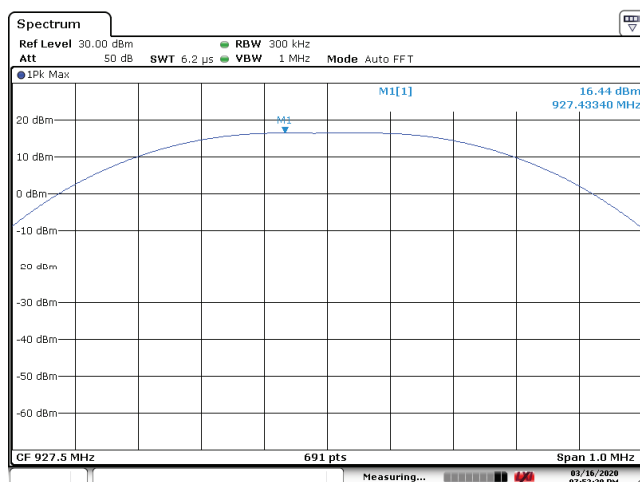
6. FSK 250Kbps FHSS, Maximum Peak Conducted Output Power, 902.5MHz~927.5MHz



Date: 16.MAR.2020 19:51:15



Date: 16.MAR.2020 19:51:58



Date: 16.MAR.2020 19:52:20

4.1.5 Equivalent Isotropically Radiated Power

Result:

Pass

Test Specification

Test standard : RSS-247 Issue 2 February 2017 Clause 5.4(a), (d)
 Basic standard : ANSI C63.10: 2013, clause 9.5
 Limits : Not more than 4Watt(36dBm) for DTS in the band 902-928MHz and 2400-2483.5MHz;
 Not more than 4Watt(36dBm) for FHSS system with at least 50 hopping channels in the band 902-928MHz
 Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020
 Input voltage : DC 6V
 Operational mode : Mode A
 Test channel : Lo, Mi, Hi
 Temperature : 22 °C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 5: Test result of E.I.R.P. for BLE, LoRa DTS, LoRa FHSS and FSK FHSS

Modulation Type and Operation band	Channel	Channel Frequency (MHz)	Peak Output Power (dBm)	Antenna Gain (dBi)	E.I.R.P. (dBm)	Limit (dBm)
1. BLE 2402MHz~2480MHz	Low Channel	2402	1.73	0	1.73	36
	Mid Channel	2440	0.62	0	0.62	36
	High Channel	2480	-0.85	0	-0.85	36
2. LoRa 500kHz DTS 902.5MHz~926.5MHz	Low Channel	902.5	17.88	-2	15.88	36
	Mid Channel	914.5	17.95	-2	15.95	36
	High Channel	926.5	17.90	-2	15.90	36
3. LoRa 125kHz FHSS 902.2MHz~927.8MHz	Low Channel	902.2	16.80	-2	14.80	36
	Mid Channel	915	16.73	-2	14.73	36
	High Channel	927.8	16.51	-2	14.51	36
4. FSK 150Kbps FHSS 902.4MHz~927.6MHz	Low Channel	902.4	18.00	-2	16.00	36
	Mid Channel	914.8	18.01	-2	16.01	36
	High Channel	927.6	18.10	-2	16.10	36
5. FSK 50Kbps FHSS 902.2MHz~927.8MHz	Low Channel	902.2	17.37	-2	15.37	36
	Mid Channel	915	17.34	-2	15.34	36
	High Channel	927.8	17.36	-2	15.36	36
6. FSK 250Kbps FHSS 902.5MHz~927.5MHz	Low Channel	902.5	16.71	-2	14.71	36
	Mid Channel	915	16.56	-2	14.56	36
	High Channel	927.5	16.44	-2	14.44	36

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4.1.6 Peak Power Spectral Density

Result:

Pass

Test Specification

Test standard : FCC Part 15.247(e)
RSS-247 Issue 2 February 2017 Clause 5.2(b)

Basic standard : ANSI C63.10: 2013, clause 11.10.2
KDB558074 D01v05r02, clause 8.4

Limits : Not more than 8 dBm in any 3 kHz band

Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020

Input voltage : DC 6V

Operational mode : Mode A

Test channel : Lo, Mi, Hi

Temperature : 22°C

Relative humidity : 55%

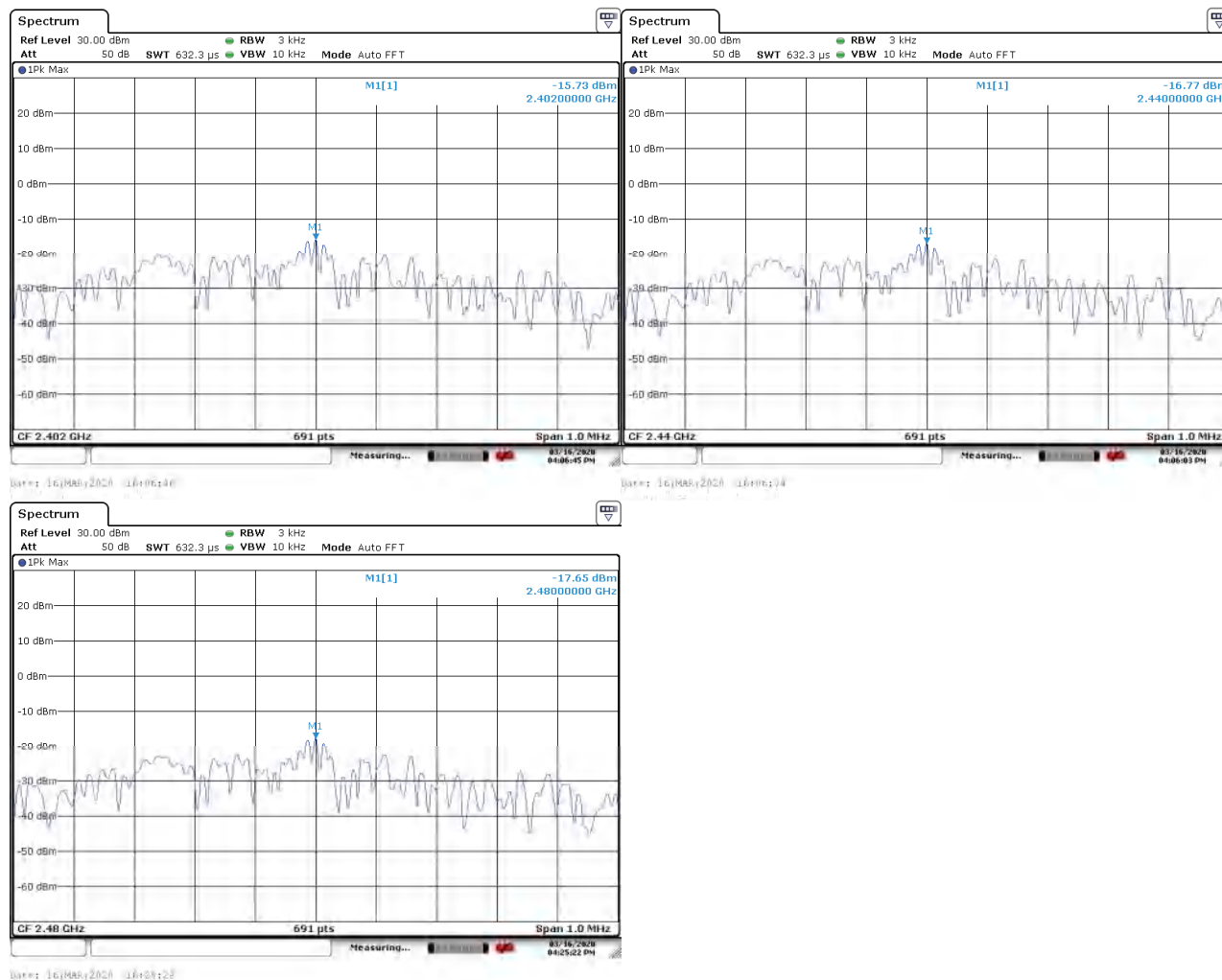
Atmospheric pressure : 101 kPa

Table 6: Test result of Peak Power Spectral Density for BLE, LoRa DTS

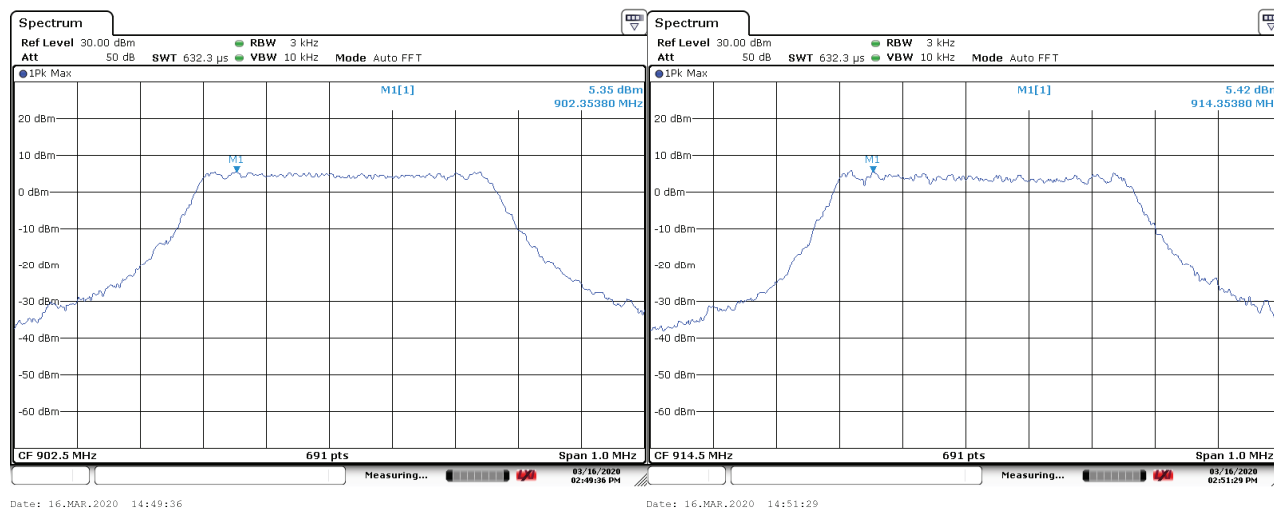
Modulation Type and Operation band	Channel	Channel Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Result
1. BLE 2402MHz~2480MHz	Low Channel	2402	-15.73	8.0	Pass
	Mid Channel	2440	-16.77	8.0	Pass
	High Channel	2480	-17.65	8.0	Pass
2. LoRa 500kHz DTS 902.5MHz~926.5MHz	Low Channel	902.5	5.35	8.0	Pass
	Mid Channel	914.5	5.42	8.0	Pass
	High Channel	926.5	5.18	8.0	Pass

Figure 4: Peak Power Spectral Density

1. BLE, PSD, 2402MHz~2480MHz

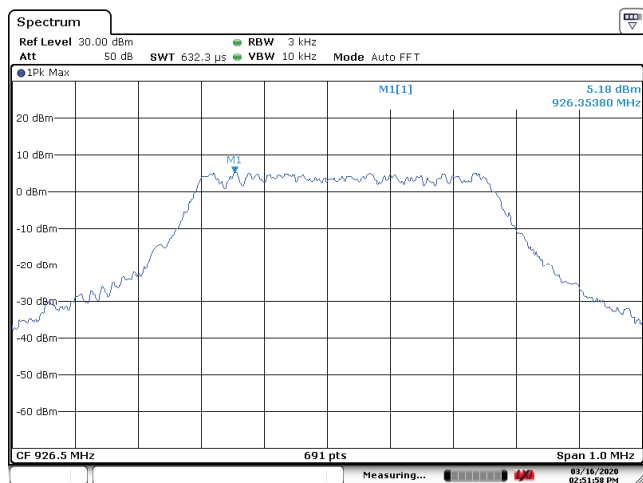


2. LoRa 500KHz DTS, PSD, 902.5MHz~926.5MHz



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4.1.7 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Result:

Pass

Test Specification	
Test standard	: FCC Part 15.247(d) RSS-247 Issue 2 February 2017 Clause 5.5
Basic standard	: ANSI C63.10: 2013, 14.3.3(Spurious) ANSI C63.10: 2013, 6.10(Band edge) KDB 558074 D01 v05r02, clause 8.5
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power)
Kind of test site	: Shielded Room

Test Setup

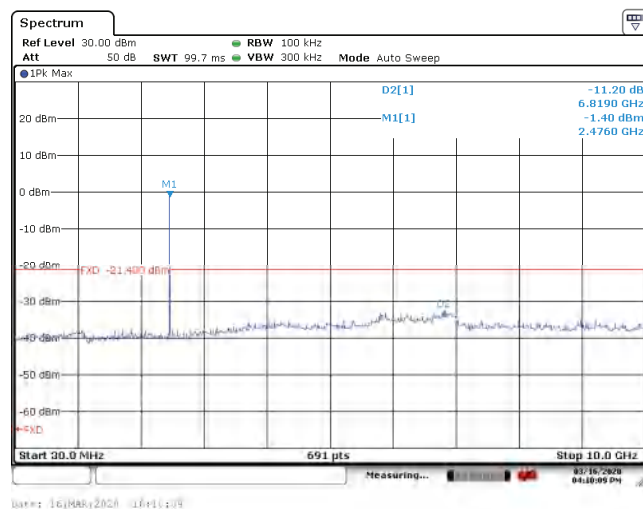
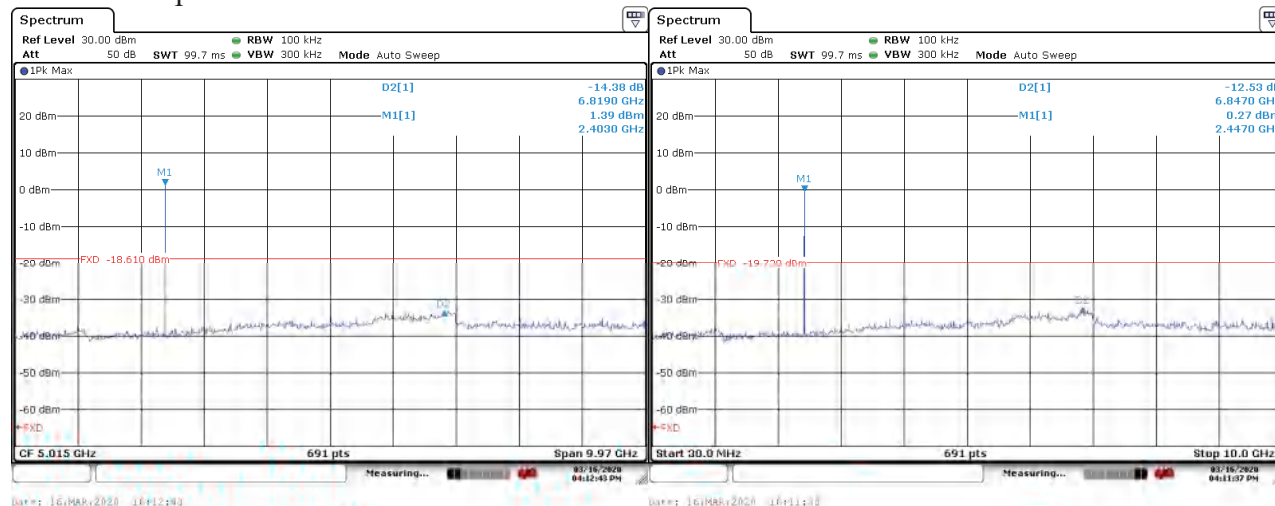
Date of testing	: 16.03.2020
Input voltage	: DC 6V
Operational mode	: Mode A, Mode B
Test channel	: Lo, Mi, Hi
Temperature	: 22°C
Relative humidity	: 55%
Atmospheric pressure	: 101 kPa

All emissions are more than 20dB below fundamental, compliance is achieved as well.

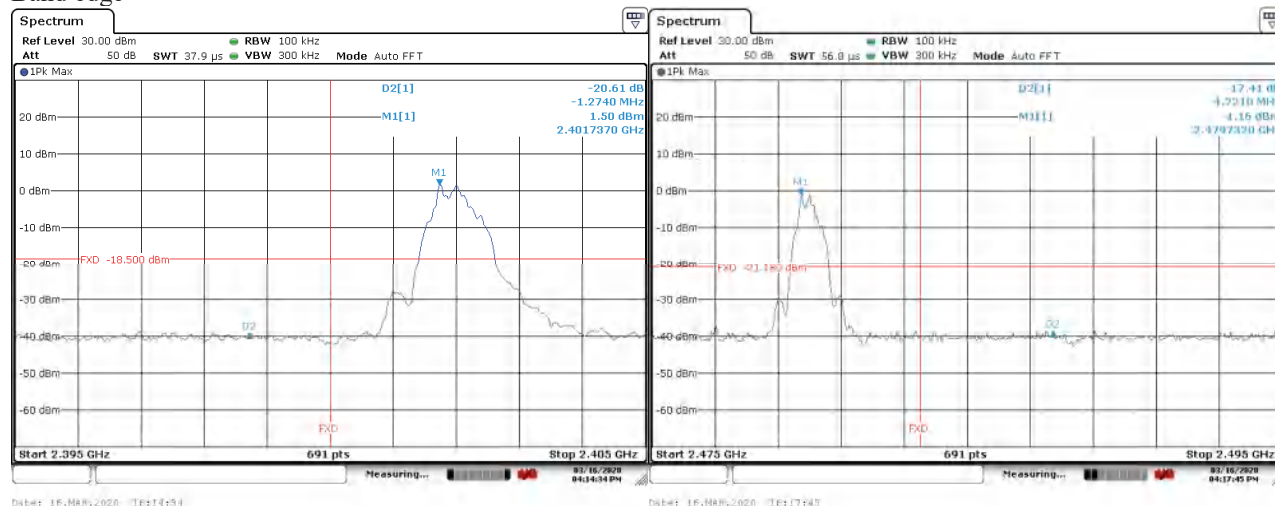
Figure 5: Conducted Spurious Emission

1. BLE, Conducted Spurious Emission and Band edge, 2402MHz~2480MHz

Conducted Spurious Emission



Band edge

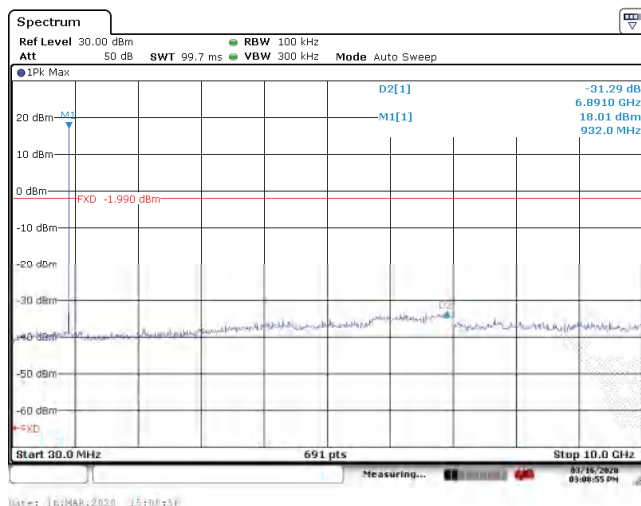
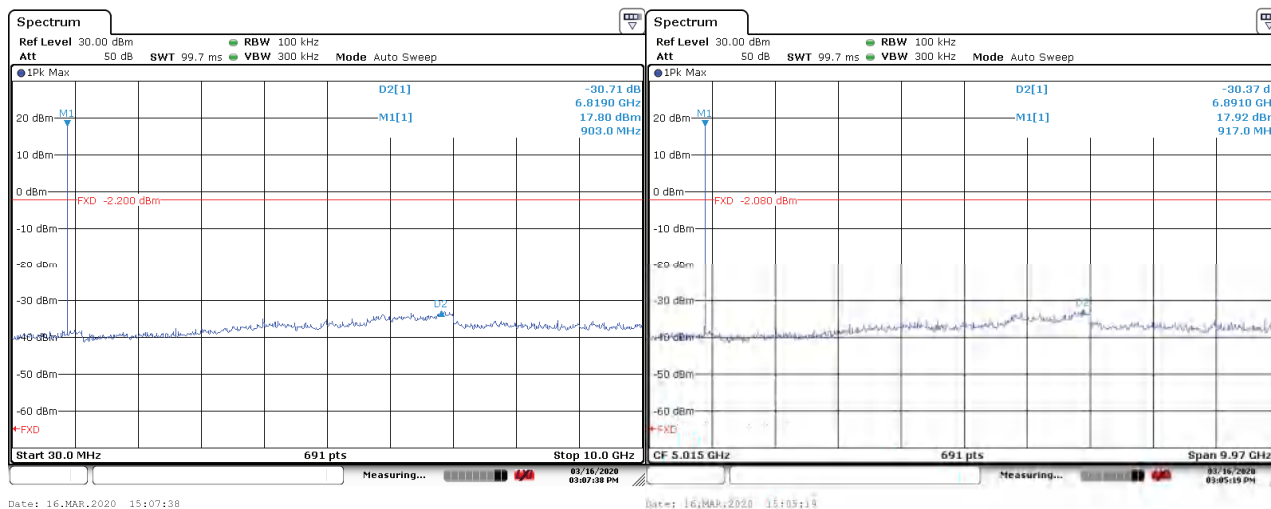


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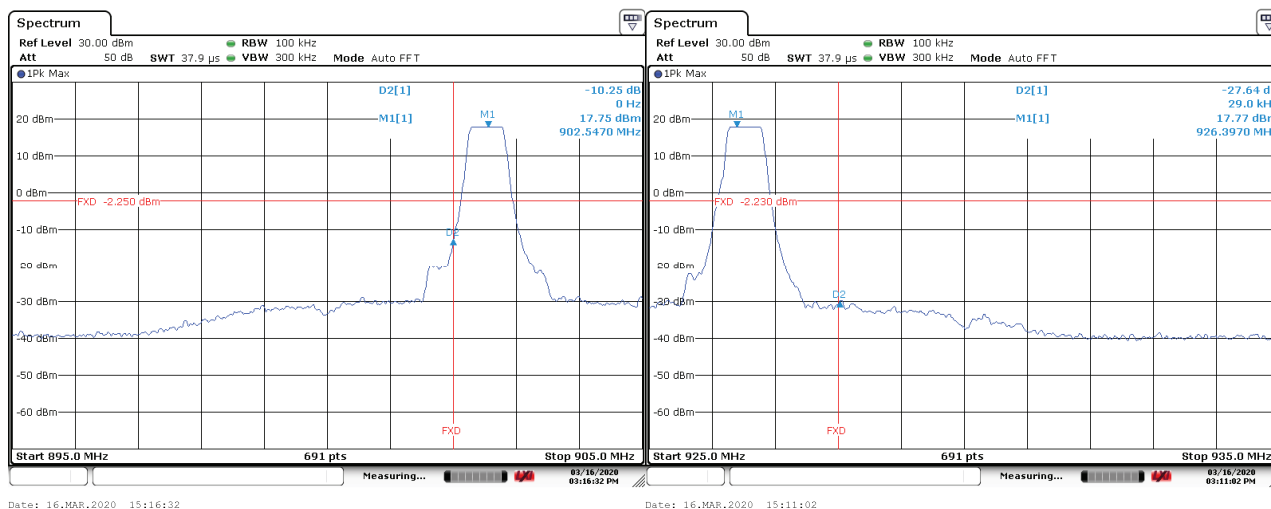
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2. LoRa 500kHz DTS, Conducted Spurious Emission and Band edge, 902.5MHz~926.5MHz

Conducted Spurious Emission



Band edge

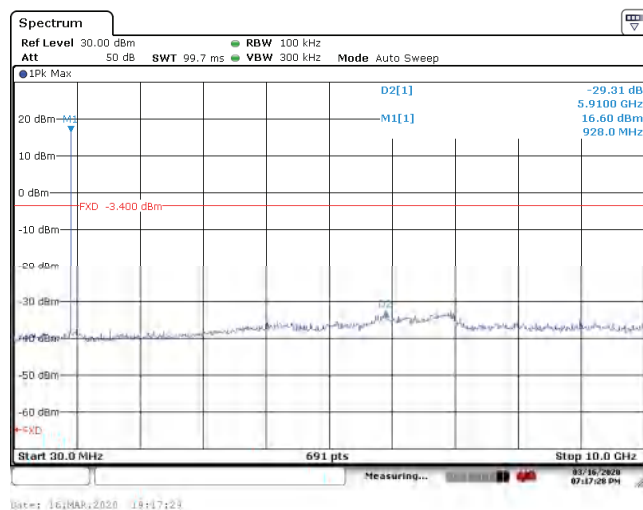
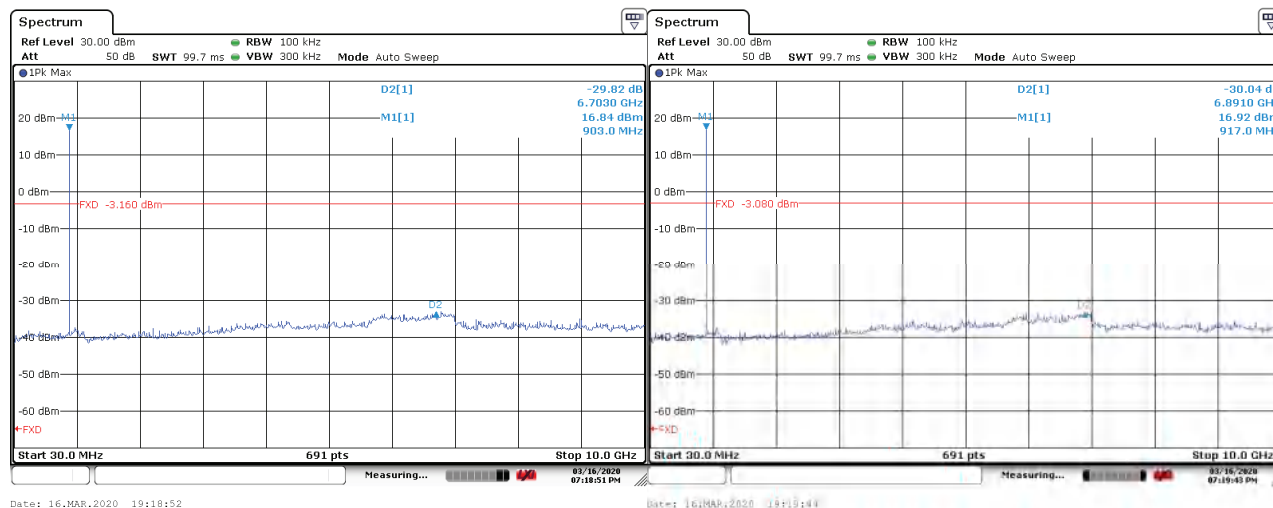


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Test Report No.:

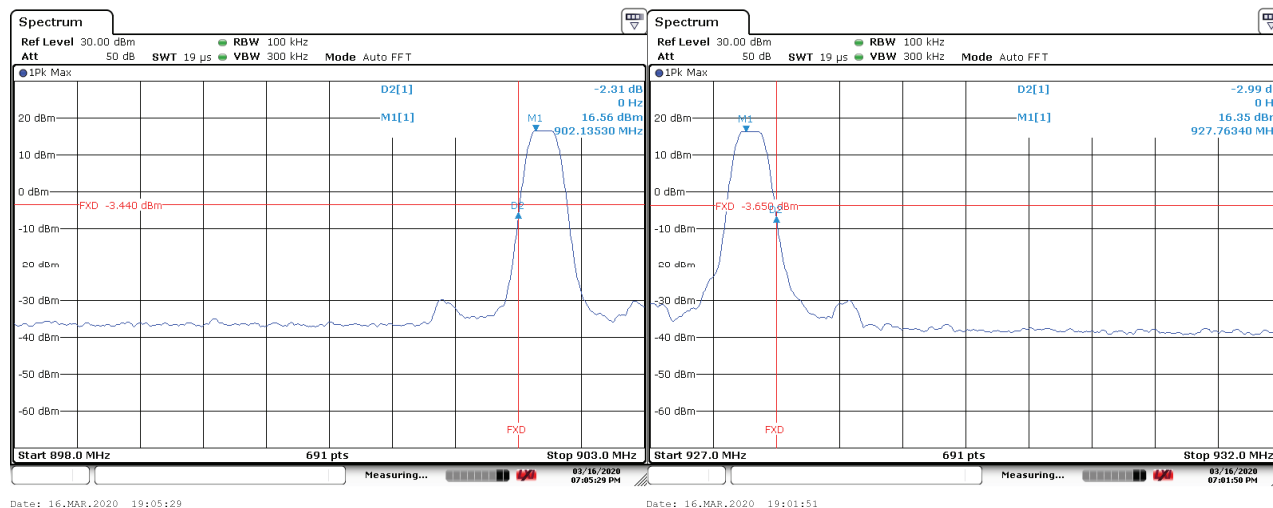
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3. LoRa 125kHz FHSS, Conducted Spurious Emission, 902.2MHz~927.8MHz

Conducted Spurious Emission

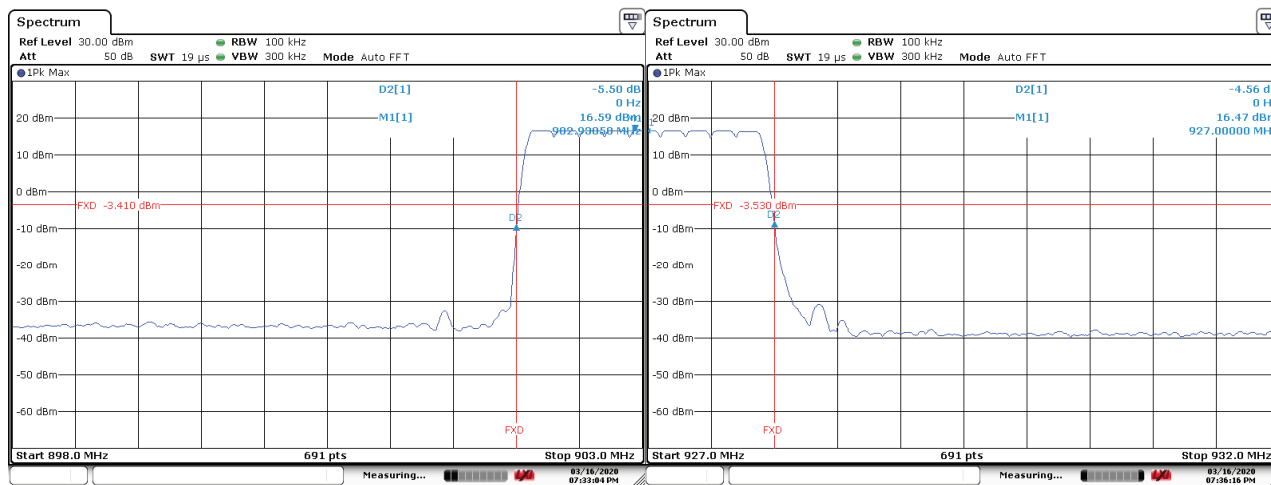


Band edge



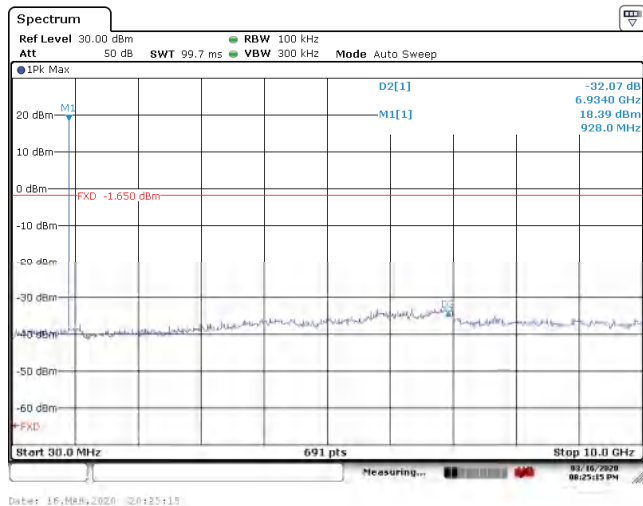
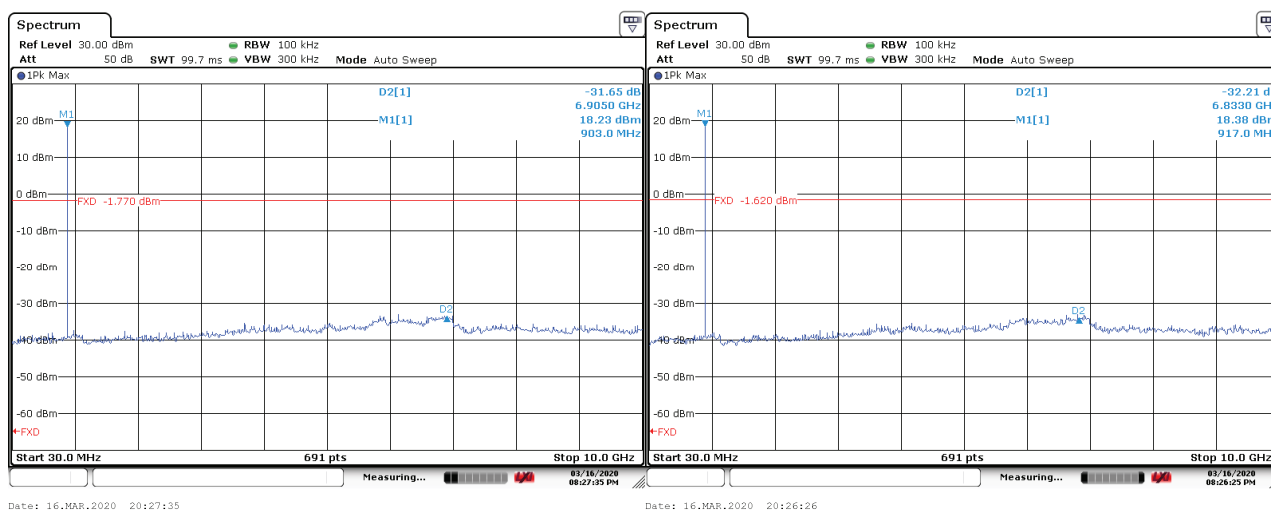
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4. FSK 150Kbps FHSS, Conducted Spurious Emission and Band edge, 902.4MHz~927.6MHz

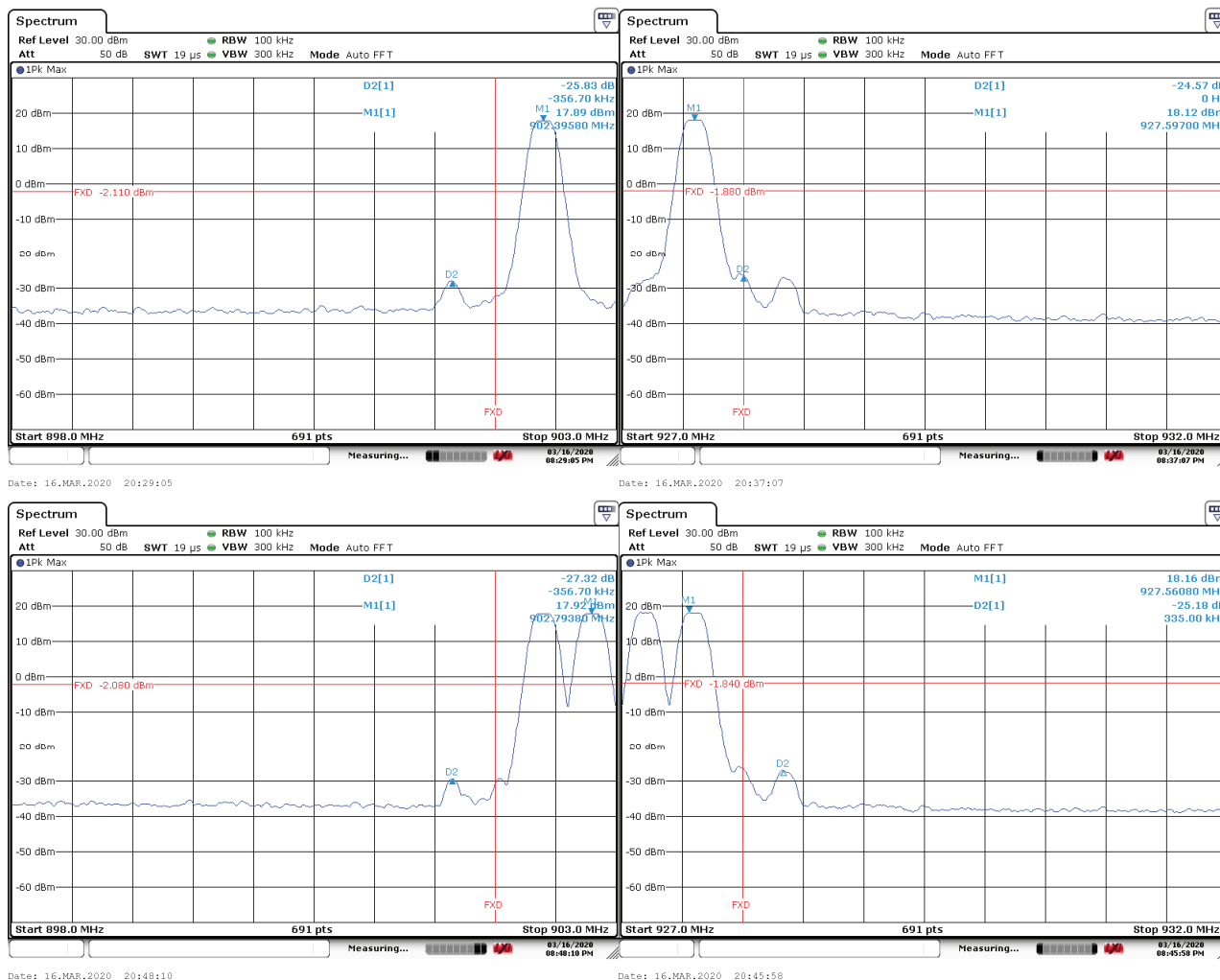
Conducted Spurious Emission



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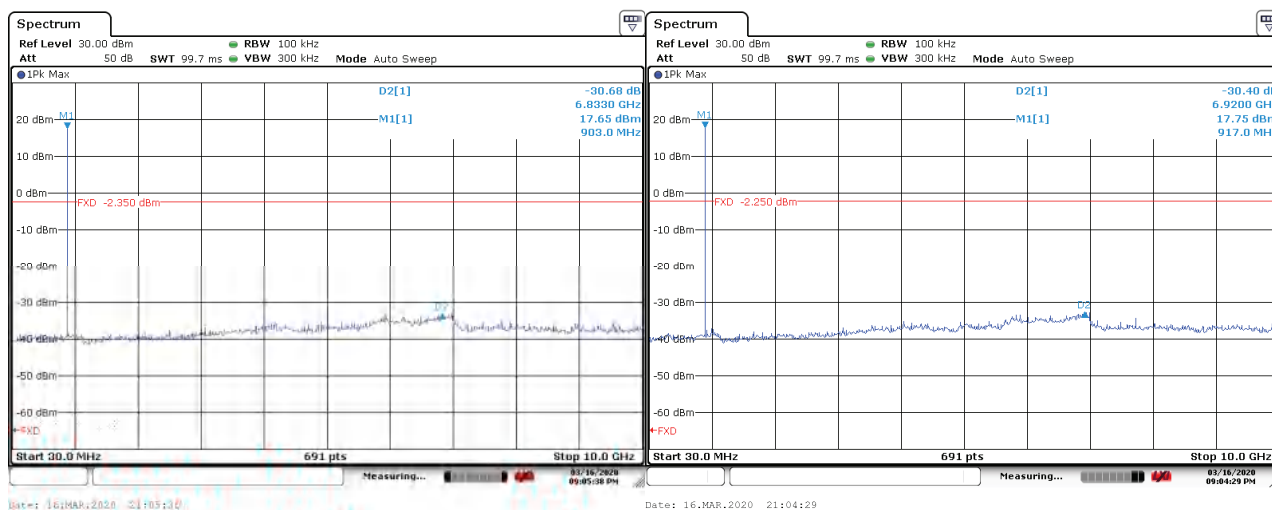
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Band edge



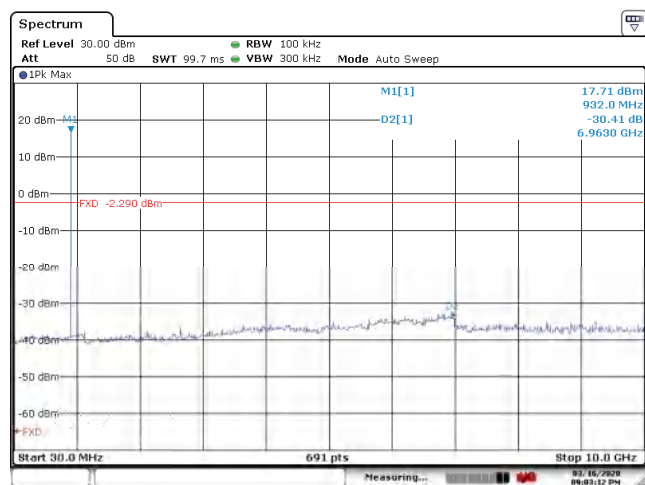
5. FSK 50Kbps FHSS, Conducted Spurious Emission and Band edge, 902.2MHz~927.8MHz

Conducted Spurious Emission



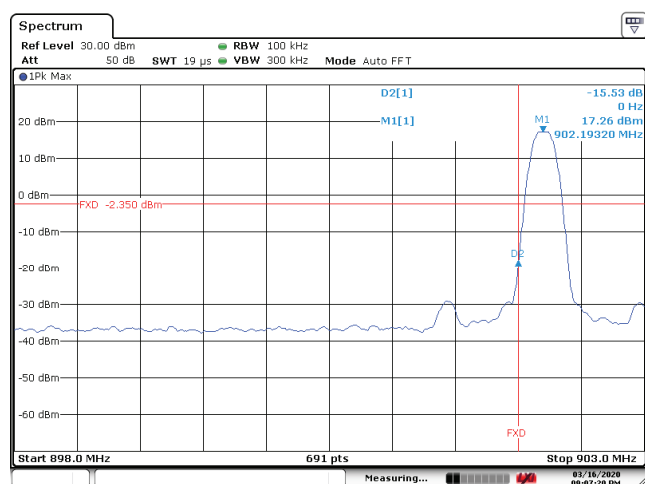
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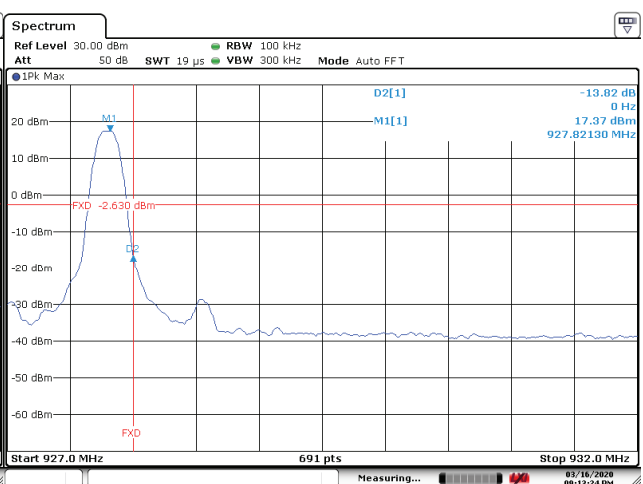


Date: 16.MAR.2020 21:03:12

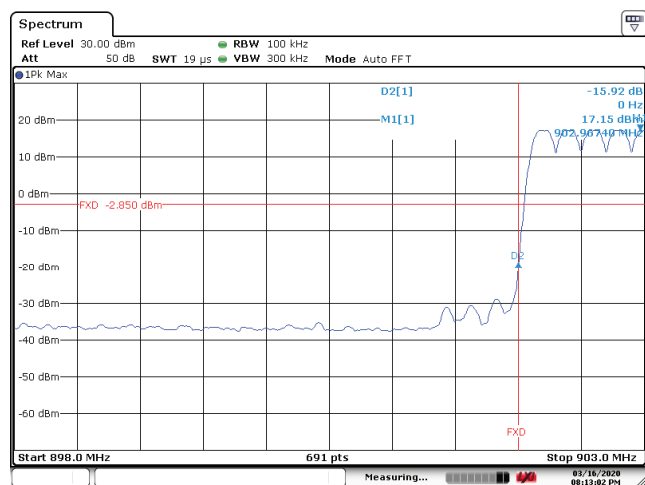
Band edge



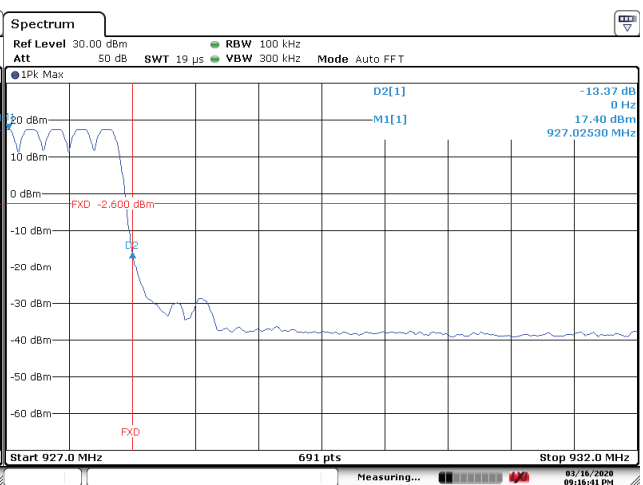
Date: 16.MAR.2020 21:07:20



Date: 16.MAR.2020 21:13:24



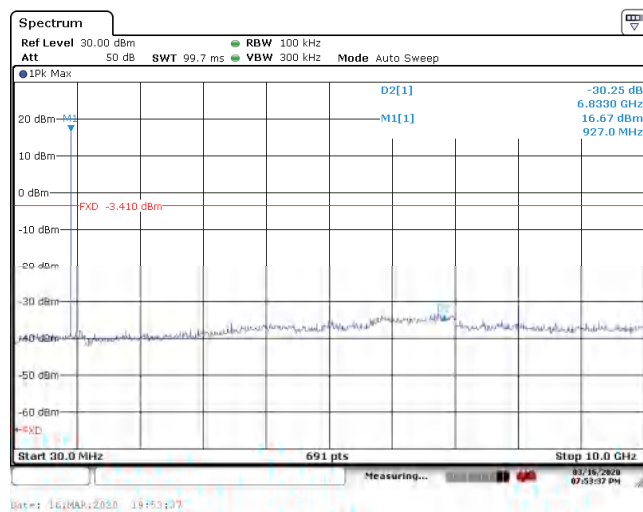
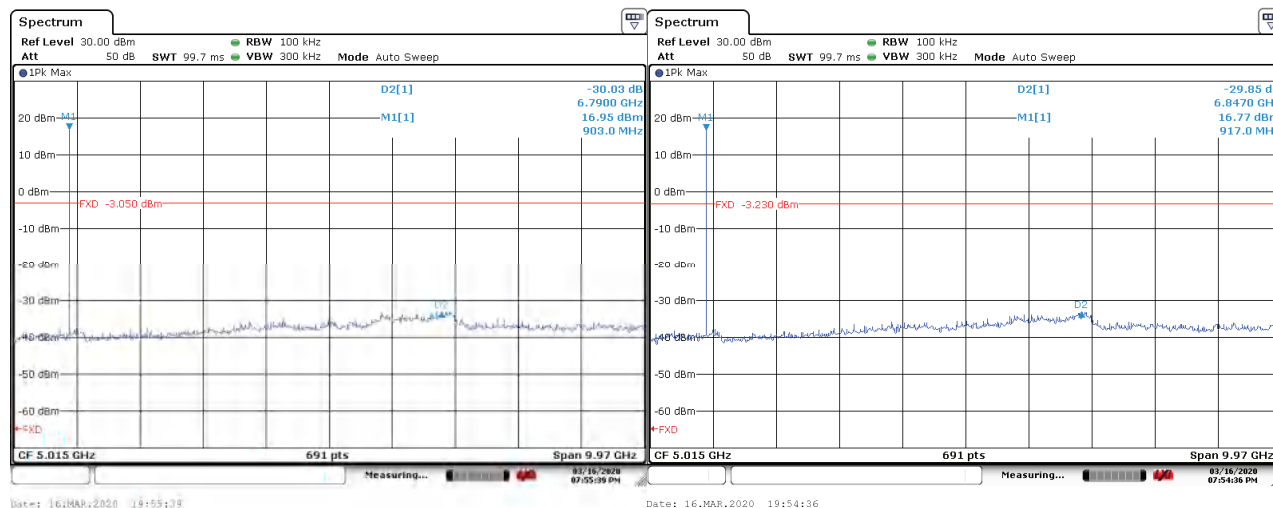
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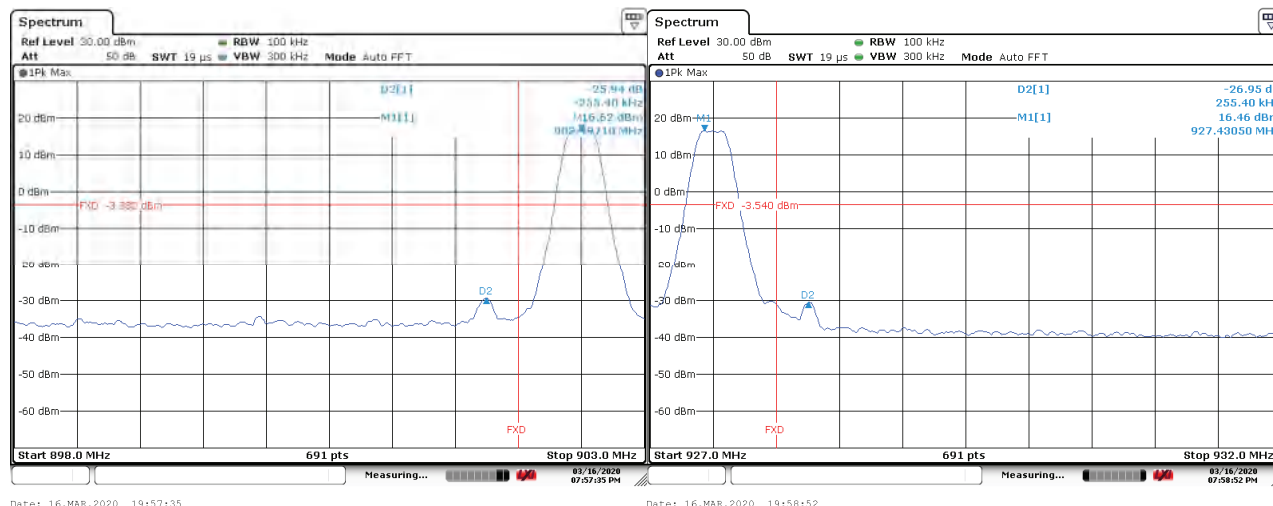
Date: 16.MAR.2020 21:16:41

6. FSK 250Kbps FHSS, Conducted Spurious Emission and Band edge, 902.5MHz~927.5MHz

Conducted Spurious Emission

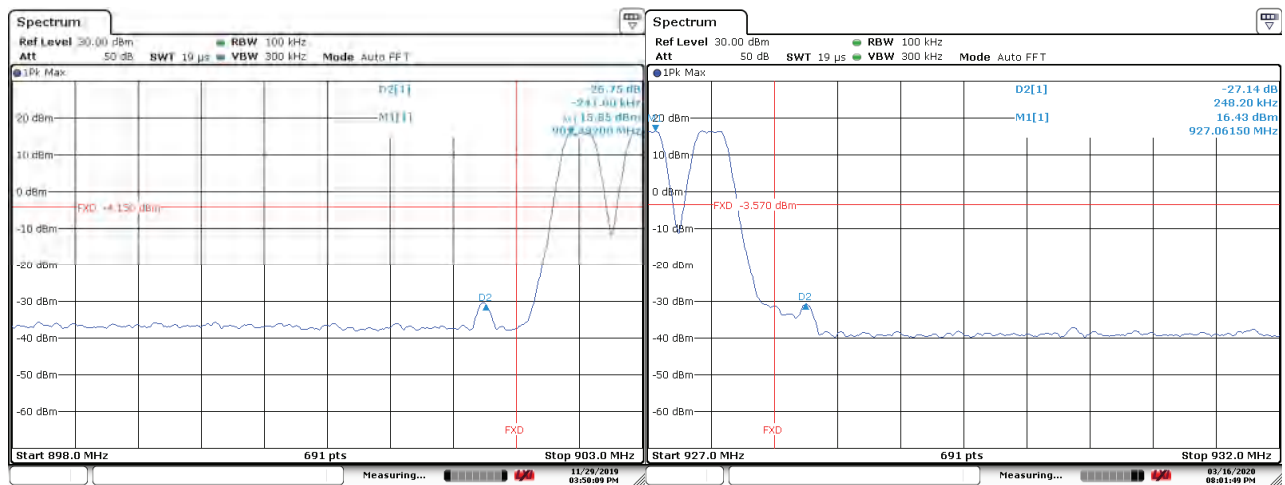


Band edge



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4.1.8 Carrier Separation Measurement

Result:

Pass

Test Specification

Test standard : FCC Part 15.247(a)(1)
RSS-247 Issue 2 February 2017 Clause 5.1(b)

Basic standard : ANSI C63.10: 2013, clause 7.8.2

Limits : At least 20 dB bandwidth or 25kHz, whichever is greater.

Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020

Input voltage : DC 6V

Operational mode : Mode B

Temperature : 22°C

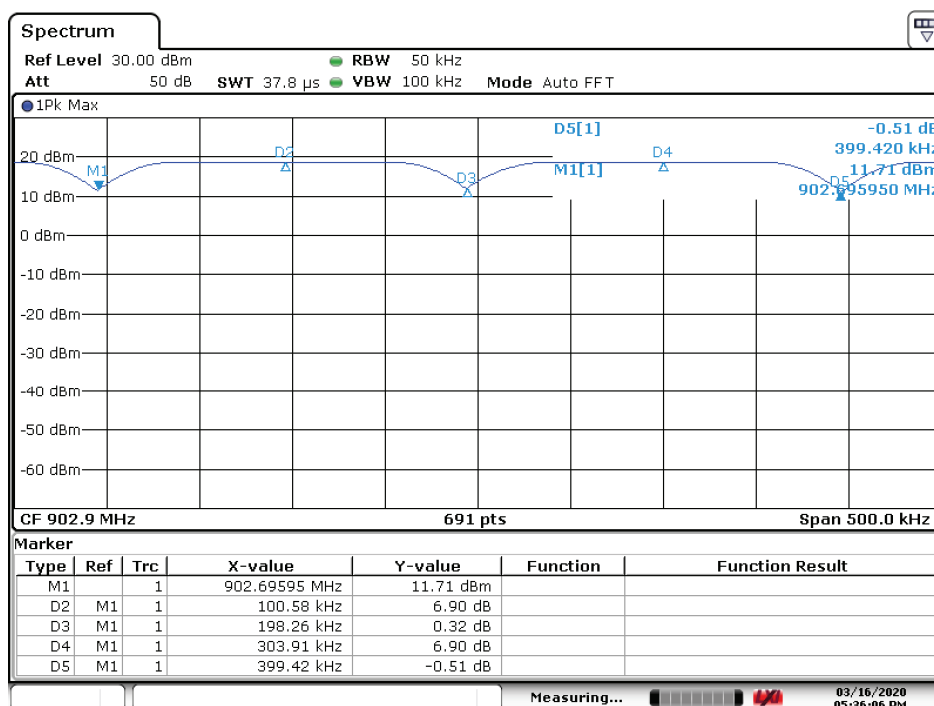
Relative humidity : 55%

Atmospheric pressure : 101 kPa

Figure 6: Carrier Separation

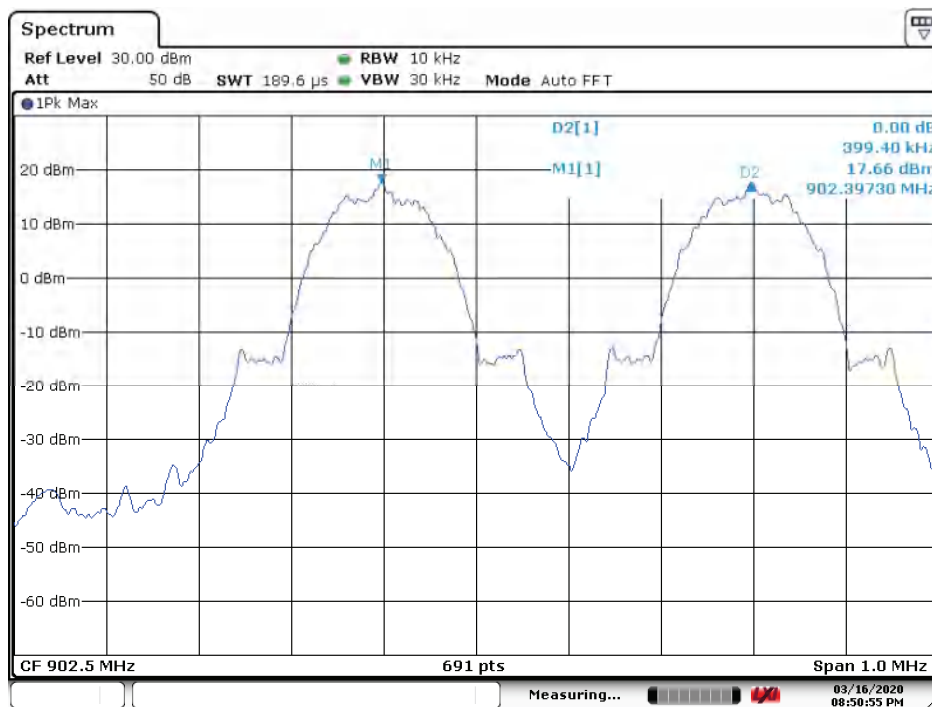
- LoRa125kHz FHSS, Carrier Separation, 902.2MHz~927.8MHz

Carrier Separation: 203.33kHz



2. FSK 150Kbps FHSS, Carrier Separation, 902.4MHz~927.6MHz

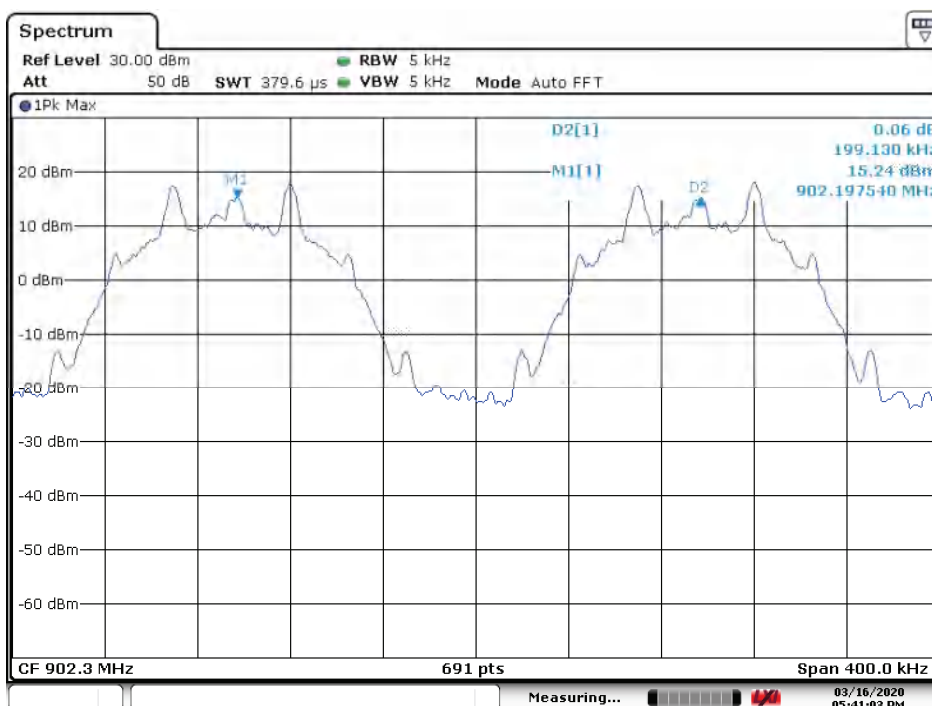
Carrier Separation: 399.40kHz



Date: 16.MAR.2020 20:50:55

3. FSK 50Kbps FHSS, Carrier Separation, 902.2MHz~927.8MHz

Carrier Separation: 199.13kHz



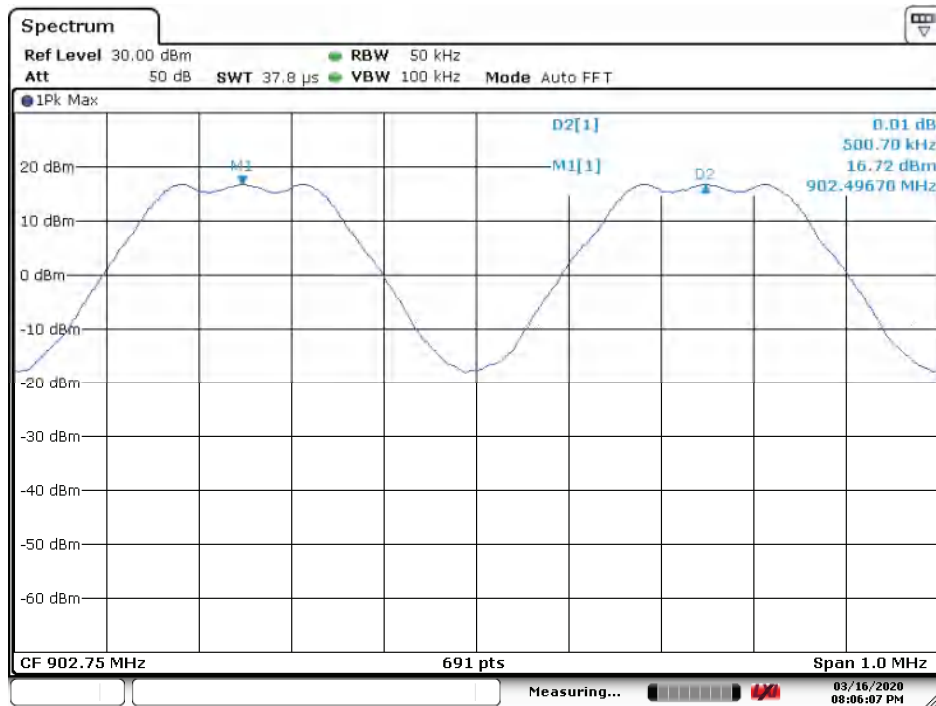
Date: 16.MAR.2020 17:41:04

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4. FSK 250Kbps FHSS, Carrier Separation, 902.5MHz~927.5MHz

Carrier Separation: 500.70kHz



Date: 16.MAR.2020 20:06:08

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4.1.9 The number of hopping channels

Result:

Pass

Test Specification

Test standard : FCC Part 15.247(a)(1)(i)
RSS-247 Issue 2 February 2017 Clause 5.1(c)

Basic standard : ANSI C63.10: 2013, clause 7.8.3

Limits : At least 50 for 20dB bandwidth less than 250kHz
At least 25 for 20dB bandwidth at least 250kHz

Kind of test site : Shielded Room

Test Setup

Date of testing : 16.03.2020

Input voltage : DC 6V

Operational mode : Mode B

Temperature : 22°C

Relative humidity : 55%

Atmospheric pressure : 101 kPa

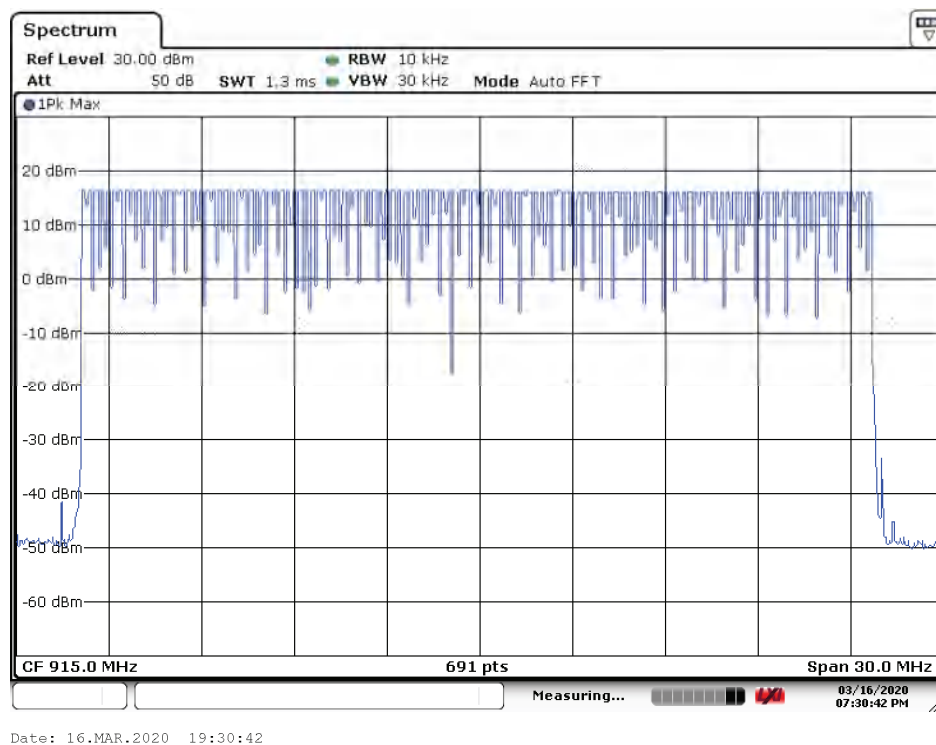
Table 7: Test result of hopping channel number for LoRa FHSS and FSK FHSS

Modulation Type and Operation band	20dB Bandwidth(kHz)	Channel Number	Limit	Result
LoRa 125kHz FHSS 902.2MHz~927.8MHz	20dB Bandwidth < 250	129	50	Pass
FSK 150Kbps FHSS 902.4MHz~927.6MHz	20dB Bandwidth < 250	64	50	Pass
FSK 50Kbps FHSS 902.2MHz~927.8MHz	20dB Bandwidth < 250	129	50	Pass
FSK 250Kbps FHSS 902.5MHz~927.5MHz	250 ≤ 20dB Bandwidth < 500	51	25	Pass

Figure 7: The number of hopping channels

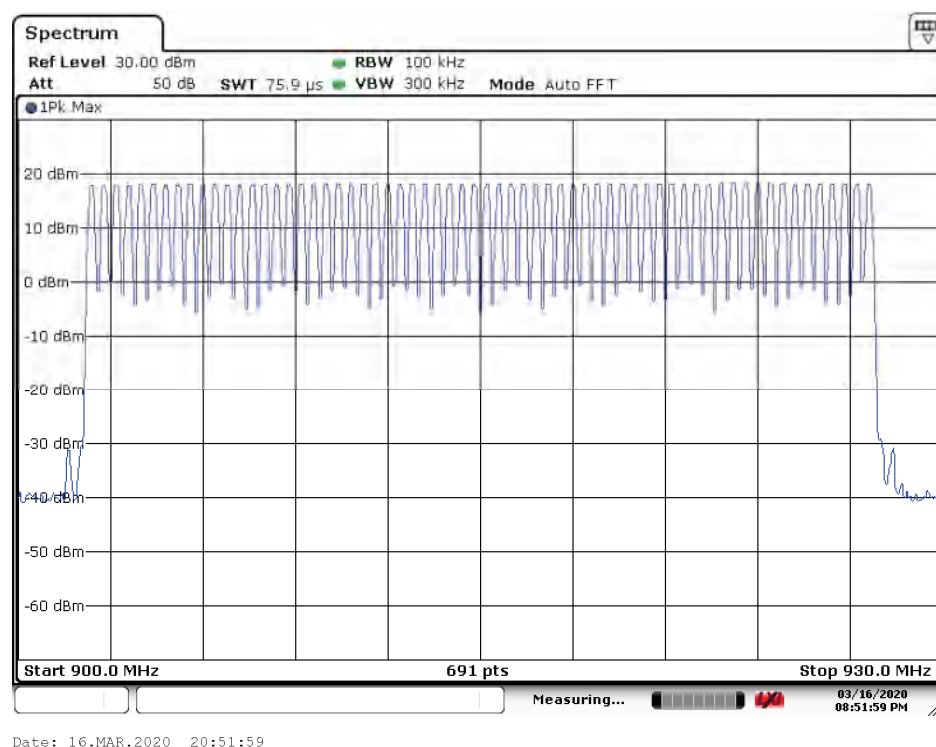
1. LoRa 125kHz FHSS, 902.2MHz~927.8MHz

Channel Number: 129



2. FSK 150Kbps FHSS, 902.4MHz~927.6MHz

Channel Number: 64

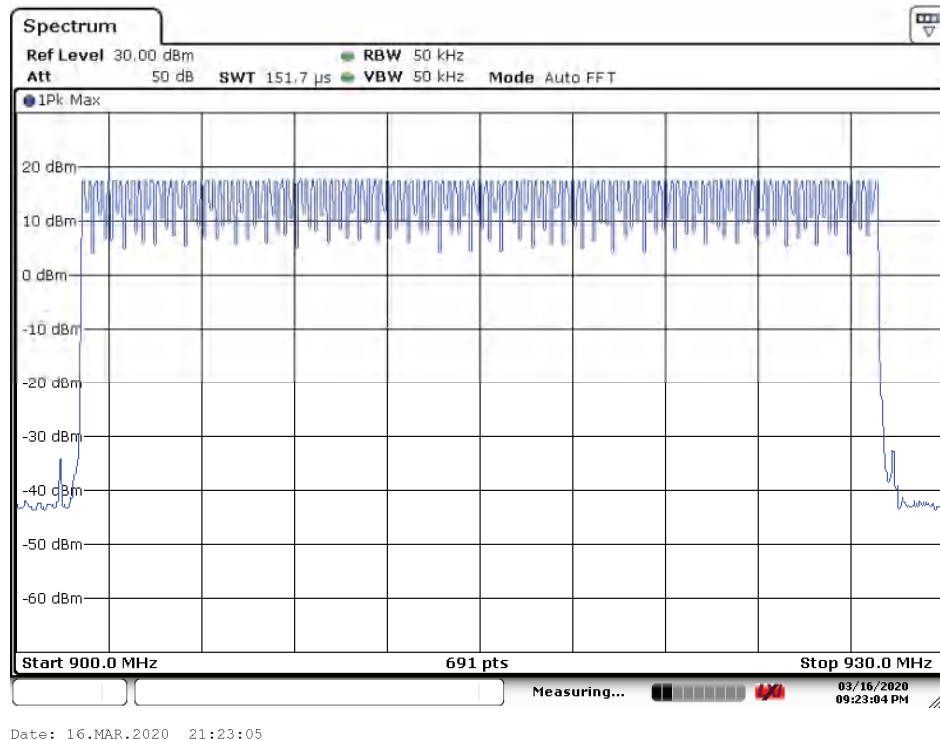


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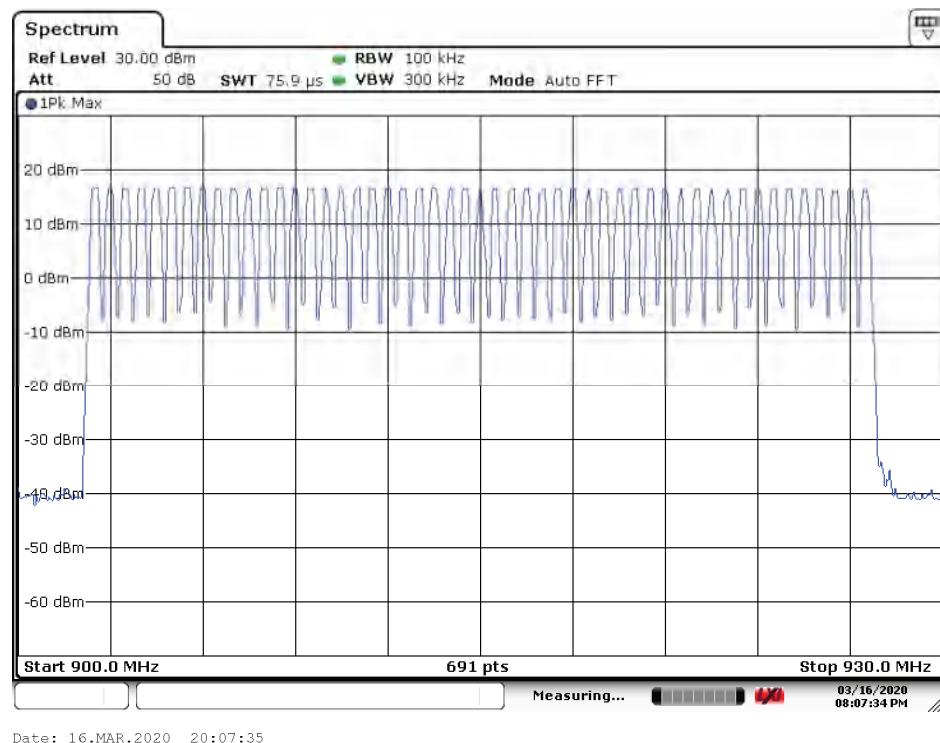
3. FSK 50Kbps FHSS, 902.2MHz~927.8MHz

Channel Number: 129



4. FSK 250Kbps FHSS, 902.5MHz~927.5MHz

Channel Number: 51



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4.1.10 Channel Occupancy Time

Result:

Pass

Test Specification
Test standard : FCC Part 15.247(a)(1)(i)
RSS-247 Issue 2 February 2017 Clause 5.1(c)
Basic standard : ANSI C63.10: 2013, clause 7.8.4
Limits : Not more than 0.4s
Kind of test site : Shielded Room

Test Setup

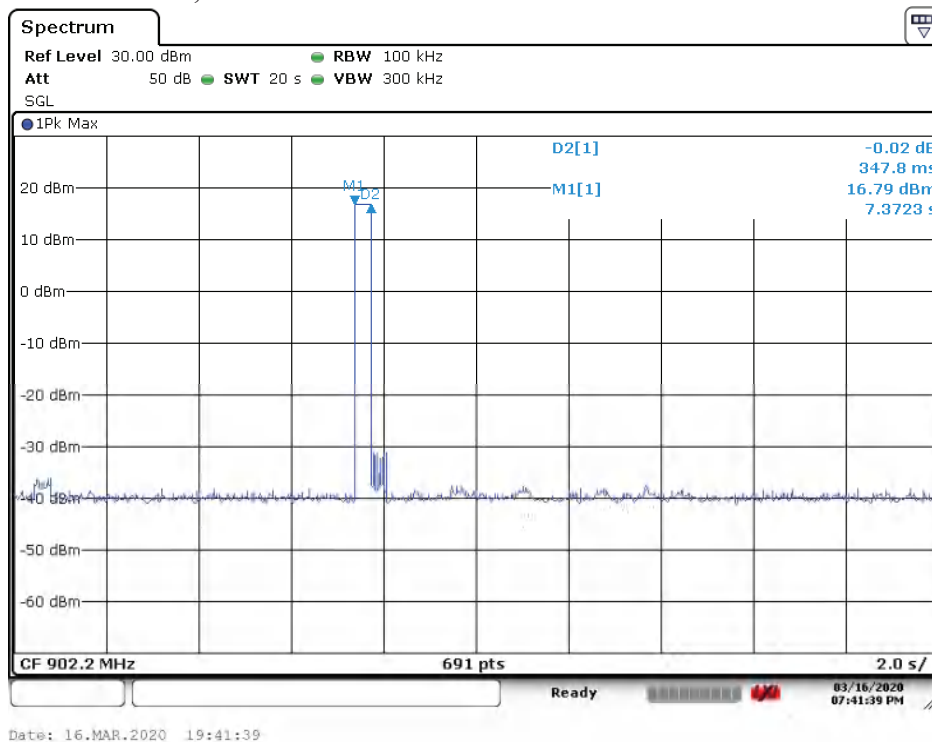
Date of testing : 16.03.2020
Input voltage : DC 6V
Operational mode : Mode B
Temperature : 22°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

Table 8: Test result of Channel Occupancy Time for LoRa FHSS and FSK FHSS

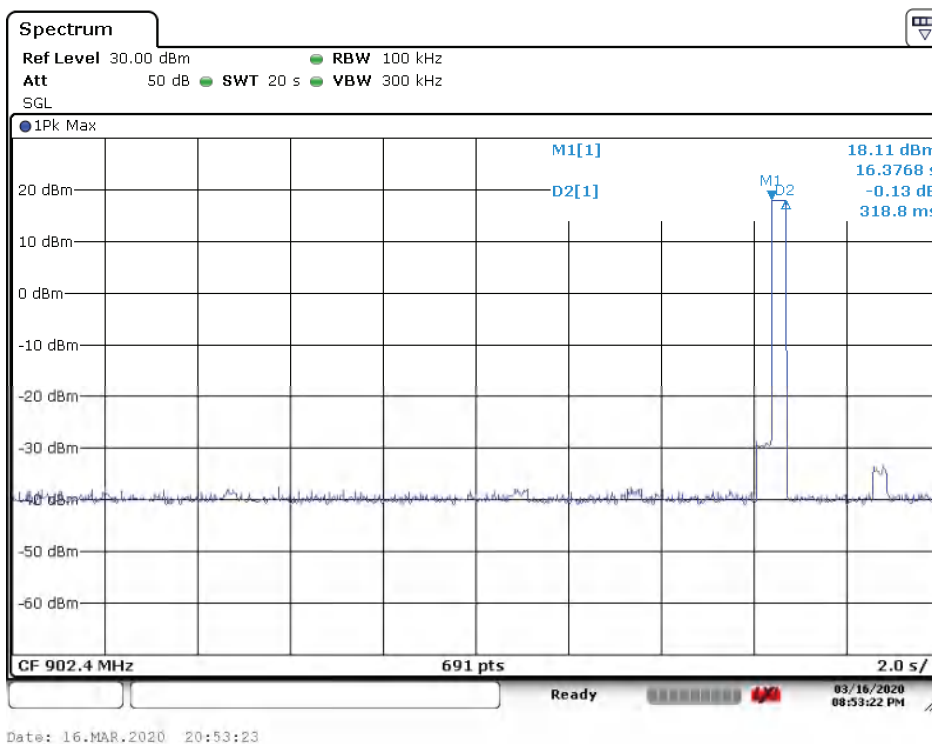
Modulation Type and Operation band	20dB Bandwidth(kHz)	Period (s)	Channel Occupancy Time (ms)	Limit (s)	Result
LoRa 125kHz FHSS 902.2MHz~927.8MHz	20dB Bandwidth < 250	20	347.8	0.4	Pass
FSK 150kbps FHSS 902.4MHz~927.6MHz	20dB Bandwidth < 250	20	318.8	0.4	Pass
FSK 50Kbps FHSS 902.2MHz~927.8MHz	20dB Bandwidth < 250	20	260.9	0.4	Pass
FSK 250Kbps FHSS 902.5MHz~927.5MHz	$250 \leq 20\text{dB Bandwidth} < 500$	10	304.3	0.4	Pass

Figure 8: Channel Occupancy Time

1. LoRa 125kHz FHSS, 902.2MHz~927.8MHz



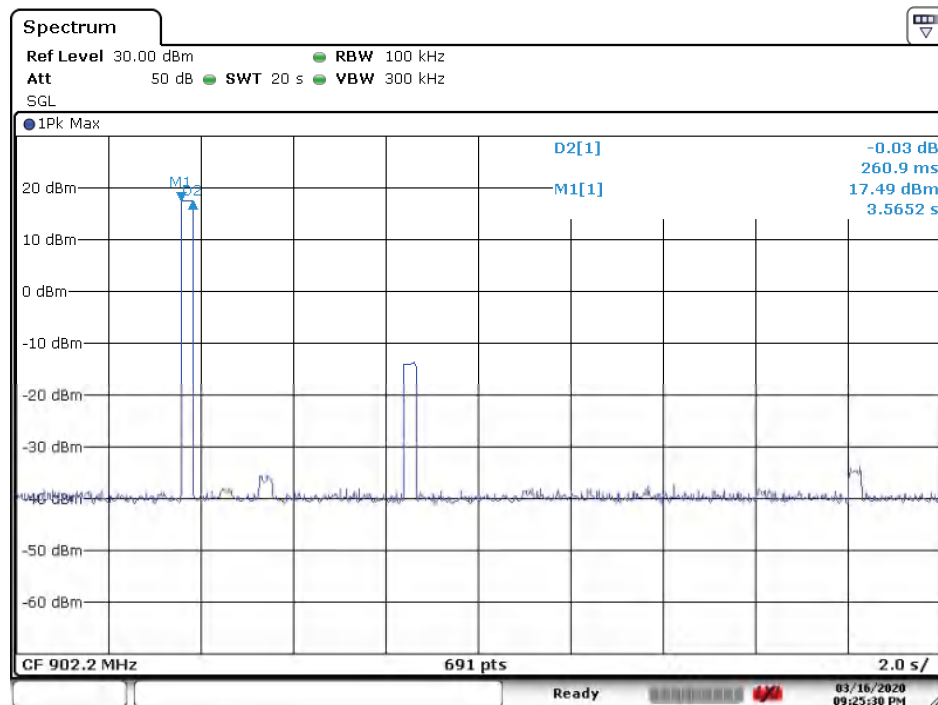
2. FSK 150Kbps FHSS, 902.4MHz~927.6MHz



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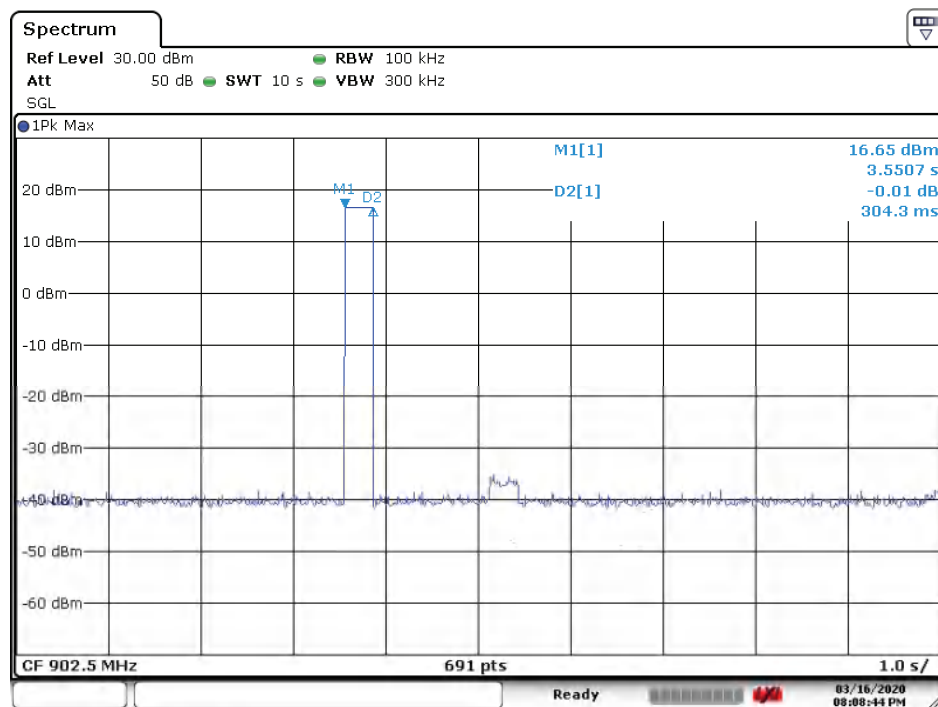
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3. FSK 50Kbps FHSS, 902.2MHz~927.8MHz



Date: 16.MAR.2020 21:25:30

4. FSK 250Kbps FHSS, 902.5MHz~927.5MHz



Date: 16.MAR.2020 20:08:44

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4.1.11 Conducted Emission (AC power-line)

Result:

N.A

Test Specification

Test standard : FCC Part 15.207
RSS-Gen Issue 5 March 2019
FCC part 15, Subpart B:2019
ICES-005:2018

Basic standard : ANSI C63.10: 2013, clause 6.2
ANSI C63.4:2014, clause 7

Port : Mains

Frequency range : 0.15 – 30MHz

Limits : FCC part 15.107(a)
FCC part 15.207(a)
RSS Gen Issue 5 March 2019, table 4
ICES-005:2018, table 2

Kind of test site : 3m Semi-anechoic Chamber

The EUT is supplied by battery and it cannot be connected to the public low-voltage distribution systems directly. Charging for battery is performed independently and without using EUT. Therefore, no disturbance voltage test is performed.

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4.1.12 Radiated Emission

Result:

Pass

Test Specification	
Test standard	: FCC Part 15.209 RSS-Gen Issue 5 March 2019 FCC Part 15, Subpart B:2019 ICES-005:2018
Basic standard	: ANSI C63.10: 2013, clause 6.3 ANSI C63.4:2014, clause 8 KDB 558074 D01 v05r02, clause 8.6
Port	: Enclosure
Frequency range	: 30MHz-10 th Harmonic for intentional radiator 30MHz-1GHz for unintentional radiator
Limits	: FCC part 15.109(a) FCC part 15.209(a) RSS Gen Issue 5 March 2019, table 3, table 5 ICES-005:2018, table 4
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

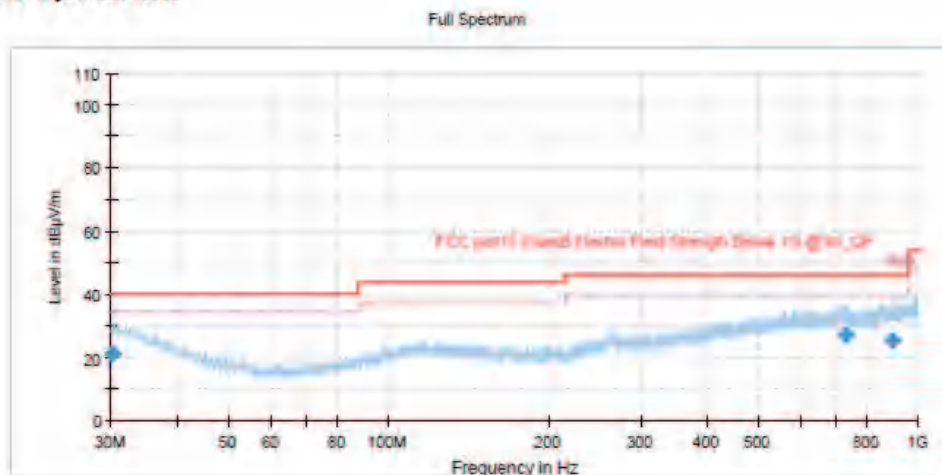
Date of testing	: 15.03.2020-16.03.2020
Input voltage	: DC 6V
Operational mode	: Mode C, Mode D
Test channel	: Lo, Mi, Hi
Temperature	: 20°C
Relative humidity	: 57%
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case emissions configuration of the each mode were reported.

The measurement result is calculated based on the following formula by the test software:
Emission Level = Reading level + Correction (Antenna factor + Cable loss – Preamplifier)

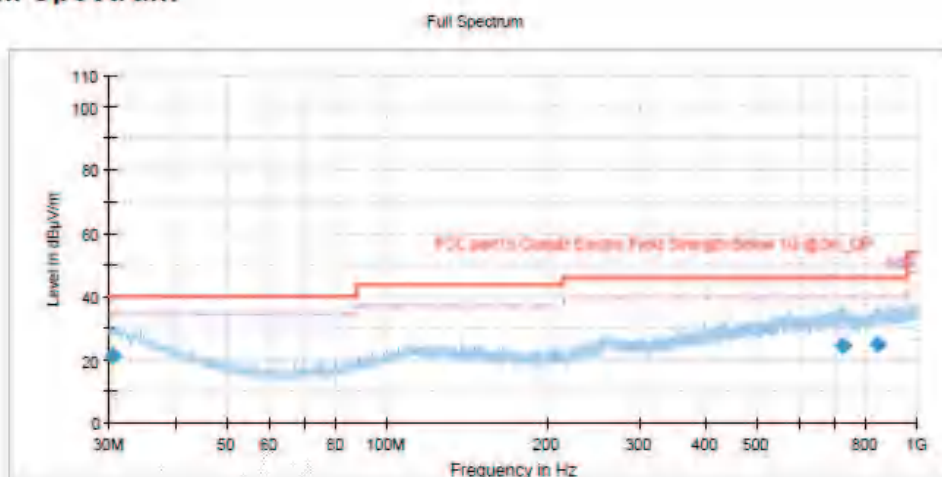
Figure 9: Spectral Diagrams, Radiated Emission, 30MHz-1000MHz, Horizontal, for Mode D
Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.223333	21.40	40.00	18.60	1000.0	120.000	150.0	H	121.0	25.2
729.821111	27.13	46.00	18.87	1000.0	120.000	135.0	H	144.0	28.1
890.582222	25.38	46.00	20.62	1000.0	120.000	138.0	H	203.0	29.8

Figure 10: Spectral Diagrams, Radiated Emission, 30MHz-1000MHz, Vertical, for Mode D
Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.494444	21.27	40.00	18.73	1000.0	120.000	133.0	V	264.0	25.0
723.382222	24.50	46.00	21.50	1000.0	120.000	117.0	V	229.0	27.9
844.767778	24.91	46.00	21.09	1000.0	120.000	117.0	V	141.0	29.5

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Table 9: BLE, Mode C, Radiated Emission, below 1GHz, Horizontal, Channel 0

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.160000	21.63	40.00	18.37	1000.0	120.000	150.0	H	314.0	25.2
689.687778	24.00	46.00	22.00	1000.0	120.000	150.0	H	210.0	27.6
844.969444	25.14	46.00	20.86	1000.0	120.000	114.0	H	65.0	29.4

Table 10: BLE, Mode C, Radiated Emission, below 1GHz, Vertical, Channel 0

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.465000	21.44	40.00	18.56	1000.0	120.000	124.0	V	307.0	25.1
127.117222	15.47	43.50	28.03	1000.0	120.000	150.0	V	350.0	19.1
845.211111	25.01	46.00	20.99	1000.0	120.000	120.0	V	285.0	29.4

Table 11: BLE, Mode C, Radiated Emission, below 1GHz, Horizontal, Channel 19

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.303333	21.52	40.00	18.48	1000.0	120.000	124.0	H	20.0	25.1
129.003333	15.45	43.50	28.05	1000.0	120.000	130.0	H	343.0	19.0
848.630556	24.95	46.00	21.05	1000.0	120.000	141.0	H	117.0	29.4

Table 12: BLE, Mode C, Radiated Emission, below 1GHz, Vertical, Channel 19

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.270000	20.87	40.00	19.13	1000.0	120.000	100.0	V	183.0	24.6
125.808333	15.54	43.50	27.96	1000.0	120.000	111.0	V	25.0	19.1
845.060000	25.06	46.00	20.94	1000.0	120.000	114.0	V	1.0	29.4

Table 13: BLE, Mode C, Radiated Emission, below 1GHz, Horizontal, Channel 39

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.339444	20.89	40.00	19.11	1000.0	120.000	114.0	H	288.0	24.6
124.893889	15.58	43.50	27.92	1000.0	120.000	140.0	H	196.0	19.2
854.005556	25.01	46.00	20.99	1000.0	120.000	100.0	H	136.0	29.4

Table 14: BLE, Mode C, Radiated Emission, below 1GHz, Vertical, Channel 39

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.320000	21.53	40.00	18.47	1000.0	120.000	136.0	V	233.0	25.1
118.724444	15.68	43.50	27.82	1000.0	120.000	136.0	V	191.0	19.4
848.755556	24.96	46.00	21.04	1000.0	120.000	124.0	V	168.0	29.4

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Table 15: LoRa 500KHz DTS, 902.5~926.5 MHz, Mode C, Radiated Emission, Horizontal, CH 902.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.400556	21.51	40.00	18.49	1000.0	120.000	H	25.1
712.268889	30.12	46.00	15.88	1000.0	120.000	H	27.8
854.088889	28.67	46.00	17.33	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.845000	50.7	1000.0	1000.000	H	-10.4	23.3	74.0
4513.685000	48.7	1000.0	1000.000	H	0.6	25.3	74.0
5414.685000	51.1	1000.0	1000.000	H	1.5	22.9	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.845000	49.4	1000.0	1000.000	H	-10.4	4.6	54.0
4513.685000	43.8	1000.0	1000.000	H	0.6	10.2	54.0
5414.685000	47.4	1000.0	1000.000	H	1.5	6.6	54.0

Table 16: LoRa 500KHz DTS, 902.5~926.5 MHz, Mode C, Radiated Emission, Vertical, CH 902.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.240000	21.53	40.00	18.47	1000.0	120.000	V	25.2
130.816667	15.35	43.50	28.15	1000.0	120.000	V	18.9
852.110556	27.16	46.00	18.84	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.845000	45.3	1000.0	1000.000	V	-10.4	28.7	74.0
5416.280000	52.1	1000.0	1000.000	V	1.5	21.9	74.0
8780.685000	50.1	1000.0	1000.000	V	6.3	23.9	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.845000	42.4	1000.0	1000.000	V	-10.4	11.6	54.0
5416.280000	48.7	1000.0	1000.000	V	1.5	5.3	54.0
8780.685000	39.0	1000.0	1000.000	V	6.3	15.0	54.0

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Table 17: LoRa 500KHz DTS, 902.5~926.5 MHz, Mode C, Radiated Emission, Horizontal, CH 914.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.358889	21.52	40.00	18.48	1000.0	120.000	H	25.1
722.975556	28.51	46.00	17.49	1000.0	120.000	H	27.9
846.398333	26.78	46.00	19.22	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1828.750000	51.2	1000.0	1000.000	H	-10.2	22.8	74.0
4572.125000	54.2	1000.0	1000.000	H	0.3	19.8	74.0
5486.405000	54.4	1000.0	1000.000	H	1.6	19.6	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1828.750000	49.8	1000.0	1000.000	H	-10.2	4.2	54.0
4572.125000	51.7	1000.0	1000.000	H	0.3	2.3	54.0
5486.405000	52.5	1000.0	1000.000	H	1.6	1.5	54.0

Table 18: LoRa 500KHz DTS, 902.5~926.5 MHz, Mode C, Radiated Emission, Vertical, CH 914.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.000000	23.88	40.00	16.12	1000.0	120.000	V	25.3
729.025000	27.22	46.00	18.78	1000.0	120.000	V	28.1
844.553889	29.55	46.00	16.45	1000.0	120.000	V	29.5

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.280000	49.3	1000.0	1000.000	V	-10.2	24.7	74.0
4572.125000	52.4	1000.0	1000.000	V	0.3	21.6	74.0
5486.935000	51.0	1000.0	1000.000	V	1.6	23.0	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.280000	47.9	1000.0	1000.000	V	-10.2	6.1	54.0
4572.125000	49.6	1000.0	1000.000	V	0.3	4.4	54.0
5486.935000	46.8	1000.0	1000.000	V	1.6	7.2	54.0

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Table 19: LoRa 500KHz DTS, 902.5~926.5 MHz, Mode C, Radiated Emission, Horizontal, CH 926.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.897778	21.10	40.00	18.90	1000.0	120.000	H	24.8
129.879444	15.40	43.50	28.10	1000.0	120.000	H	18.9
858.952778	28.70	46.00	17.30	1000.0	120.000	H	29.3

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1852.655000	51.4	1000.0	1000.000	H	-10.2	22.6	74.0
2779.155000	46.0	1000.0	1000.000	H	-5.4	28.0	74.0
4632.685000	55.4	1000.0	1000.000	H	0.3	18.6	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1852.655000	50.3	1000.0	1000.000	H	-10.2	3.7	54.0
2779.155000	42.1	1000.0	1000.000	H	-5.4	11.9	54.0
4632.685000	53.5	1000.0	1000.000	H	0.3	0.5	54.0

Table 20: LoRa 500KHz DTS, 902.5~926.5 MHz, Mode C, Radiated Emission, Vertical, CH 926.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.386667	21.40	40.00	18.60	1000.0	120.000	V	25.1
733.960000	26.10	46.00	19.90	1000.0	120.000	V	28.2
845.087778	26.52	46.00	19.48	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1853.185000	48.0	1000.0	1000.000	V	-10.2	26.0	74.0
4631.625000	51.9	1000.0	1000.000	V	0.3	22.1	74.0
5557.595000	52.8	1000.0	1000.000	V	1.7	21.2	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1853.185000	46.4	1000.0	1000.000	V	-10.2	7.6	54.0
4631.625000	49.0	1000.0	1000.000	V	0.3	5.0	54.0
5557.595000	50.6	1000.0	1000.000	V	1.7	3.4	54.0

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Table 21: LoRa 125KHz FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Horizontal, CH 902.2

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.763889	21.16	40.00	18.84	1000.0	120.000	H	24.9
710.768889	30.29	46.00	15.71	1000.0	120.000	H	27.8
845.181667	26.82	46.00	19.18	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.310000	52.6	1000.0	1000.000	H	-10.4	21.4	74.0
4511.030000	50.4	1000.0	1000.000	H	0.6	23.6	74.0
5412.560000	48.0	1000.0	1000.000	H	1.5	26.0	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.310000	51.5	1000.0	1000.000	H	-10.4	2.5	54.0
4511.030000	46.5	1000.0	1000.000	H	0.6	7.5	54.0
5412.560000	41.1	1000.0	1000.000	H	1.5	12.9	54.0

Table 22: LoRa 125KHz FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Vertical, CH 902.2

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
264.530556	18.18	46.00	27.82	1000.0	120.000	V	21.4
709.831667	24.52	46.00	21.48	1000.0	120.000	V	27.8
844.540000	27.68	46.00	18.32	1000.0	120.000	V	29.5

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1803.780000	52.8	1000.0	1000.000	150.0	V	0.0	-10.4	21.2	74.0
2706.375000	47.4	1000.0	1000.000	150.0	V	106.0	-5.5	26.6	74.0
4511.030000	51.0	1000.0	1000.000	150.0	V	141.0	0.6	23.0	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1803.780000	51.8	1000.0	1000.000	150.0	V	0.0	-10.4	2.2	54.0
2706.375000	44.2	1000.0	1000.000	150.0	V	106.0	-5.5	9.8	54.0
4511.030000	48.0	1000.0	1000.000	150.0	V	141.0	0.6	6.0	54.0

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Table 23: LoRa 125KHz FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Horizontal, CH 915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.200000	21.59	40.00	18.41	1000.0	120.000	H	25.2
728.580000	28.46	46.00	17.54	1000.0	120.000	H	28.0
847.420556	25.55	46.00	20.45	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.810000	51.2	1000.0	1000.000	H	-10.2	22.8	74.0
4574.780000	53.1	1000.0	1000.000	H	0.3	20.9	74.0
5490.125000	50.7	1000.0	1000.000	H	1.6	23.3	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.810000	50.0	1000.0	1000.000	H	-10.2	4.0	54.0
4574.780000	50.6	1000.0	1000.000	H	0.3	3.4	54.0
5490.125000	46.4	1000.0	1000.000	H	1.6	7.6	54.0

Table 24: LoRa 125KHz FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Vertical, CH 915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.595000	22.90	40.00	17.10	1000.0	120.000	V	24.5
125.575556	15.63	43.50	27.87	1000.0	120.000	V	19.1
845.167778	26.46	46.00	19.54	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1830.345000	54.0	1000.0	1000.000	V	-10.2	20.0	74.0
4574.780000	52.1	1000.0	1000.000	V	0.3	21.9	74.0
5490.125000	51.3	1000.0	1000.000	V	1.6	22.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1830.345000	52.9	1000.0	1000.000	V	-10.2	1.1	54.0
4574.780000	49.3	1000.0	1000.000	V	0.3	4.7	54.0
5490.125000	47.6	1000.0	1000.000	V	1.6	6.4	54.0

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Table 25: LoRa 125KHz FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Horizontal, CH 927.8

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
574.390000	23.66	46.00	22.34	1000.0	120.000	H	27.2
710.772222	30.15	46.00	15.85	1000.0	120.000	H	27.8
852.538333	29.85	46.00	16.15	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1855.310000	50.0	1000.0	1000.000	H	-10.2	24.0	74.0
4639.060000	54.4	1000.0	1000.000	H	0.3	19.6	74.0
5566.625000	52.2	1000.0	1000.000	H	1.7	21.8	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1855.310000	48.7	1000.0	1000.000	H	-10.2	5.3	54.0
4639.060000	52.1	1000.0	1000.000	H	0.3	1.9	54.0
5566.625000	49.0	1000.0	1000.000	H	1.7	5.0	54.0

Table 26: LoRa 125KHz FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Vertical, CH 927.8

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
33.644444	21.54	40.00	18.46	1000.0	120.000	V	23.3
712.013333	24.46	46.00	21.54	1000.0	120.000	V	27.8
845.211111	29.86	46.00	16.14	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1855.845000	48.3	1000.0	1000.000	V	-10.2	25.7	74.0
4639.060000	53.1	1000.0	1000.000	V	0.3	20.9	74.0
5566.095000	52.0	1000.0	1000.000	V	1.7	22.0	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1855.845000	46.8	1000.0	1000.000	V	-10.2	7.2	54.0
4639.060000	50.2	1000.0	1000.000	V	0.3	3.8	54.0
5566.095000	48.6	1000.0	1000.000	V	1.7	5.4	54.0

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Table 27: FSK 150Kbps FHSS, 902.4~927.6MHz, Mode C, Radiated Emission, Horizontal, CH 902.4

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.123889	21.07	40.00	18.93	1000.0	120.000	H	24.7
123.743333	15.61	43.50	27.89	1000.0	120.000	H	19.2
847.396111	25.53	46.00	20.47	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.845000	54.2	1000.0	1000.000	H	-10.4	19.8	74.0
4512.095000	49.7	1000.0	1000.000	H	0.6	24.3	74.0
5414.685000	49.5	1000.0	1000.000	H	1.5	24.5	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.845000	53.4	1000.0	1000.000	H	-10.4	0.6	54.0
4512.095000	43.9	1000.0	1000.000	H	0.6	10.1	54.0
5414.685000	43.5	1000.0	1000.000	H	1.5	10.5	54.0

Table 28: FSK 150Kbps FHSS, 902.4~927.6MHz, Mode C, Radiated Emission, Vertical, CH 902.4

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.285556	20.92	40.00	19.08	1000.0	120.000	V	24.6
128.542778	15.51	43.50	27.99	1000.0	120.000	V	19.0
849.670000	27.82	46.00	18.18	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.845000	51.2	1000.0	1000.000	V	-10.4	22.8	74.0
4512.095000	51.6	1000.0	1000.000	V	0.6	22.4	74.0
6316.750000	51.0	1000.0	1000.000	V	2.6	23.0	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.845000	50.1	1000.0	1000.000	V	-10.4	3.9	54.0
4512.095000	48.2	1000.0	1000.000	V	0.6	5.8	54.0
6316.750000	46.4	1000.0	1000.000	V	2.6	7.6	54.0

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Table 29: FSK 150Kbps FHSS, 902.4~927.6MHz, Mode C, Radiated Emission, Horizontal, CH 914.8

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.656111	21.32	40.00	18.68	1000.0	120.000	H	25.0
726.288889	29.46	46.00	16.54	1000.0	120.000	H	28.0
845.585000	25.99	46.00	20.01	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.280000	51.6	1000.0	1000.000	H	-10.2	22.4	74.0
2744.625000	48.2	1000.0	1000.000	H	-5.5	25.8	74.0
4574.250000	54.3	1000.0	1000.000	H	0.3	19.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.280000	50.2	1000.0	1000.000	H	-10.2	3.8	54.0
2744.625000	44.1	1000.0	1000.000	H	-5.5	9.9	54.0
4574.250000	51.7	1000.0	1000.000	H	0.3	2.3	54.0

Table 30: FSK 150Kbps FHSS, 902.4~927.6MHz, Mode C, Radiated Emission, Vertical, CH 914.8

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.682222	21.32	40.00	18.68	1000.0	120.000	V	24.9
128.087222	15.44	43.50	28.06	1000.0	120.000	V	19.0
847.201667	30.23	46.00	15.77	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.280000	52.1	1000.0	1000.000	V	-10.2	21.9	74.0
4574.250000	52.5	1000.0	1000.000	V	0.3	21.5	74.0
5488.530000	51.6	1000.0	1000.000	V	1.6	22.4	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.280000	50.8	1000.0	1000.000	V	-10.2	3.2	54.0
4574.250000	49.2	1000.0	1000.000	V	0.3	4.8	54.0
5488.530000	46.8	1000.0	1000.000	V	1.6	7.2	54.0

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Table 31: FSK 150Kbps FHSS, 902.4~927.6MHz, Mode C, Radiated Emission, Horizontal, CH 927.6

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.150000	20.99	40.00	19.01	1000.0	120.000	H	24.7
729.023333	28.14	46.00	17.86	1000.0	120.000	H	28.1
846.003889	27.39	46.00	18.61	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1854.780000	53.4	1000.0	1000.000	150.0	H	-10.2	20.6	74.0
2782.345000	48.5	1000.0	1000.000	150.0	H	-5.5	25.5	74.0
4636.935000	55.1	1000.0	1000.000	150.0	H	0.3	18.9	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1854.780000	52.6	1000.0	1000.000	H	-10.2	1.4	54.0
2782.345000	45.7	1000.0	1000.000	H	-5.5	8.3	54.0
4636.935000	53.3	1000.0	1000.000	H	0.3	0.7	54.0

Table 32: FSK 150Kbps FHSS, 902.4~927.6MHz, Mode C, Radiated Emission, Vertical, CH 927.6

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.531111	21.42	40.00	18.58	1000.0	120.000	V	25.0
125.137222	15.63	43.50	27.87	1000.0	120.000	V	19.2
845.760556	30.96	46.00	15.04	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1854.780000	50.7	1000.0	1000.000	150.0	V	0.0	-10.2	23.3	74.0
4637.470000	52.8	1000.0	1000.000	150.0	V	112.0	0.3	21.2	74.0
5565.560000	50.3	1000.0	1000.000	150.0	V	0.0	1.7	23.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1854.780000	49.5	1000.0	1000.000	150.0	V	0.0	-10.2	4.5	54.0
4637.470000	50.2	1000.0	1000.000	150.0	V	112.0	0.3	3.8	54.0
5565.560000	45.0	1000.0	1000.000	150.0	V	0.0	1.7	9.0	54.0

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Table 33: FSK 50Kbps FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Horizontal, CH 902.2

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.656111	21.02	40.00	18.98	1000.0	120.000	H	25.0
729.513333	29.55	46.00	16.45	1000.0	120.000	H	28.1
854.518333	28.59	46.00	17.41	1000.0	120.000	H	29.3

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.310000	52.7	1000.0	1000.000	H	-10.4	21.3	74.0
4290.560000	46.2	1000.0	1000.000	H	1.1	27.8	74.0
4511.030000	50.3	1000.0	1000.000	H	0.6	23.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.310000	51.9	1000.0	1000.000	H	-10.4	2.1	54.0
4290.560000	35.5	1000.0	1000.000	H	1.1	18.5	54.0
4511.030000	46.3	1000.0	1000.000	H	0.6	7.7	54.0

Table 34: FSK 50Kbps FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Vertical, CH 902.2

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.440000	21.17	40.00	18.83	1000.0	120.000	V	25.1
140.549444	14.77	43.50	28.73	1000.0	120.000	V	18.3
848.079444	27.07	46.00	18.93	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.310000	53.1	1000.0	1000.000	V	-10.4	20.9	74.0
4511.560000	48.3	1000.0	1000.000	V	0.6	25.7	74.0
5413.095000	48.3	1000.0	1000.000	V	1.5	25.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.310000	52.4	1000.0	1000.000	V	-10.4	1.6	54.0
4511.560000	41.4	1000.0	1000.000	V	0.6	12.6	54.0
5413.095000	40.8	1000.0	1000.000	V	1.5	13.2	54.0

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Table 35: FSK 50Kbps FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Horizontal, CH 915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.454444	21.44	40.00	18.56	1000.0	120.000	H	25.1
107.444444	14.95	43.50	28.55	1000.0	120.000	H	18.6
710.678333	25.05	46.00	20.95	1000.0	120.000	H	27.8

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.810000	51.1	1000.0	1000.000	H	-10.2	22.9	74.0
4575.310000	53.2	1000.0	1000.000	H	0.3	20.8	74.0
5490.125000	52.2	1000.0	1000.000	H	1.6	21.8	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.810000	50.1	1000.0	1000.000	H	-10.2	3.9	54.0
4575.310000	50.5	1000.0	1000.000	H	0.3	3.5	54.0
5490.125000	48.5	1000.0	1000.000	H	1.6	5.5	54.0

Table 36: FSK 50Kbps FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Vertical, CH 915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.972222	22.75	40.00	17.25	1000.0	120.000	V	24.3
133.420556	15.25	43.50	28.25	1000.0	120.000	V	18.7
846.179444	26.34	46.00	19.66	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.810000	51.2	1000.0	1000.000	V	-10.2	22.8	74.0
4575.310000	51.6	1000.0	1000.000	V	0.3	22.4	74.0
5490.125000	51.2	1000.0	1000.000	V	1.6	22.8	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.810000	50.0	1000.0	1000.000	V	-10.2	4.0	54.0
4575.310000	47.9	1000.0	1000.000	V	0.3	6.1	54.0
5490.125000	47.0	1000.0	1000.000	V	1.6	7.0	54.0

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Table 37: FSK 50Kbps FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Horizontal, CH 927.8

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.360000	21.44	40.00	18.56	1000.0	120.000	H	25.1
729.037222	30.08	46.00	15.92	1000.0	120.000	H	28.1
851.236111	26.18	46.00	19.82	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1855.310000	50.2	1000.0	1000.000	H	-10.2	23.8	74.0
2783.405000	47.6	1000.0	1000.000	H	-5.5	26.4	74.0
4639.060000	54.4	1000.0	1000.000	H	0.3	19.6	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1855.310000	48.8	1000.0	1000.000	H	-10.2	5.2	54.0
2783.405000	44.7	1000.0	1000.000	H	-5.5	9.3	54.0
4639.060000	52.5	1000.0	1000.000	H	0.3	1.5	54.0

Table 38: FSK 50Kbps FHSS, 902.2~927.8MHz, Mode C, Radiated Emission, Vertical, CH 927.8

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.280000	21.54	40.00	18.46	1000.0	120.000	V	25.1
128.005556	15.48	43.50	28.02	1000.0	120.000	V	19.0
845.465000	31.62	46.00	14.38	1000.0	120.000	V	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1855.310000	47.9	1000.0	1000.000	V	-10.2	26.1	74.0
4639.060000	52.1	1000.0	1000.000	V	0.3	21.9	74.0
5566.095000	50.7	1000.0	1000.000	V	1.7	23.3	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1855.310000	45.8	1000.0	1000.000	V	-10.2	8.2	54.0
4639.060000	49.1	1000.0	1000.000	V	0.3	4.9	54.0
5566.095000	45.6	1000.0	1000.000	V	1.7	8.4	54.0

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Table 39: FSK 250Kbps FHSS, 902.5~927.5MHz, Mode C, Radiated Emission, Horizontal, CH 902.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.328889	20.72	40.00	19.28	1000.0	120.000	H	24.6
719.841111	28.73	46.00	17.27	1000.0	120.000	H	27.8
845.922222	27.65	46.00	18.35	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.845000	55.6	1000.0	1000.000	H	-10.4	18.4	74.0
4512.625000	48.3	1000.0	1000.000	H	0.6	25.7	74.0
5415.220000	52.3	1000.0	1000.000	H	1.5	21.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.845000	53.8	1000.0	1000.000	H	-10.4	0.2	54.0
4512.625000	41.8	1000.0	1000.000	H	0.6	12.2	54.0
5415.220000	47.8	1000.0	1000.000	H	1.5	6.2	54.0

Table 40: FSK 250Kbps FHSS, 902.5~927.5MHz, Mode C, Radiated Emission, Vertical, CH 902.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.960556	20.81	40.00	19.19	1000.0	120.000	V	24.8
127.798889	15.23	43.50	28.27	1000.0	120.000	V	19.0
860.188889	27.30	46.00	18.70	1000.0	120.000	V	29.3

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1804.845000	54.0	1000.0	1000.000	V	-10.4	20.0	74.0
4513.155000	49.5	1000.0	1000.000	V	0.6	24.5	74.0
5414.685000	47.4	1000.0	1000.000	V	1.5	26.6	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1804.845000	53.1	1000.0	1000.000	V	-10.4	0.9	54.0
4513.155000	44.7	1000.0	1000.000	V	0.6	9.3	54.0
5414.685000	37.6	1000.0	1000.000	V	1.5	16.4	54.0

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Table 41: FSK 250Kbps FHSS, 902.5~927.5MHz, Mode C, Radiated Emission, Horizontal, CH 915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.616111	21.12	40.00	18.88	1000.0	120.000	H	25.0
129.538889	15.27	43.50	28.23	1000.0	120.000	H	18.9
845.261667	28.07	46.00	17.93	1000.0	120.000	H	29.4

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.810000	43.0	1000.0	1000.000	H	-10.2	31.0	74.0
4574.780000	52.0	1000.0	1000.000	H	0.3	22.0	74.0
5490.125000	53.4	1000.0	1000.000	H	1.6	20.6	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.810000	38.3	1000.0	1000.000	H	-10.2	15.7	54.0
4574.780000	47.6	1000.0	1000.000	H	0.3	6.4	54.0
5490.125000	50.0	1000.0	1000.000	H	1.6	4.0	54.0

Table 42: FSK 250Kbps FHSS, 902.5~927.5MHz, Mode C, Radiated Emission, Vertical, CH 915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.890556	22.51	40.00	17.49	1000.0	120.000	V	24.3
132.396667	15.06	43.50	28.44	1000.0	120.000	V	18.8
728.673889	26.99	46.00	19.01	1000.0	120.000	V	28.1

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1829.810000	45.2	1000.0	1000.000	V	-10.2	28.8	74.0
4574.780000	47.2	1000.0	1000.000	V	0.3	26.8	74.0
5489.595000	51.5	1000.0	1000.000	V	1.6	22.5	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1829.810000	41.6	1000.0	1000.000	V	-10.2	12.4	54.0
4574.780000	39.1	1000.0	1000.000	V	0.3	14.9	54.0
5489.595000	46.9	1000.0	1000.000	V	1.6	7.1	54.0

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Table 43: FSK 250Kbps FHSS, 902.5~927.5MHz, Mode C, Radiated Emission, Horizontal, CH 927.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
30.817778	21.09	40.00	18.91	1000.0	120.000	H	24.9
728.207778	29.88	46.00	16.12	1000.0	120.000	H	28.0
859.667222	29.63	46.00	16.37	1000.0	120.000	H	29.3

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1854.780000	49.1	1000.0	1000.000	H	-10.2	24.9	74.0
2782.345000	47.4	1000.0	1000.000	H	-5.5	26.6	74.0
4637.470000	52.3	1000.0	1000.000	H	0.3	21.7	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1854.780000	47.3	1000.0	1000.000	H	-10.2	6.7	54.0
2782.345000	43.5	1000.0	1000.000	H	-5.5	10.5	54.0
4637.470000	49.1	1000.0	1000.000	H	0.3	4.9	54.0

Table 44: FSK 250Kbps FHSS, 902.5~927.5MHz, Mode C, Radiated Emission, Vertical, CH 927.5

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)
31.499444	20.63	40.00	19.37	1000.0	120.000	V	24.5
729.198889	27.01	46.00	18.99	1000.0	120.000	V	28.1
844.607778	27.59	46.00	18.41	1000.0	120.000	V	29.5

Limit and Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1854.780000	50.6	1000.0	1000.000	V	-10.2	23.4	74.0
4637.470000	52.5	1000.0	1000.000	V	0.3	21.5	74.0
5565.030000	51.8	1000.0	1000.000	V	1.7	22.2	74.0

Limit and Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1854.780000	49.3	1000.0	1000.000	V	-10.2	4.7	54.0
4637.470000	49.7	1000.0	1000.000	V	0.3	4.3	54.0
5565.030000	48.1	1000.0	1000.000	V	1.7	5.9	54.0