

Appendix 1

Test Protocols

AC Mains Conducted Emission

Mode: BLE TX mode + charging smartphone at USB-A port; Line: L1

28.Sep 18 15:54

Job / Record No. TUV280918B04
Equipment under Test TSUGA ENGINEERING/BLE POWER BANK/JOEY T3/A000805578
Ant. Pol./h/Range L
Test Spec./ Std FCC PART 15

Operation Condition

120VAC 60Hz CHARGING POWER BANK WITH BT CONNECTED + WITH CHARGING THE PHONE

Stepped Scan (1 Range)

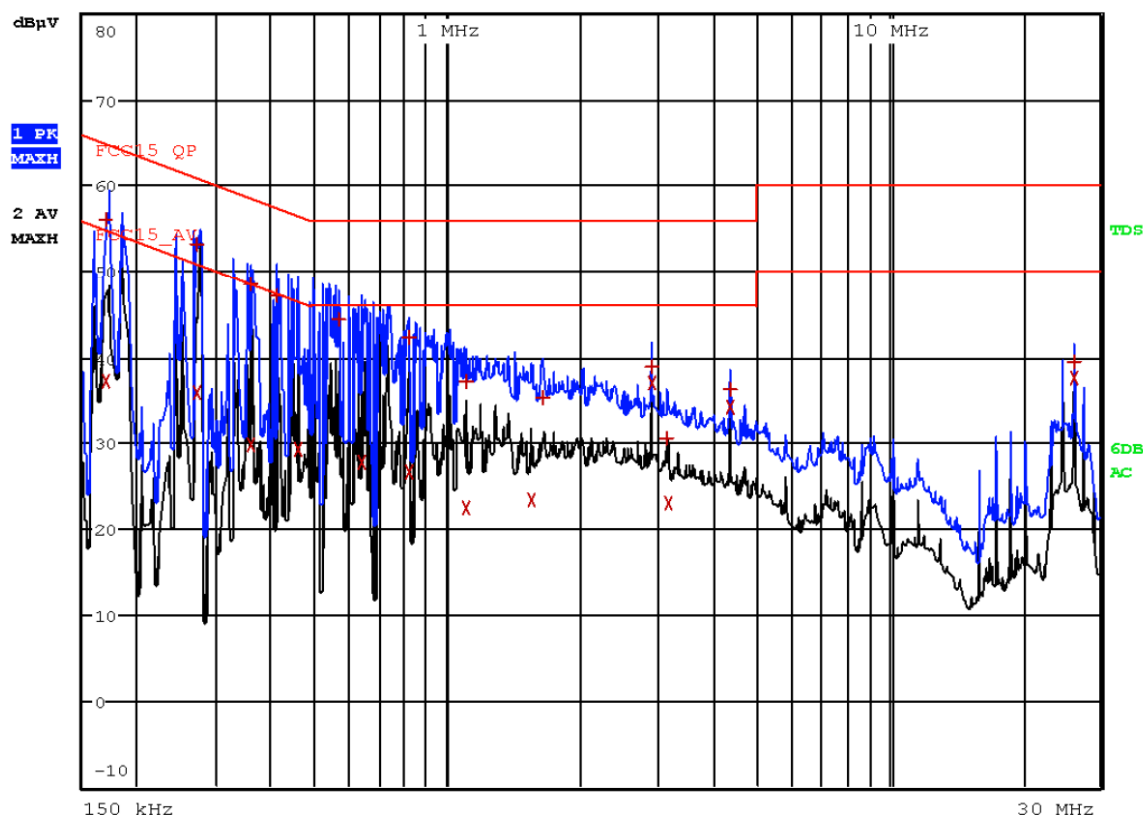
Scan Start: 150 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: CON_EMI

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	1 ms	Auto	0 dB	INPUT2

RBW 9 kHz

MT 1 s

Att 0 dB AUTO PREAMP OFF



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Mode: BLE TX mode + charging smartphone at USB-A port; Line: N

28.Sep 18 15:50

Job / Record No. TUV280918B03
Equipment under Test TSUGA ENGINEERING/BLE POWER BANK/JOEY T3/A000805578
Ant. Pol./h/Range N
Test Spec./ Std FCC PART 15

Operation Condition

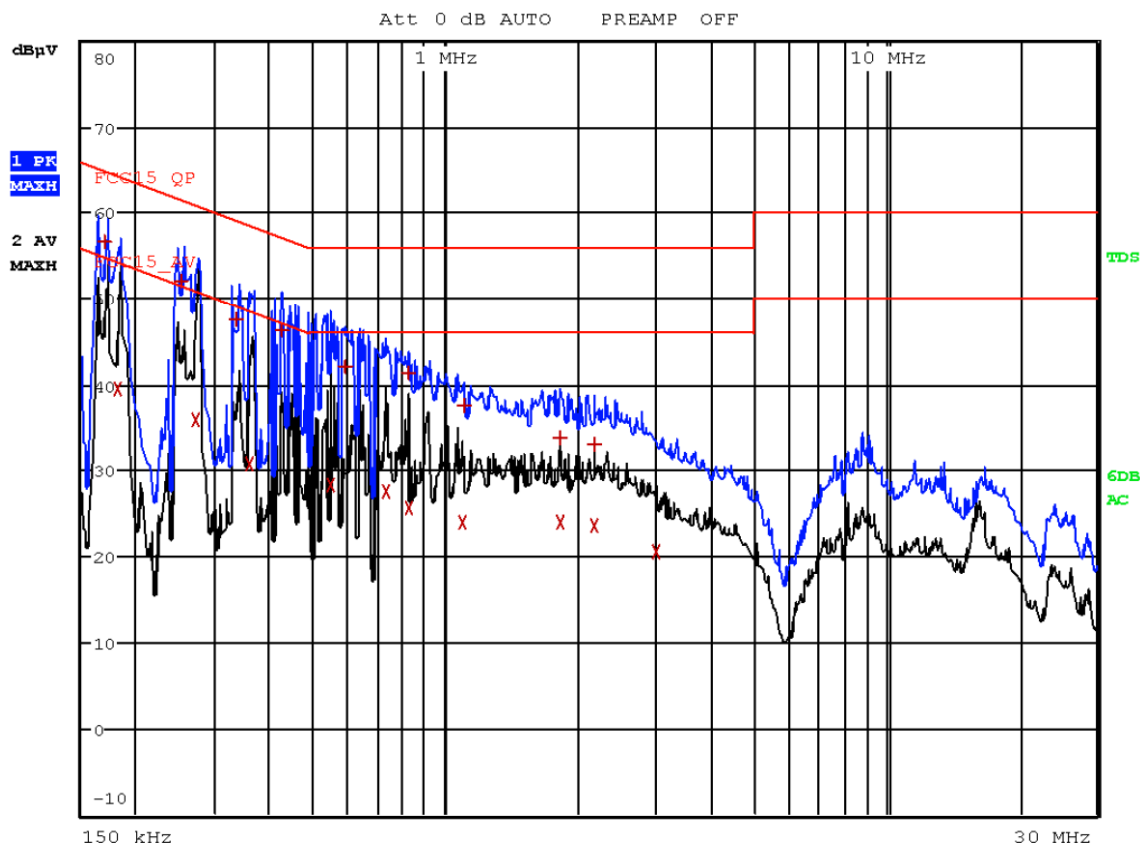
120VAC 60Hz CHARGING POWER BANK WITH BT CONNECTED + WITH CHARGING THE PHONE

Stepped Scan (1 Range)

Scan Start: 150 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: CON_EMI

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	1 ms	Auto	0 dB	INPUT2

RBW 9 kHz
 MT 1 s
 PREAMP OFF



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Mode: BLE TX mode without charging smartphone at USB-A port; Line: L1

28.Sep 18 15:40

Job / Record No. TUV280918B01
Equipment under Test TSUGA ENGINEERING/BLE POWER BANK/JOEY T3/A000805578
Ant. Pol./h/Range L
Test Spec./ Std FCC PART 15

Operation Condition

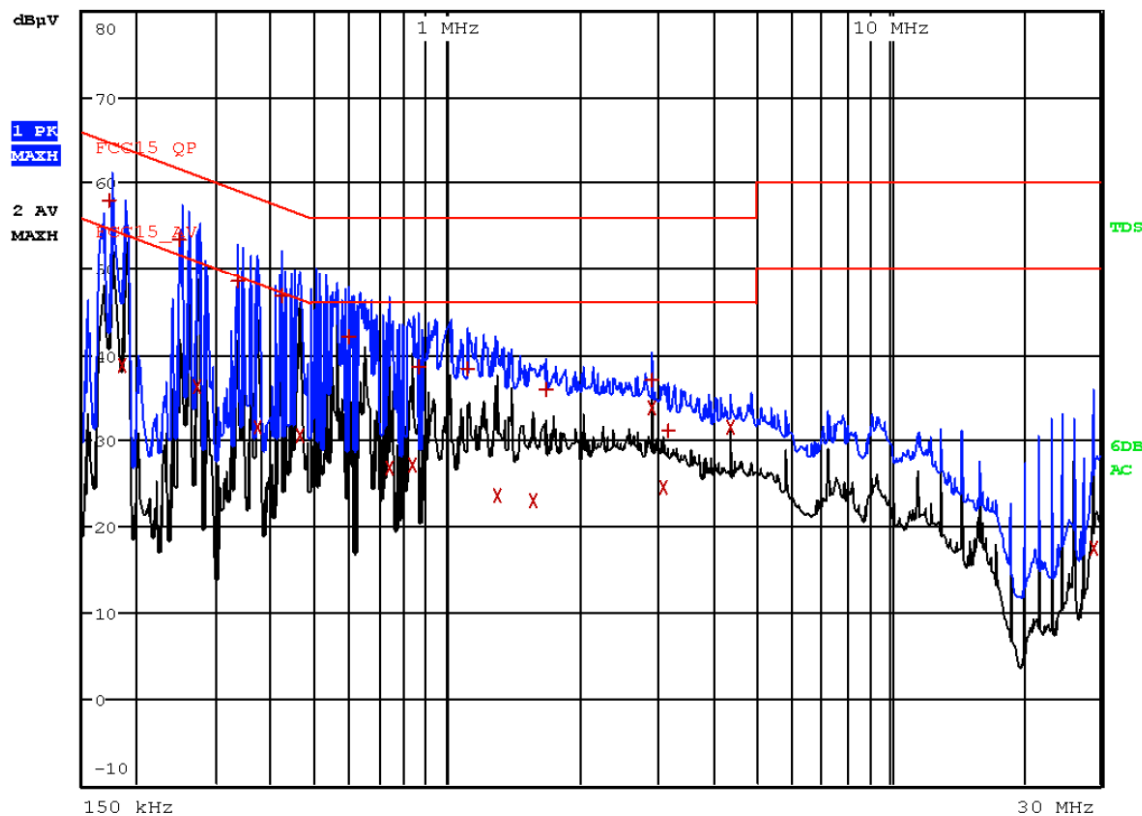
120VAV 60HzCHARGING POWER BANK WITH BT CONNECTED + WITHOUT CHARGING THE PHONE

Stepped Scan (1 Range)

Scan Start: 150 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: CON_EMI

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	1 ms	Auto	0 dB	INPUT2

RBW 9 kHz
 MT 1 s
 Att 0 dB AUTO
 PREAMP OFF



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Mode: BLE TX mode without charging smartphone at USB-A port; Line: N

28.Sep 18 15:46

Job / Record No. TUV280918B02
Equipment under Test TSUGA ENGINEERING/BLE POWER BANK/JOEY T3/A000805578
Ant. Pol./h/Range N
Test Spec./ Std FCC PART 15

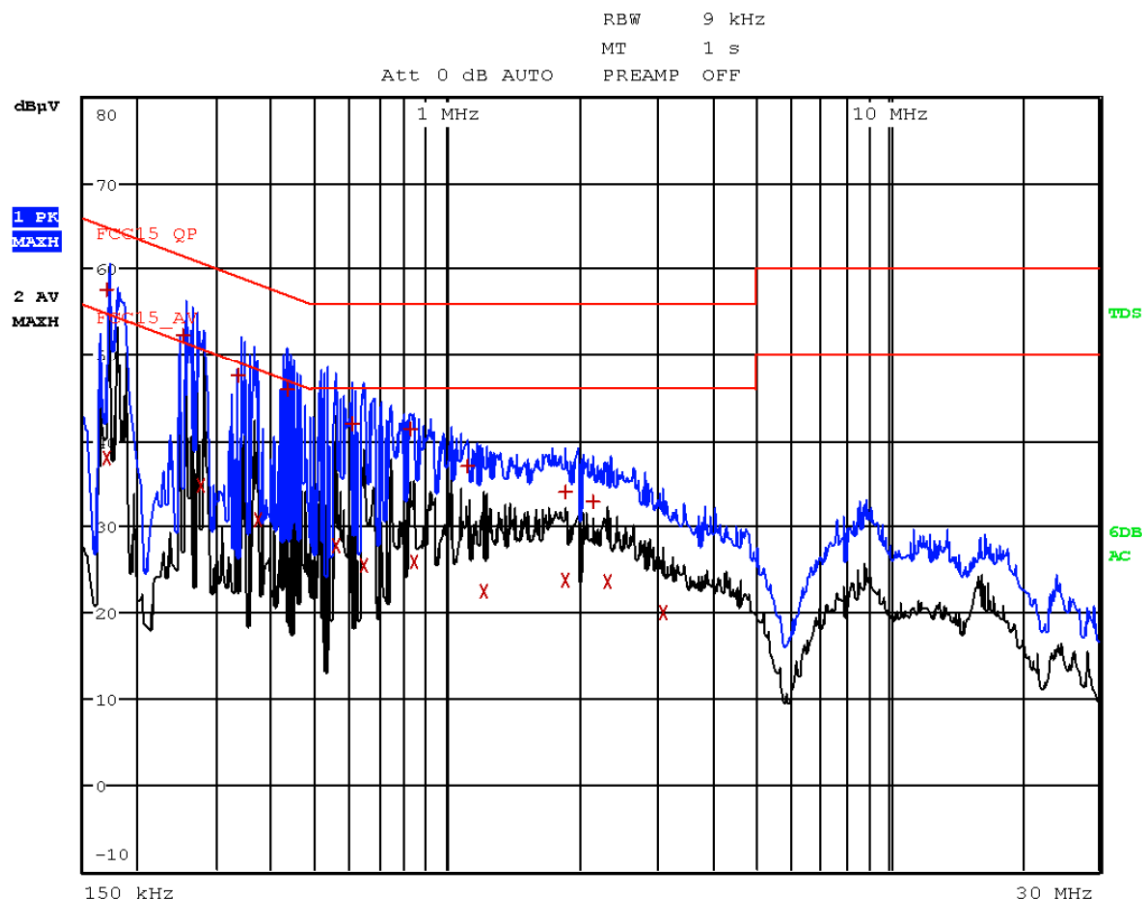
Operation Condition

120VAC 60Hz CHARGING POWER BANK WITH BT CONNECTED + WITHOUT CHARGING THE PHONE

Stepped Scan (1 Range)

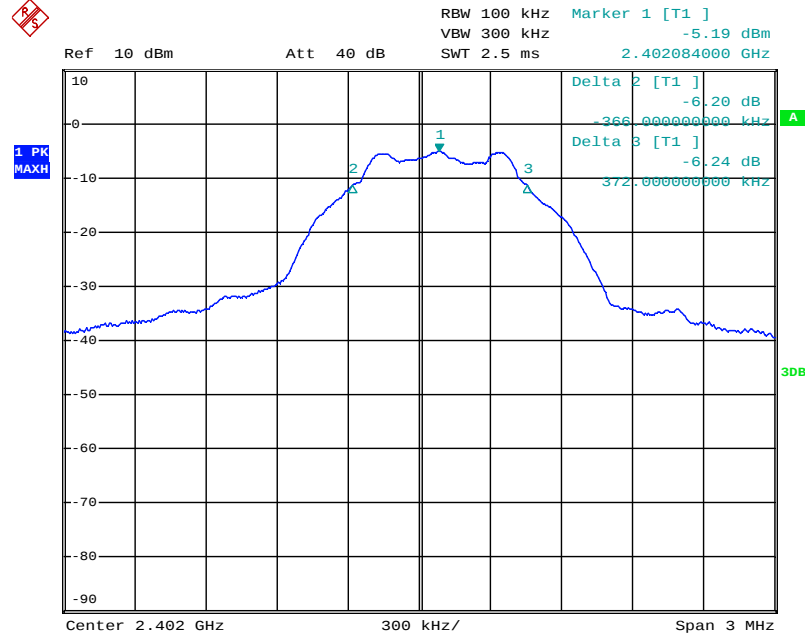
Scan Start: 150 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: CON_EMI

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	1 ms	Auto	0 dB	INPUT2



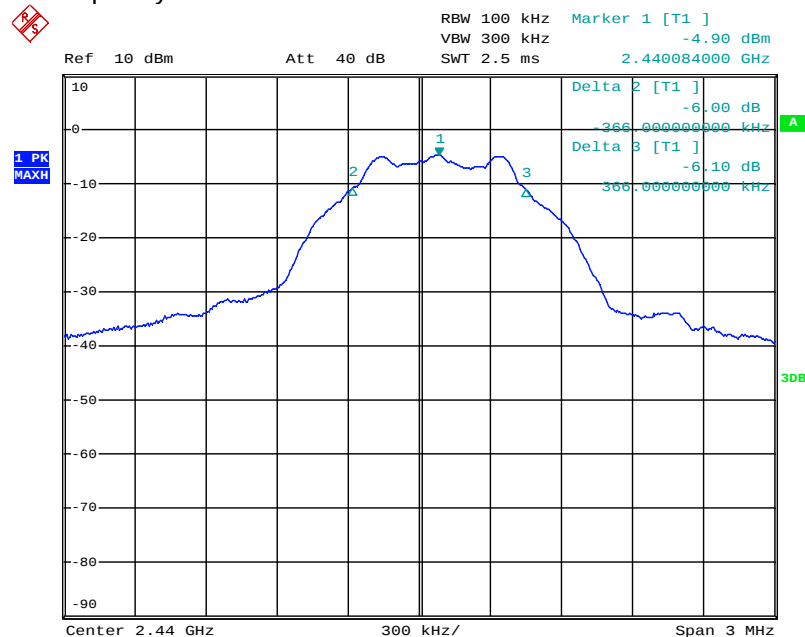
6 dB Bandwidth Measurement

TX frequency: 2402MHz



Date: 12.OCT.2018 11:09:25

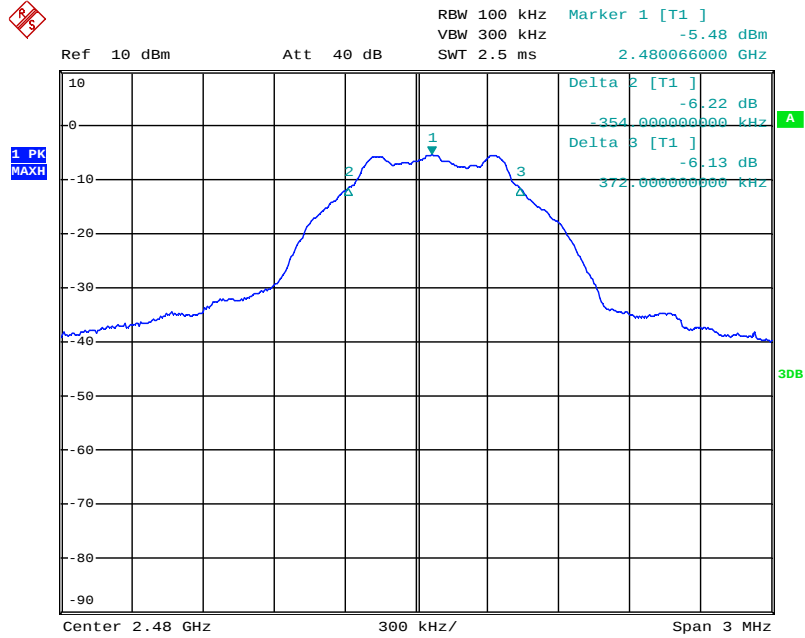
TX frequency: 2440MHz



Date: 12.OCT.2018 11:47:15

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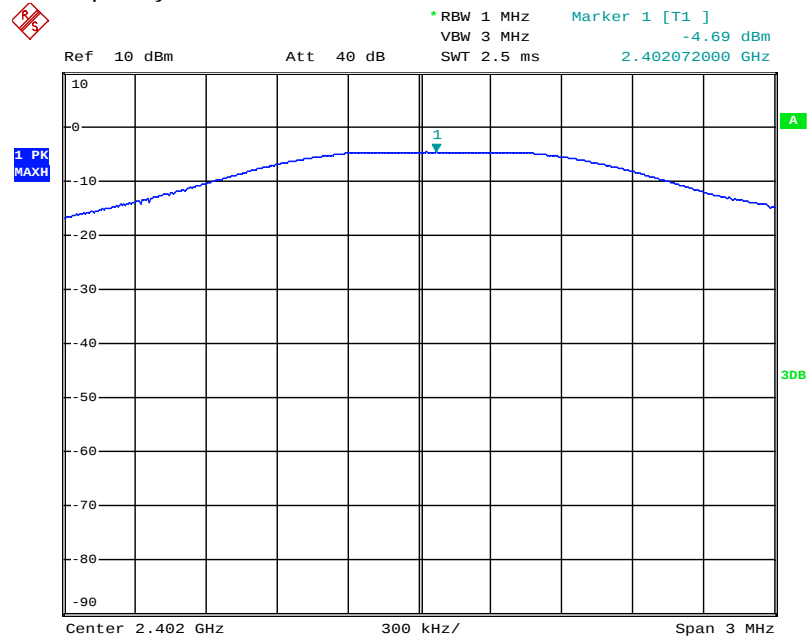
TX frequency: 2480MHz



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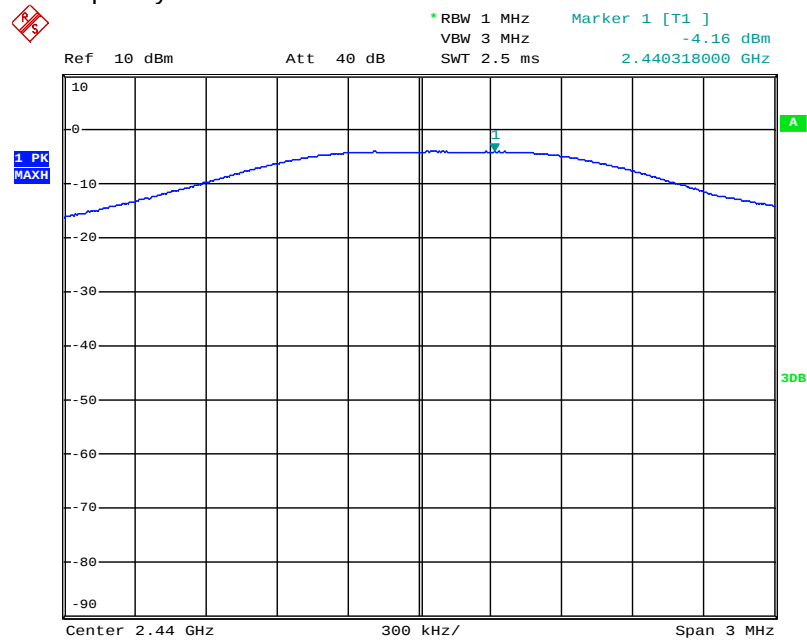
Maximum Peak Conducted Output power

TX frequency: 2402MHz



Date: 12.OCT.2018 11:19:07

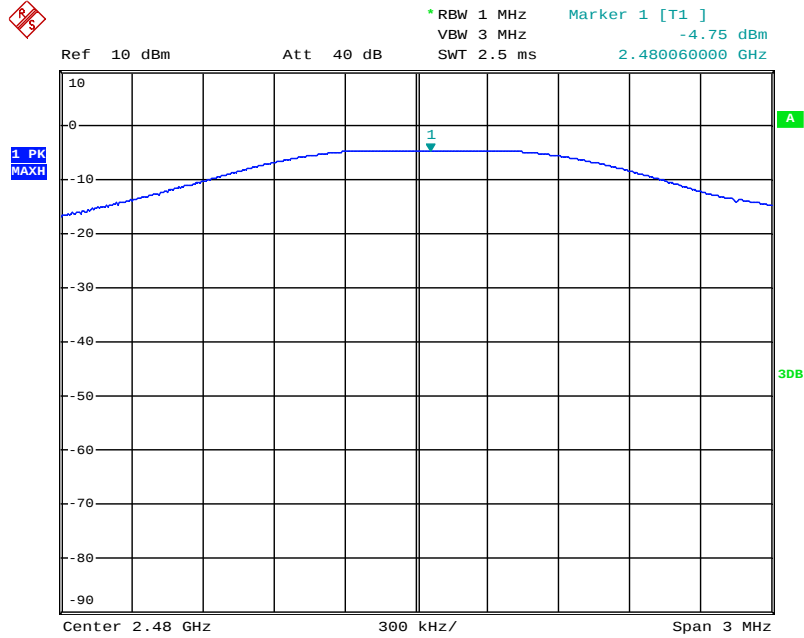
TX frequency: 2440MHz



Date: 12.OCT.2018 11:46:23

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TX frequency: 2480MHz

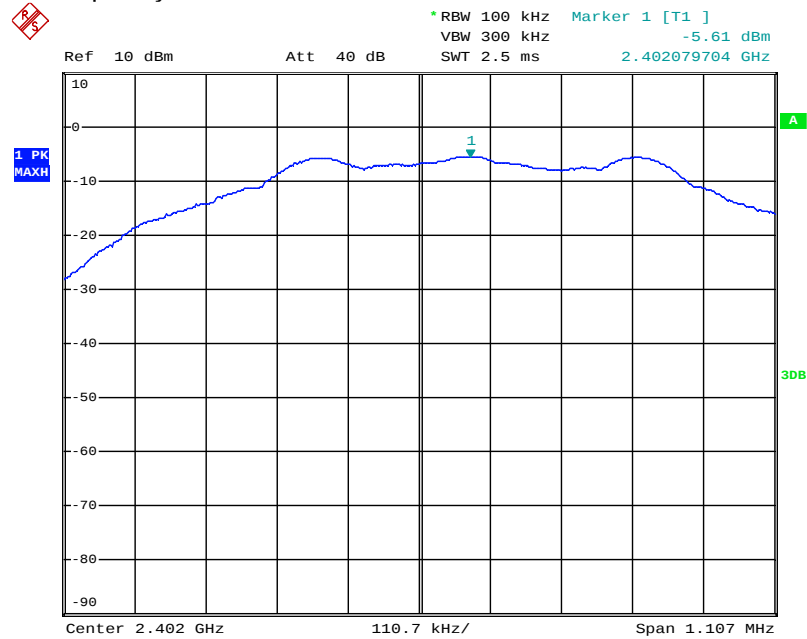


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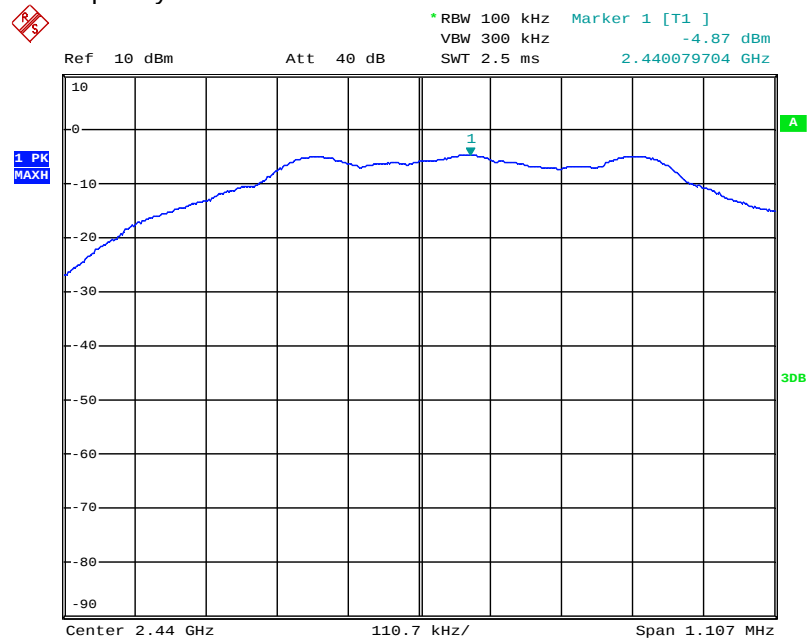
Power Spectral Density

TX frequency: 2402MHz



Date: 12.OCT.2018 12:06:13

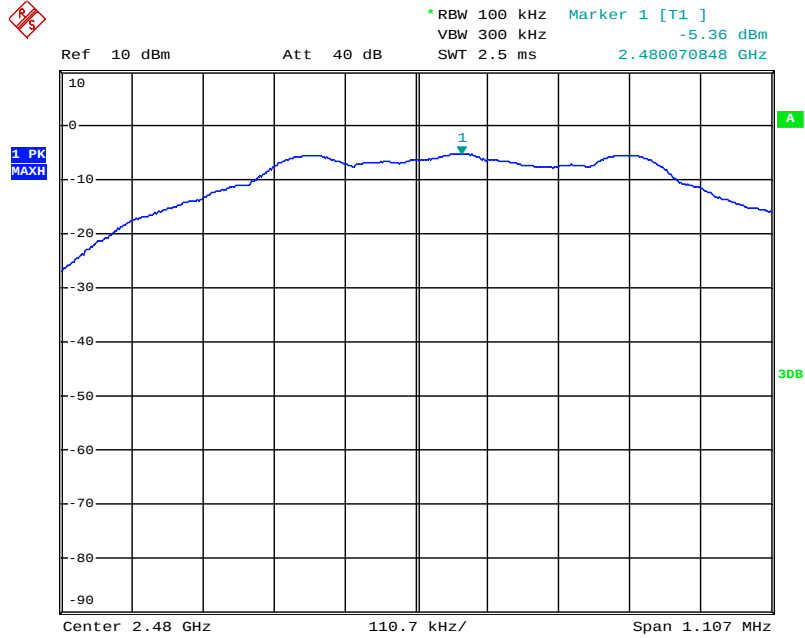
TX frequency: 2440MHz



Date: 12.OCT.2018 12:04:50

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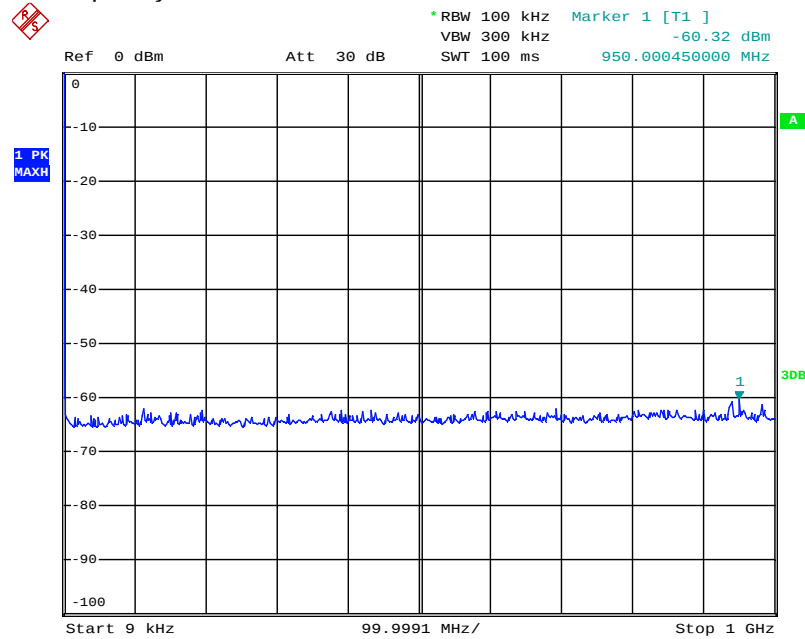
TX frequency: 2480MHz



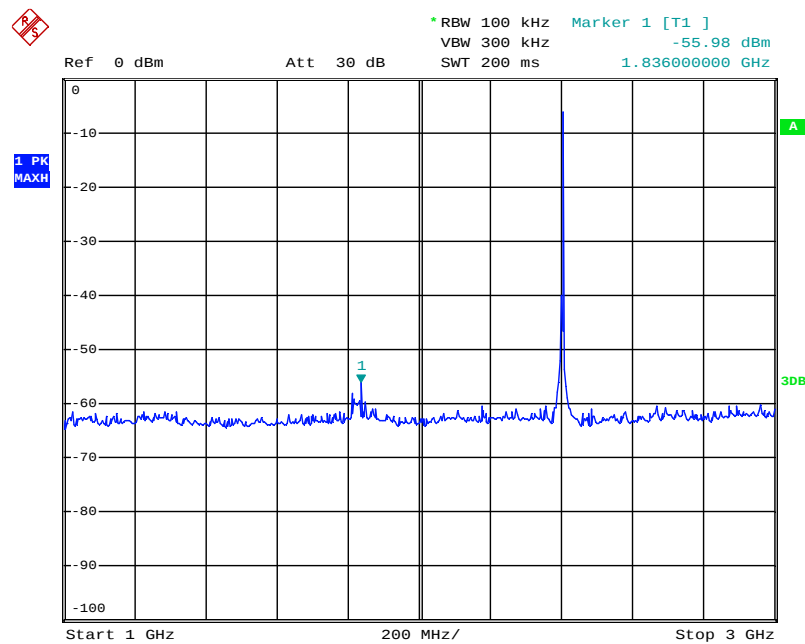
Date: 12.OCT.2018 12:03:56

Spurious Conducted Emissions

TX frequency: 2402MHz

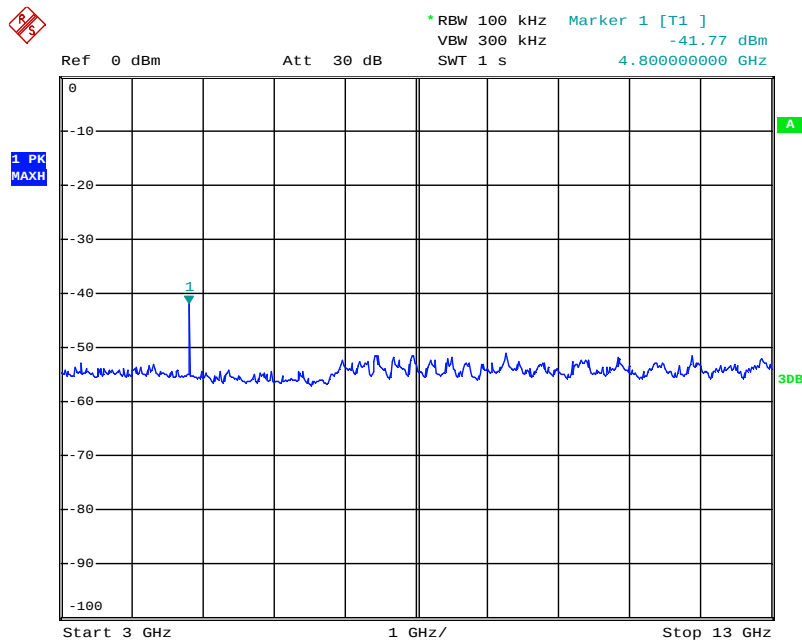


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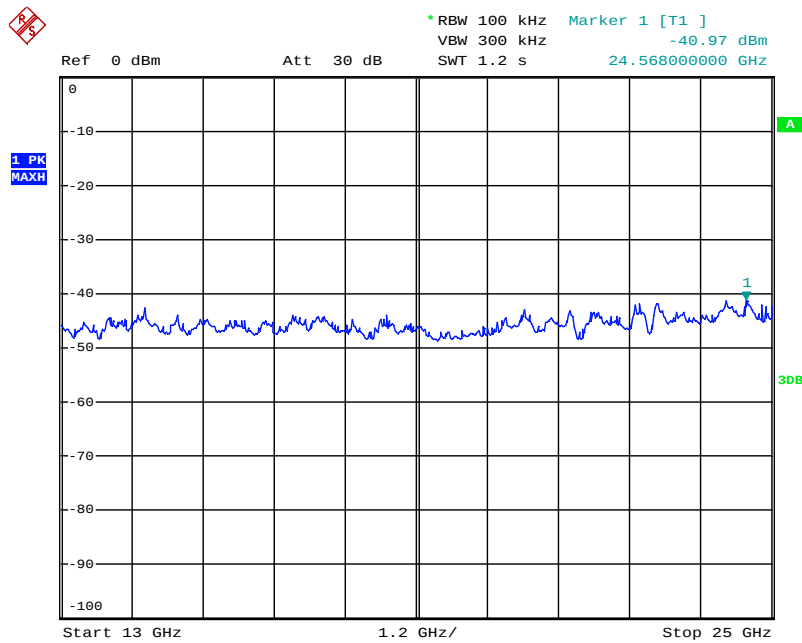


Date: 12.OCT.2018 11:20:46

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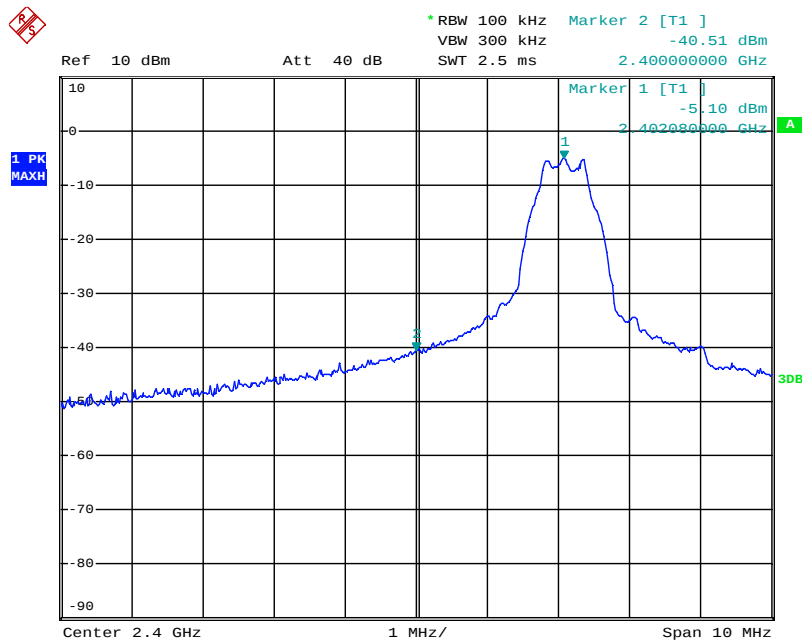


Date: 12.OCT.2018 11:18:12



Date: 12.OCT.2018 11:20:06

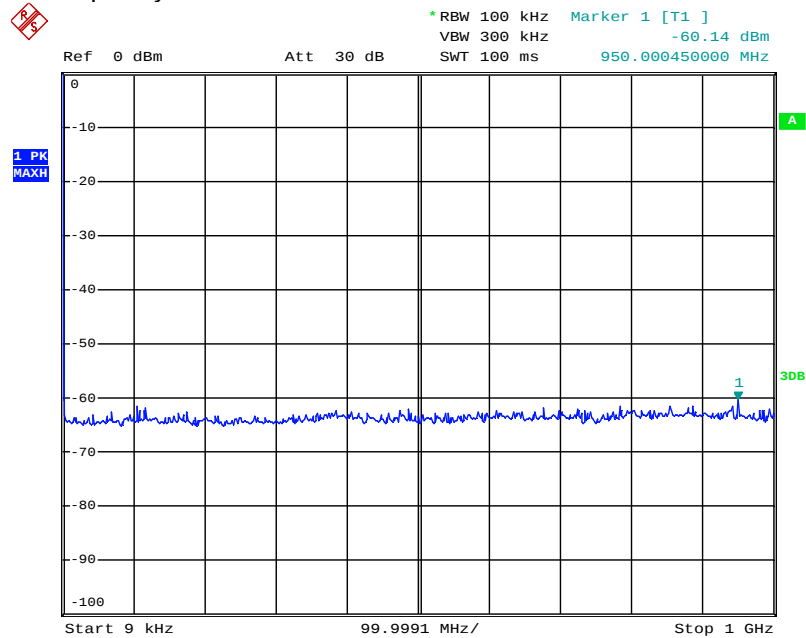
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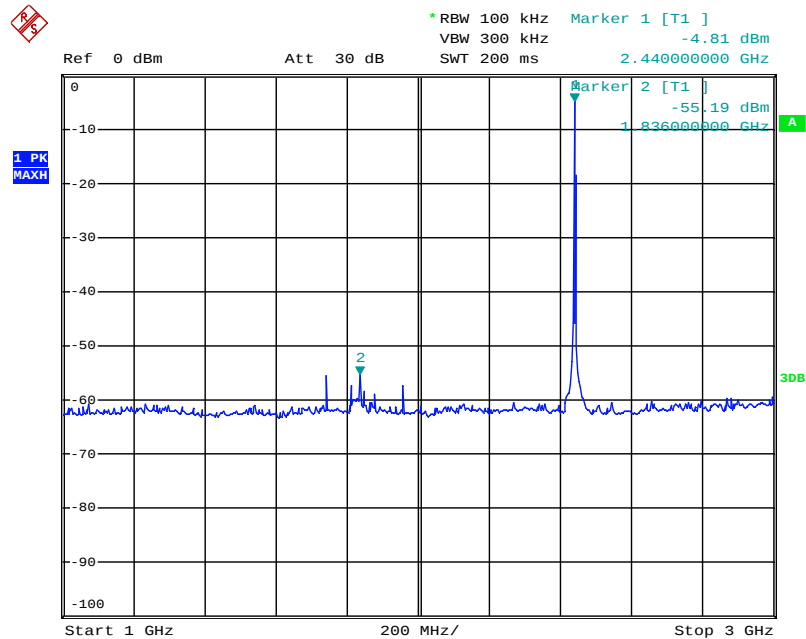
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TX frequency: 2440MHz

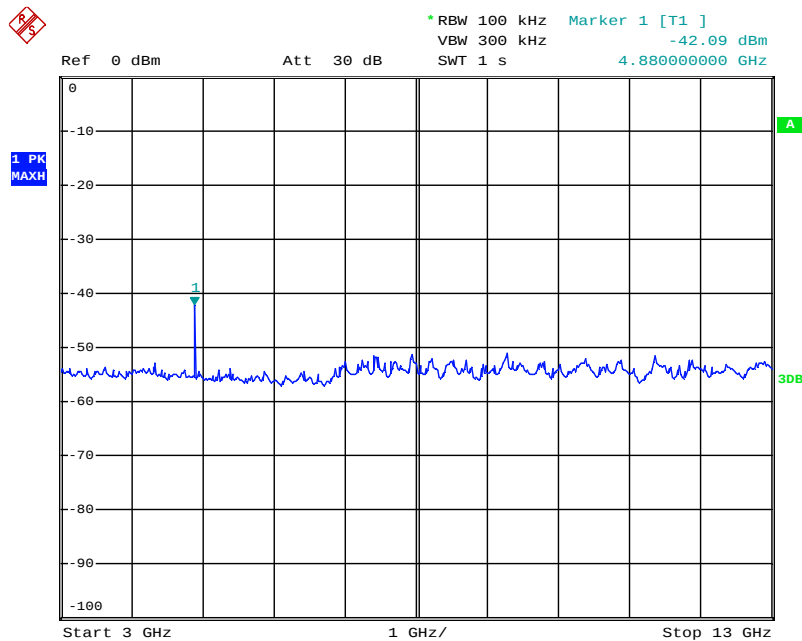


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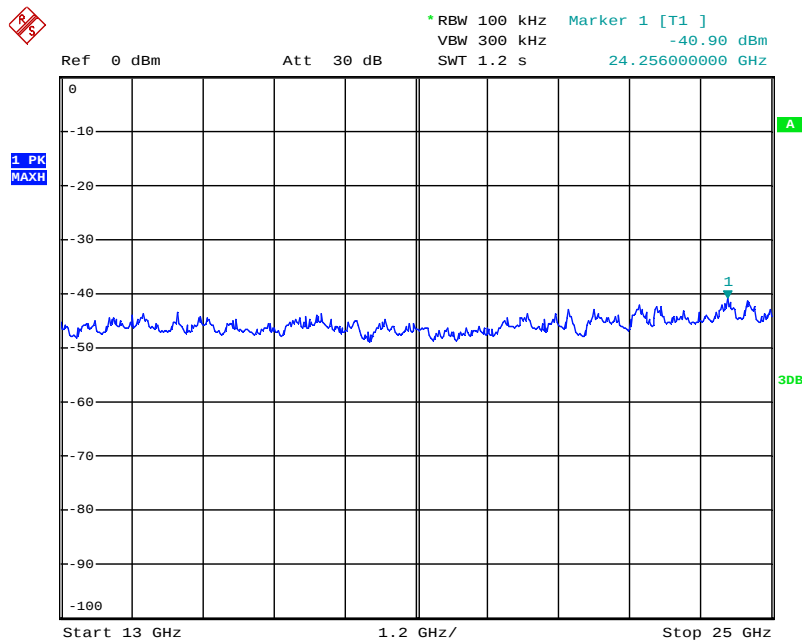


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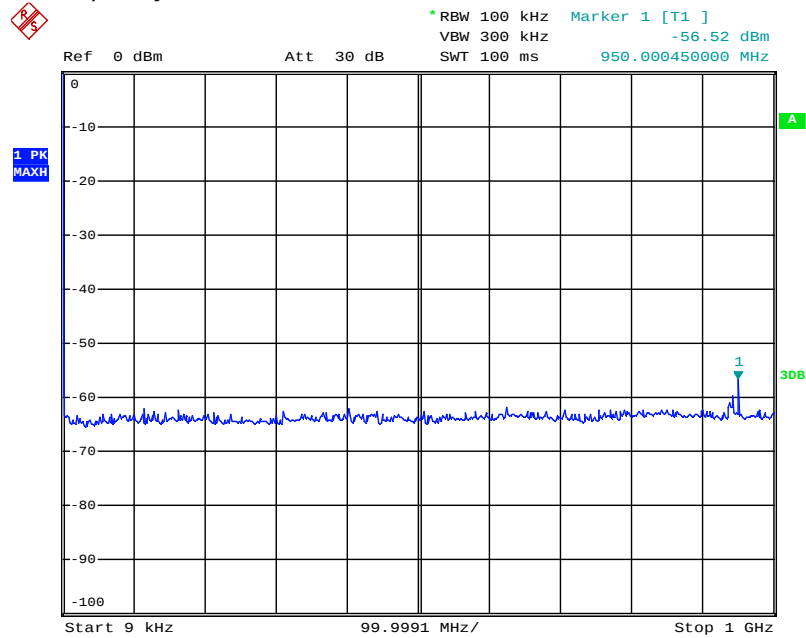
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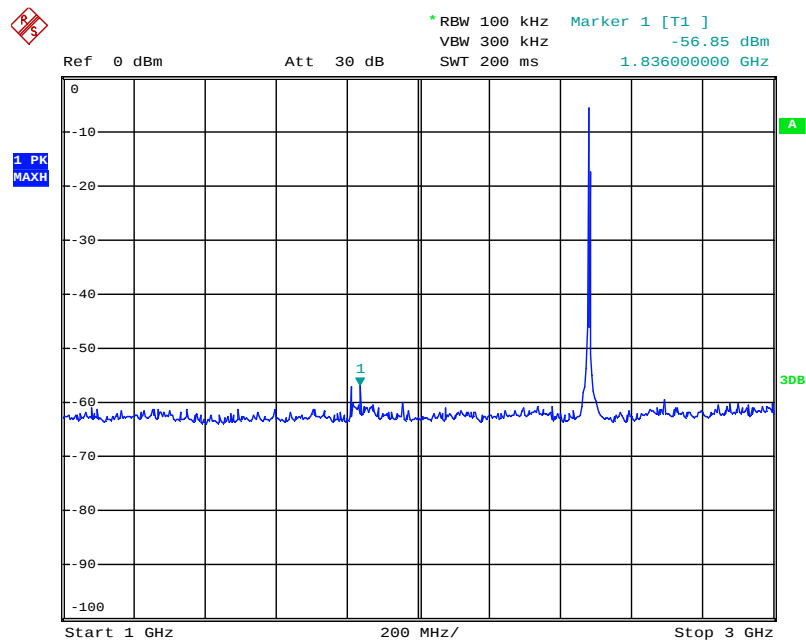
Date: 12.OCT.2018 11:55:15

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TX frequency: 2480MHz

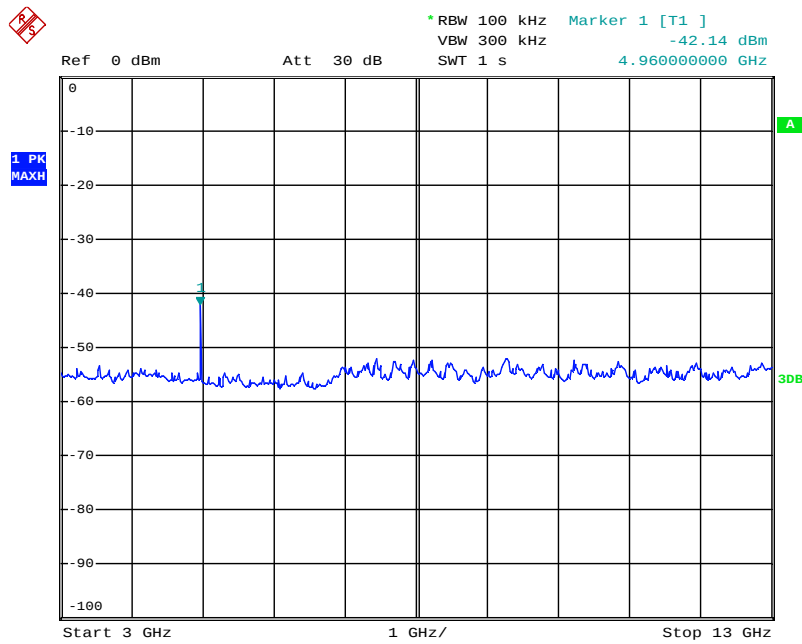


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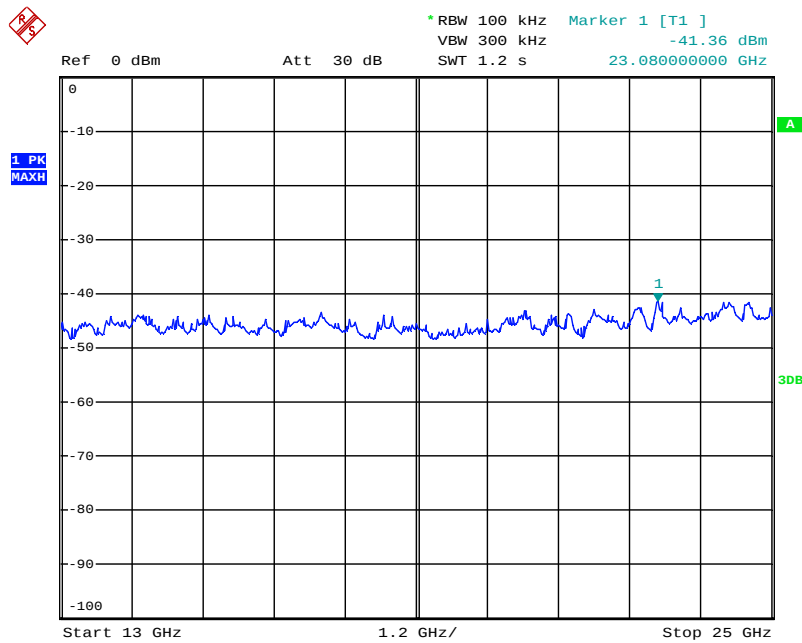


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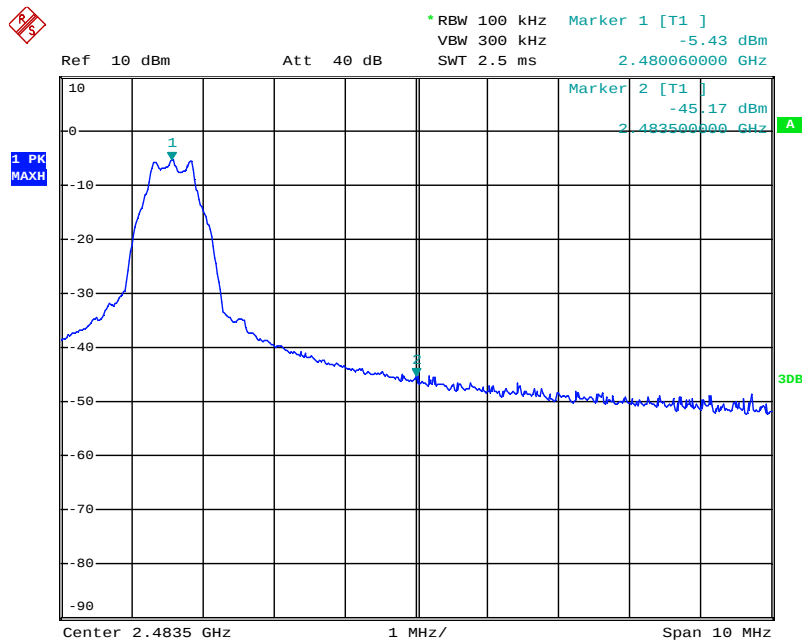


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Date: 12.OCT.2018 12:03:15

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Date: 12.OCT.2018 11:59:39