

Annex 1: Measurement diagrams to  
**TEST REPORT**  
 No.: 18-1-0026601T05b







According to:

**FCC Regulations**  
 Part 20, Section 20.21  
**ISED-Regulations**  
 RSS-131, Issue 3

for  
 Kathrein Automotive GmbH

LTE Kompensator US  
 Compensator US

**FCC-ID:** 2ACC7LTECOMPB1  
**ISED:** 11980A-LTECOMPB1

Laboratory Accreditation and Listings			
 <p>D-PL-12047-01-04            Accredited EMC-Test Laboratory</p>	 <p>MRA US-EU 0003</p>	 <p>Reg. No.: 3462D-2            Reg. No.: 3462D-3</p>	 <p>Voluntary Controls for            Electromagnetic Emissions</p> <p>Reg. No.:            R-2666 C-2914,            T-1967, G-301</p>
 <p><b>AUTHORIZED            RF LABORATORY</b></p>	 <p>Lab Code: 20011130-00</p>		
accredited according to DIN EN ISO/IEC 17025			
<p><b>CETECOM GmbH</b>            Laboratory Radio Communications &amp; Electromagnetic Compatibility            Im Teelbruch 116 • 45219 Essen • Germany            Registered in Essen, Germany, Reg. No.: HRB Essen 8984            Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964            E-mail: info@cetecom.com • Internet: www.cetecom.com</p>			

## TABLE OF CONTENTS:

<b>1. RADIATED MEASUREMENTS .....</b>	<b>3</b>
1.1. Spurious emissions radiated for GSM like signals, Set-up 1 .....	3
1.2. Spurious emissions radiated for GSM like signals, Set-up 2 .....	10
1.3. Spurious emissions radiated for AWGN like signals.....	13

## 1. Radiated measurements

### 1.1. Spurious emissions radiated for GSM like signals, Set-up 1

#### Diagram No.: 8.01\_TX\_Mode\_Band 12

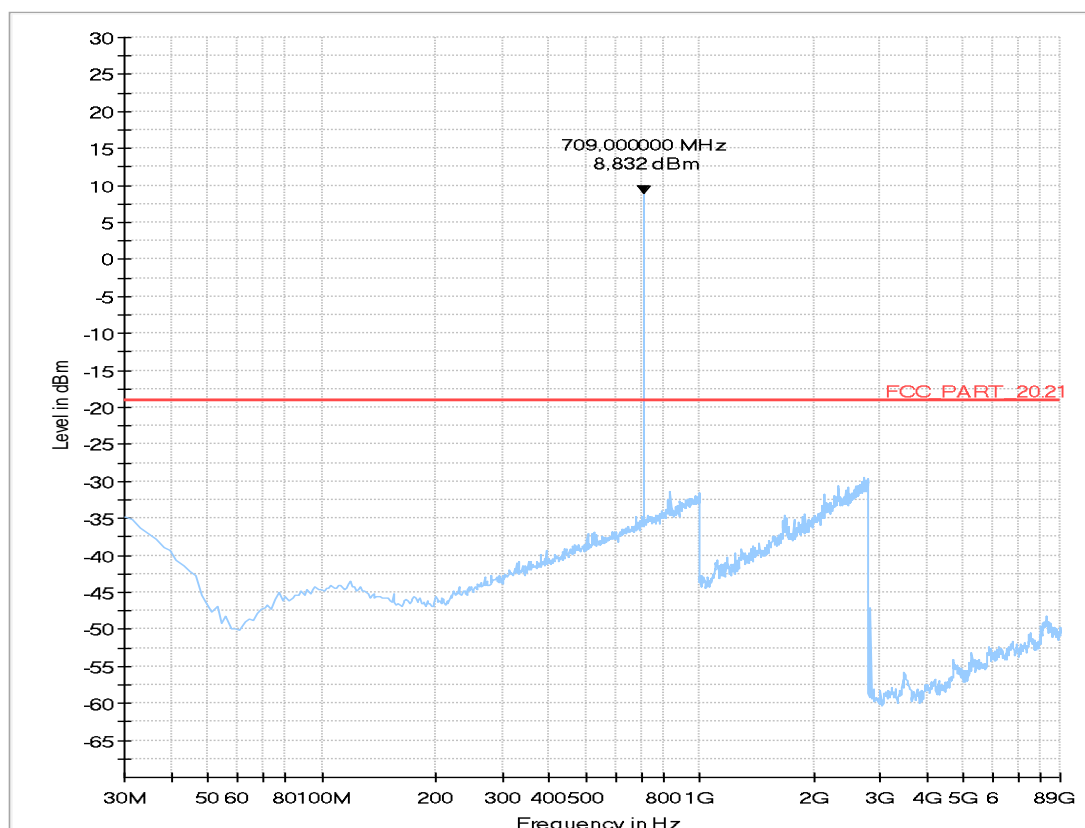
##### Common Information

Test Description:	Radiated emission
Test Site:	FAR
Test Standard:	FCC Part 20.21/RSS-131
Antenna polarisation:	vertical / horizontal
Op.Mode:	TX Uplink/Downlink Band 12
Comment:	Downlink: 733.3MHz/ Uplink:708.3MHz/ i=0,158A

##### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna

Full Spectrum



## Diagram No.: 8.02\_TX\_Mode\_Band13\_Booster

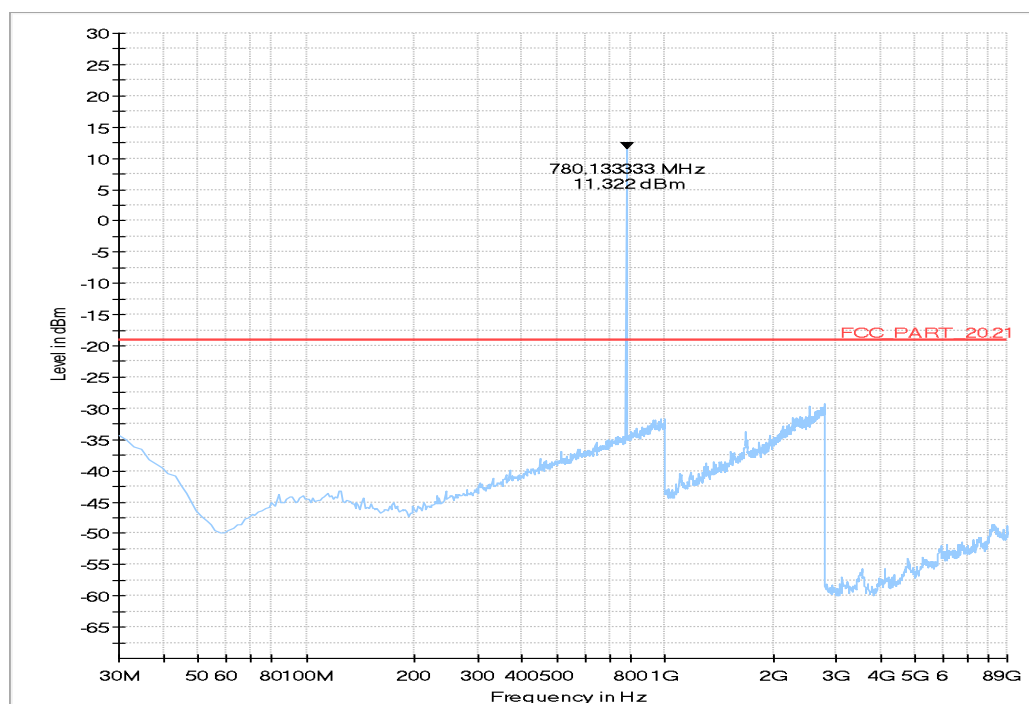
### Common Information

Test Description:	Radiated emissions
Test Site:	FAR
Test Standard:	FCC Part 20.21/RSS-131
Antenna polarisation:	vertical / horizontal
Op.Mode	TX Uplink/Downlink Band 13
Comment:	Downlink: 748.8MHz/ Uplink:780.3MHz, I =0,151A

### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Conected Devices:	Craddle, Antenna

Full Spectrum



## Diagram No.: 8.03\_TX\_Mode\_Band5\_Booster

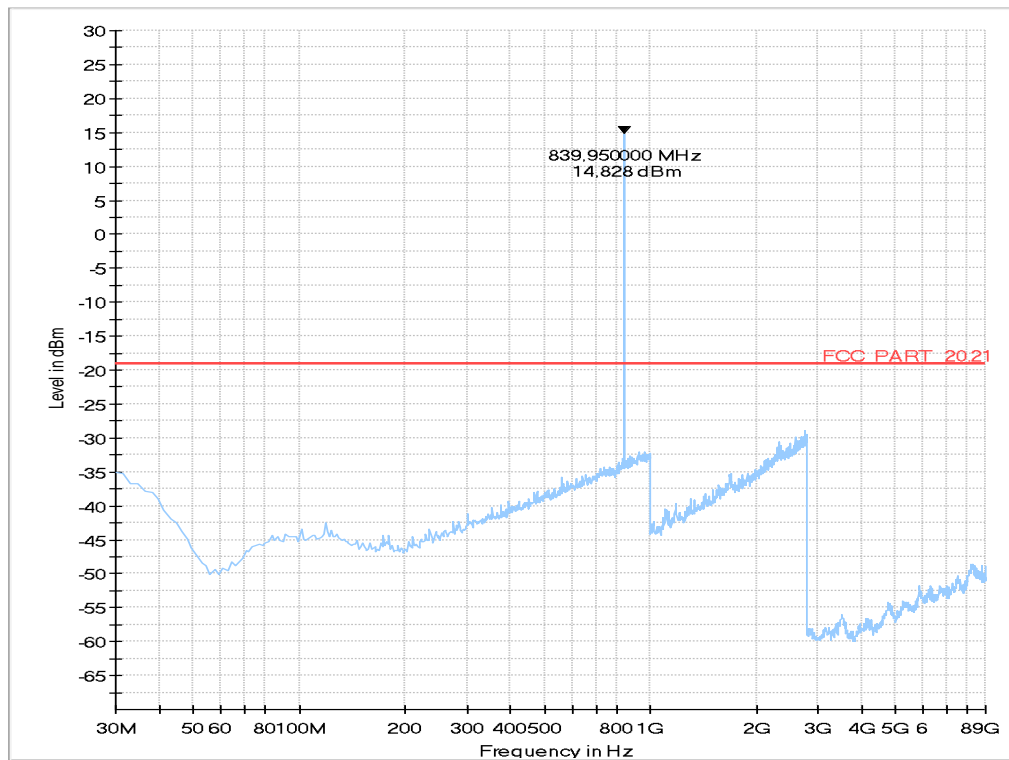
### Common Information

Test Description:	Radiated emissions
Test Site:	FAR
Test Standard:	FCC Part 20.21/RSS-131
Antenna polarisation:	vertical / horizontal
Op.Mode	TX Uplink/Downlink Band 5
Comment:	Downlink: 877.8MHz/ Uplink:839,1MHz/ i=0,156A

### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Conected Devices:	Craddle, Antenna

Full Spectrum



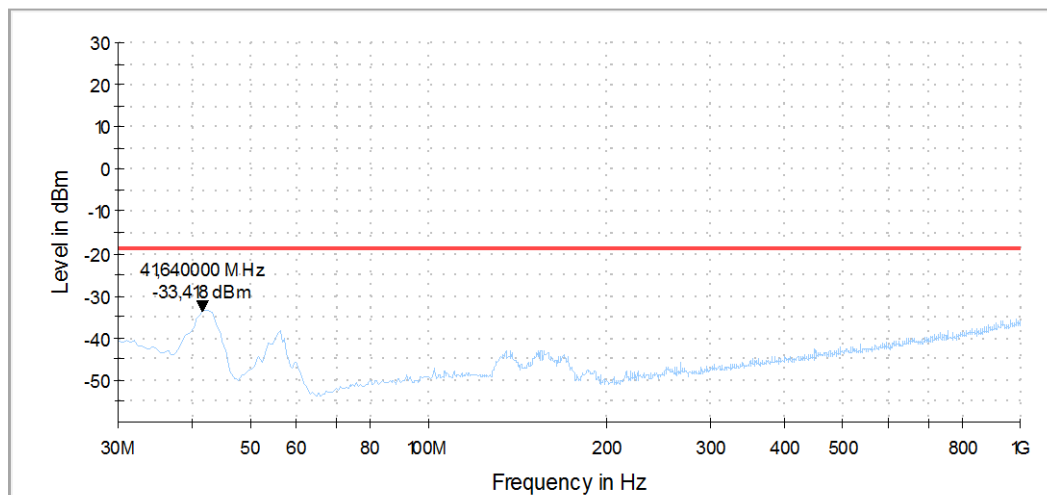
## Diagram No.: 8.04\_TX\_mode\_Band4\_Booster

### Common Information

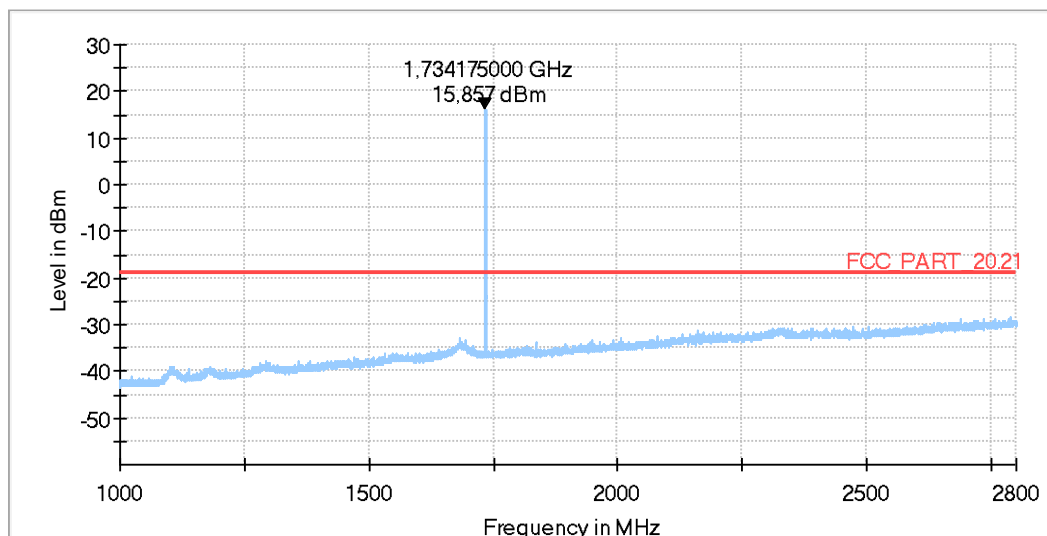
Test Description:	Radiated emission
Test Site:	Fully-Anechoic Room
Test Standard:	FCC Part 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 4
Operator Name:	MSo
Comment:	Downlink:2113,4 MHz/ Uplink: 1734,3 MHz/ I=0,158A

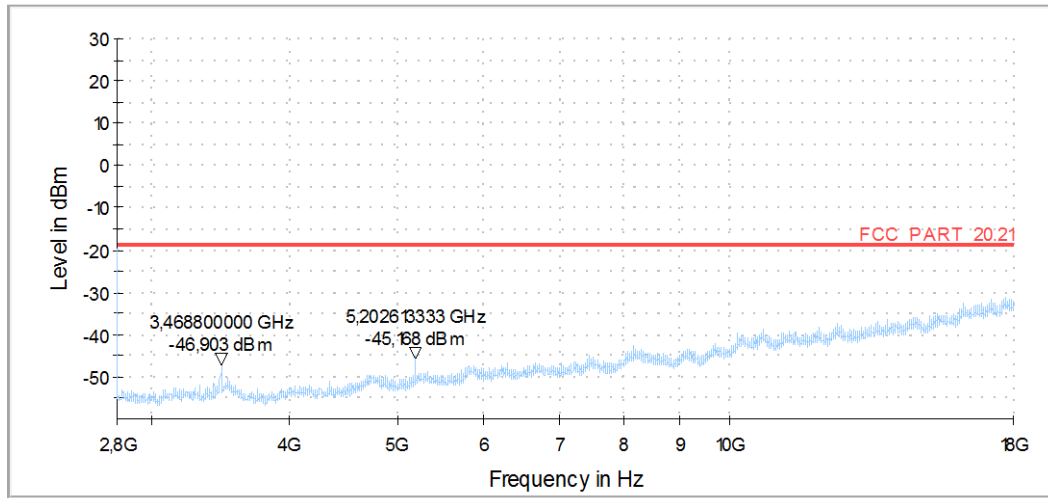
### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna



Full Spectrum





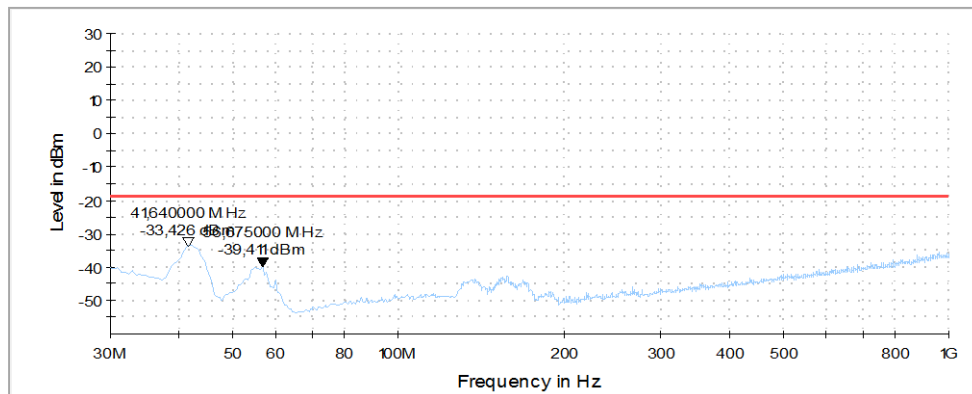
## Diagram No.: 8.05\_TX\_mode\_Band2\_Booster

### Common Information

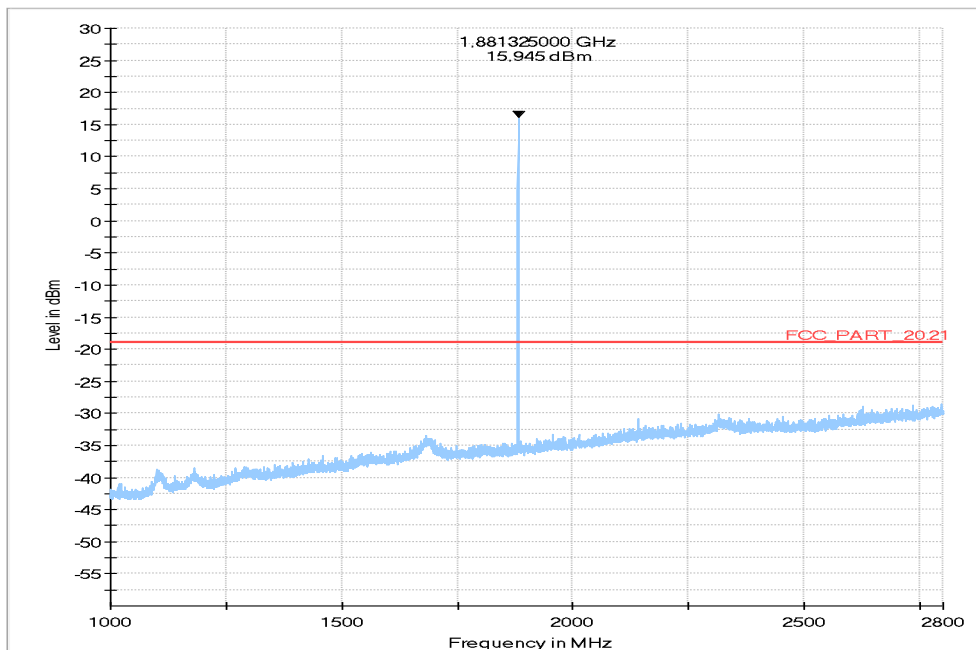
Test Description:	Radiated emission
Test Site:	Fully-Anechoic Room
Test Standard:	FCC Part 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 2
Operator Name:	MSo
Comment:	Downlink:1978,3 MHz/ Uplink: 1881,3 MHz/ I=0,158A

### EUT Information

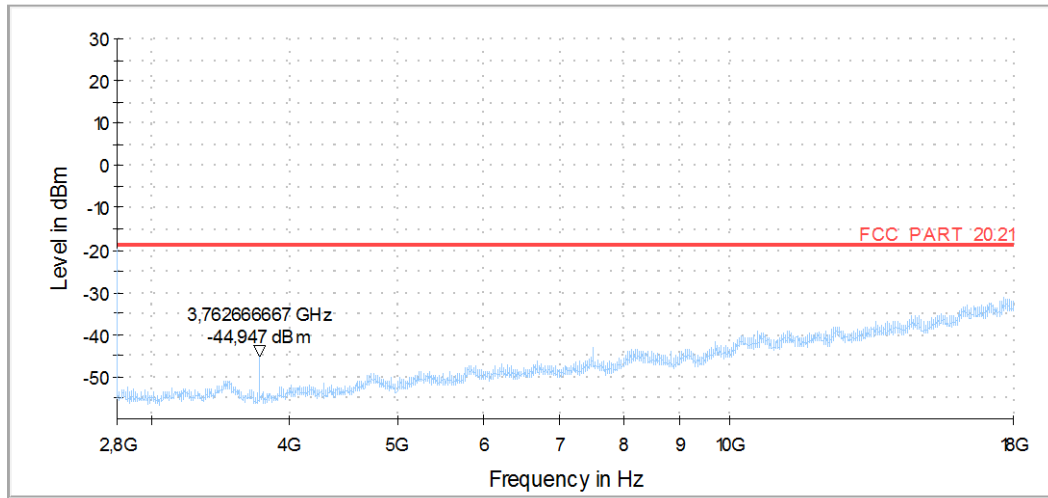
Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna



Full Spectrum







## 1.2. Spurious emissions radiated for GSM like signals, Set-up 2

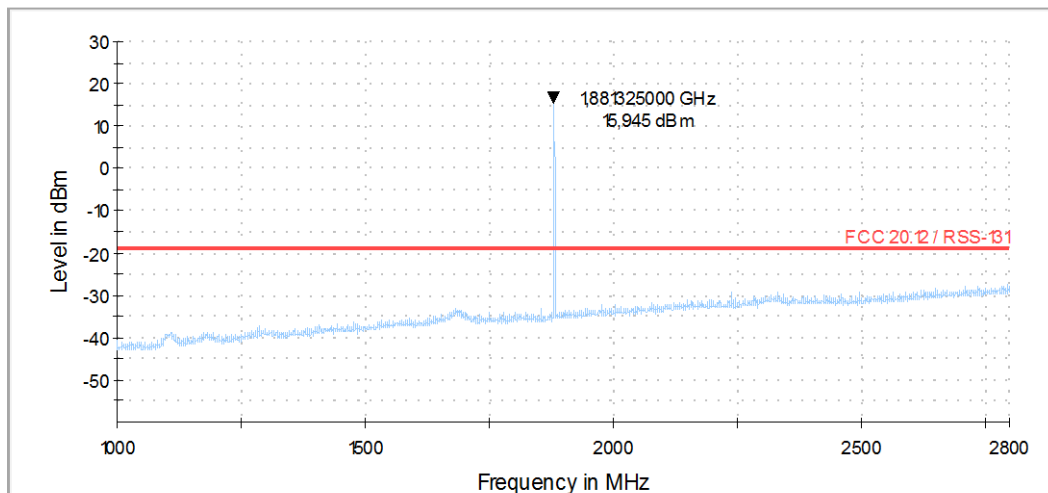
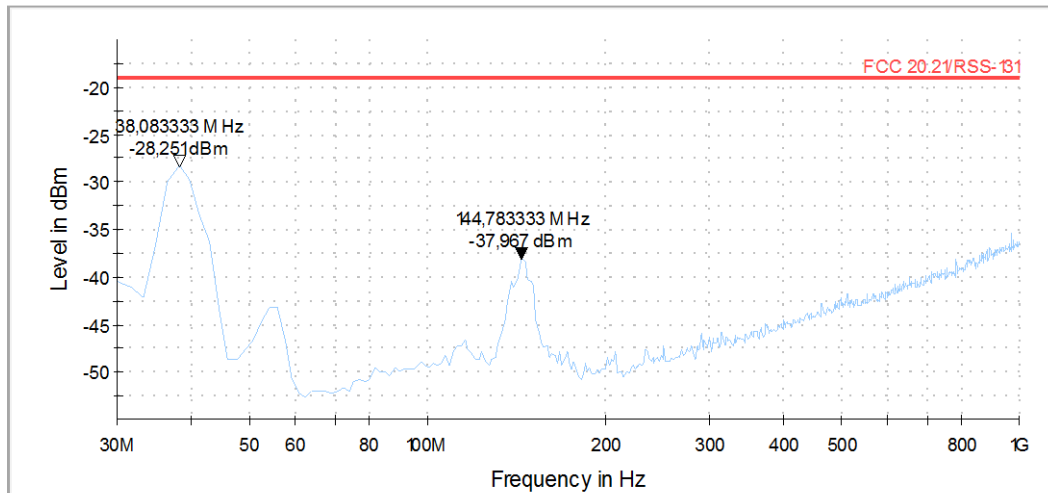
### Diagram No.:8.15\_TX\_GSM\_mode\_Band2\_Booster

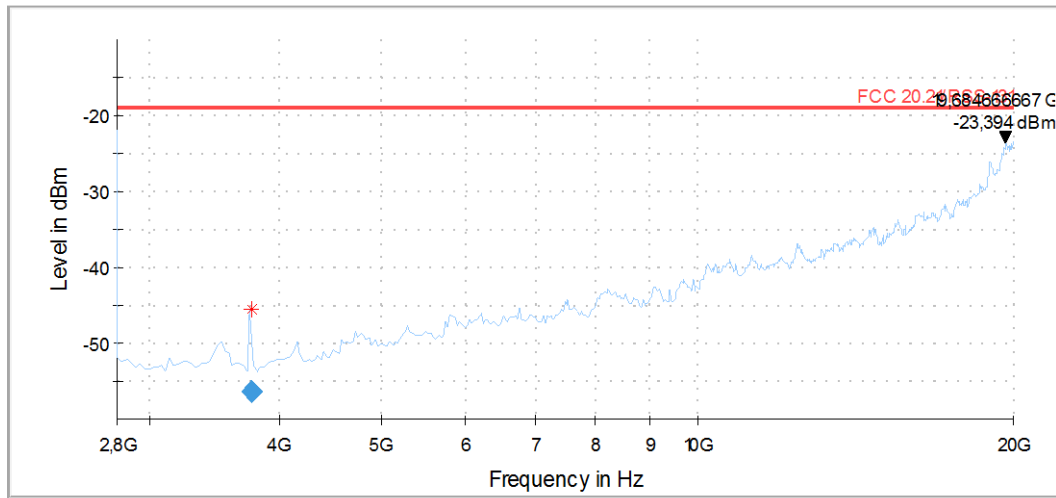
#### Common Information

Test Description:	Radiated emissions
Test Site:	FAR
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX GSM Band 2
Operator Name:	MSo
Comment:	Downlink: 1978,3MHz/Uplink:1881,3MHz / I= 163mA

#### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V07
SW:	9408752_F01_RC14
Serial Nr.:	18B234GK0010 / Sample 32
Connected Devices:	Craddle, Antenne





**Final\_Result**

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3754.833333	-56.39	-13.00	43.39	100.0	1000.000	155.0	V	186.0	90.0	-95.1

(continuation of the "Final\_Result" table from column 17 ...)

Frequency (MHz)	Comment
3754.833333	10:32:07 - 15.11.2018

## Diagram No.:8.16\_TX\_GSM\_mode\_Band5\_Booster

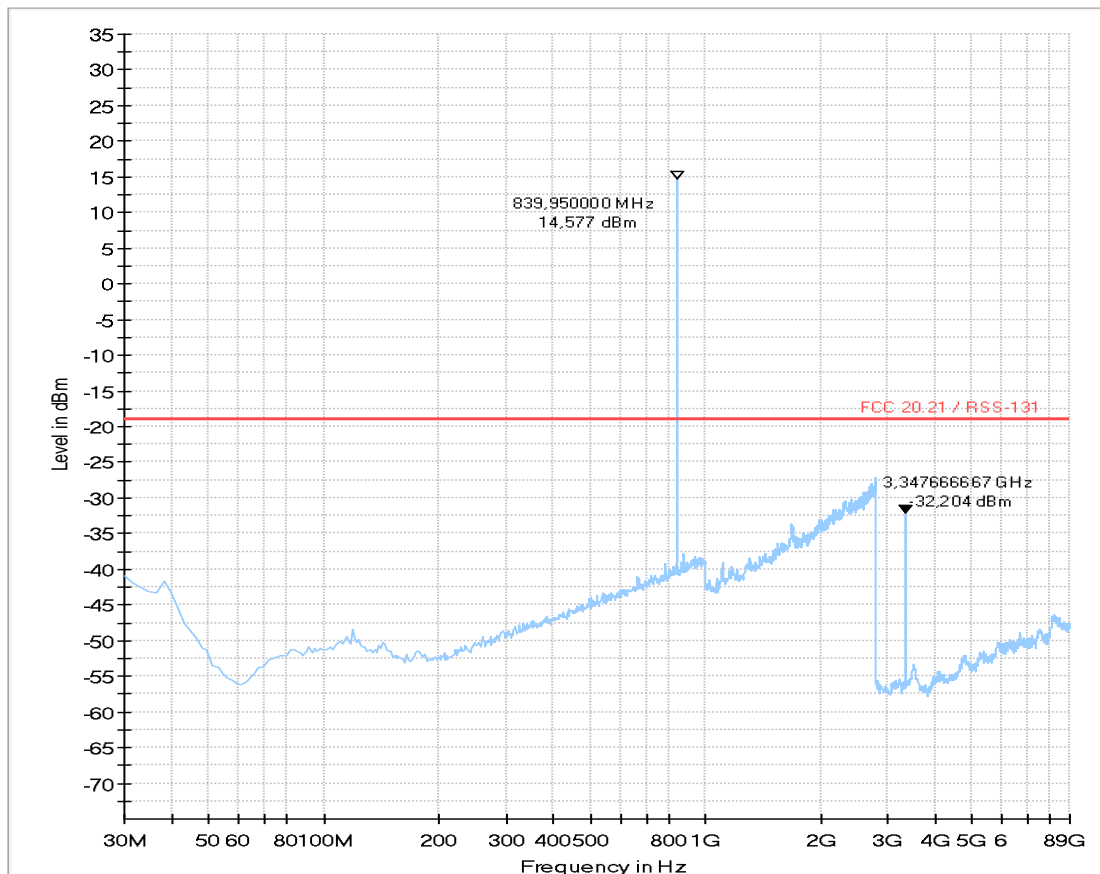
### Common Information

Test Description:	Radiated emission
Test Site:	FAR
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX GSM Band 5
Operator Name:	MSo
Comment:	Downlink: 877,8MHz/uplink: 839,1MHz / I= 161mA

### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V07
SW:	9408752_F01_RC14
Serial Nr.:	18B234GK0010 / Sample 32
Connected Devices:	Craddle, Antenne

Full Spectrum



### 1.3. Spurious emissions radiated for AWGN like signals

## Diagram No.:8.06\_TX\_AWGN\_Band2\_Booster

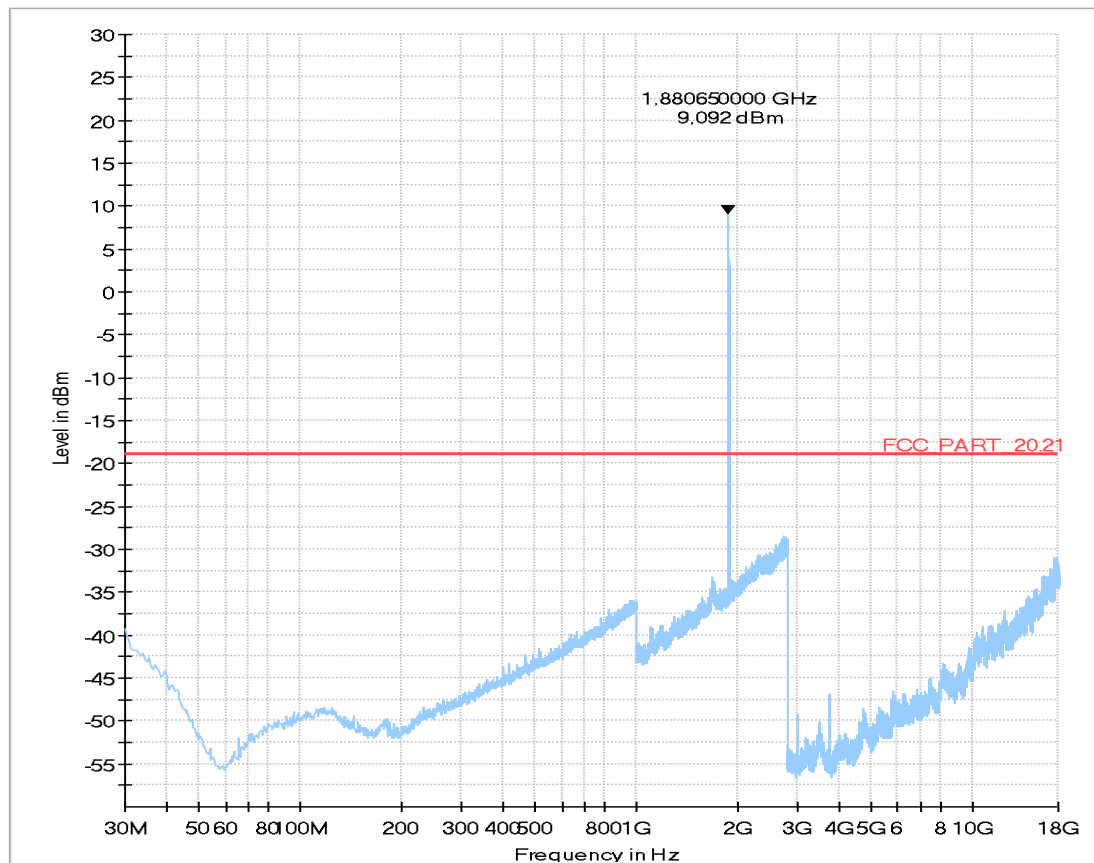
#### Common Information

Test Description:	Radiated emission
Test Site:	Fully-Anechoic Room
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 2
Operator Name:	MSo
Comment:	Downlink:1978,3MHz / Uplink: 1881,3MHz / I= 0,161A

#### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Conected Devices:	Craddle, Antenna

Full Spectrum



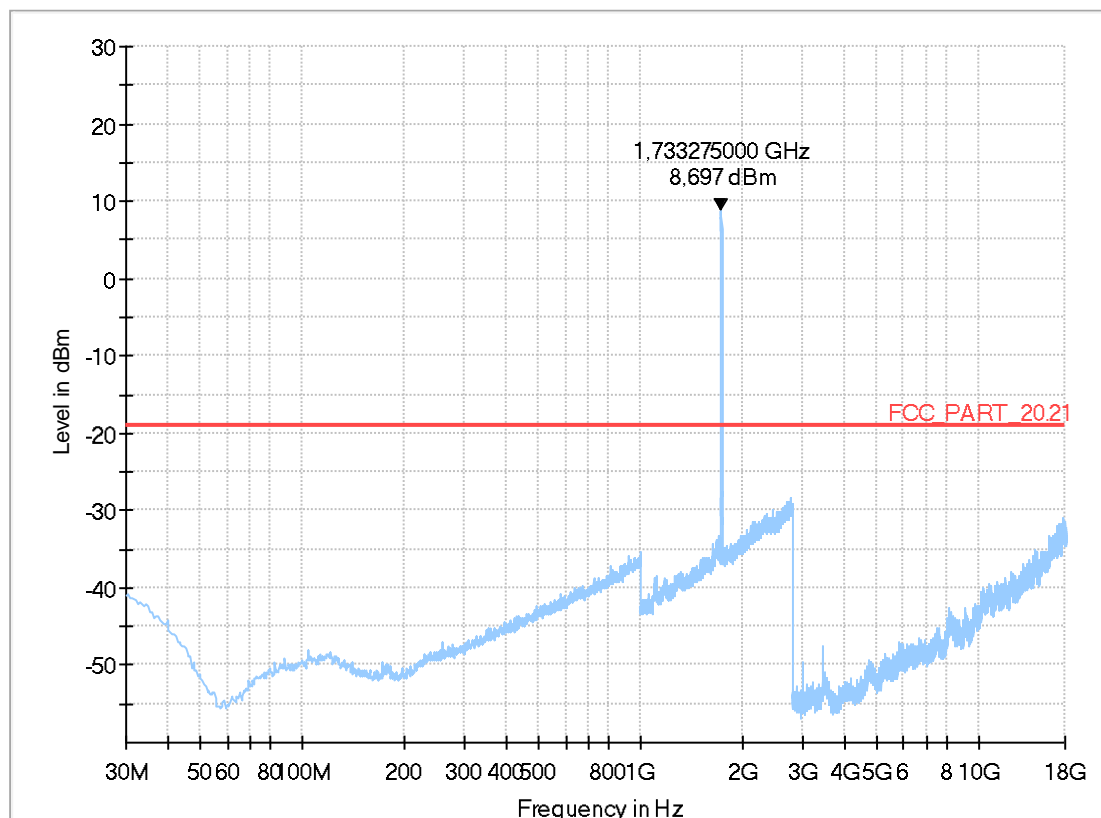
**Diagram No.:8.07\_TX\_AWGN\_Band4\_Booster****Common Information**

Test Description:	Radiated emission
Test Site:	Fully-Anechoic Room
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 4
Operator Name:	HEI
Comment:	Downlink: 2113,4MHz / Uplink: 1734,3MHz / I= 0,176A

**EUT Information**

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna

Full Spectrum



## 8.08\_TX\_AWGN\_Band5\_Booster

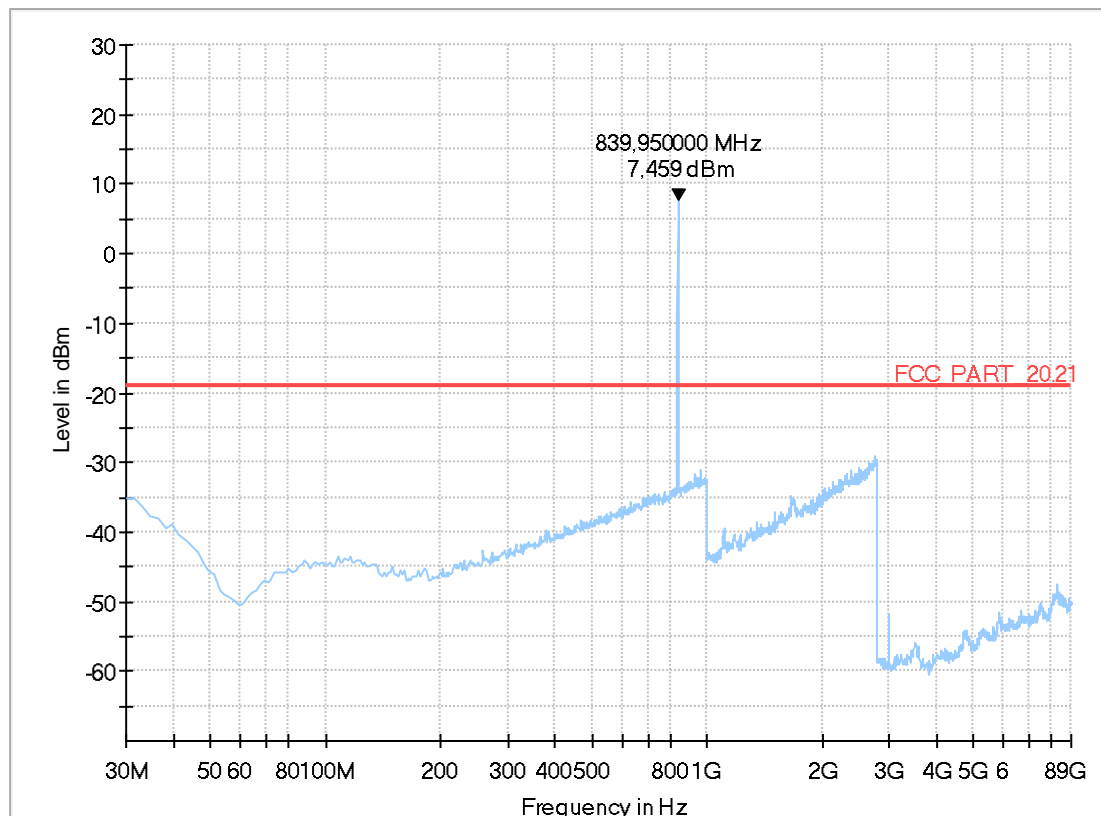
### Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 5
Operator Name:	HEI
Comment:	Downlink 877,8 MHz / Uplink: 839,1 MHz / I=0,167A

### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna

Full Spectrum



## 8.09\_TX\_AWGN\_Band12\_Booster

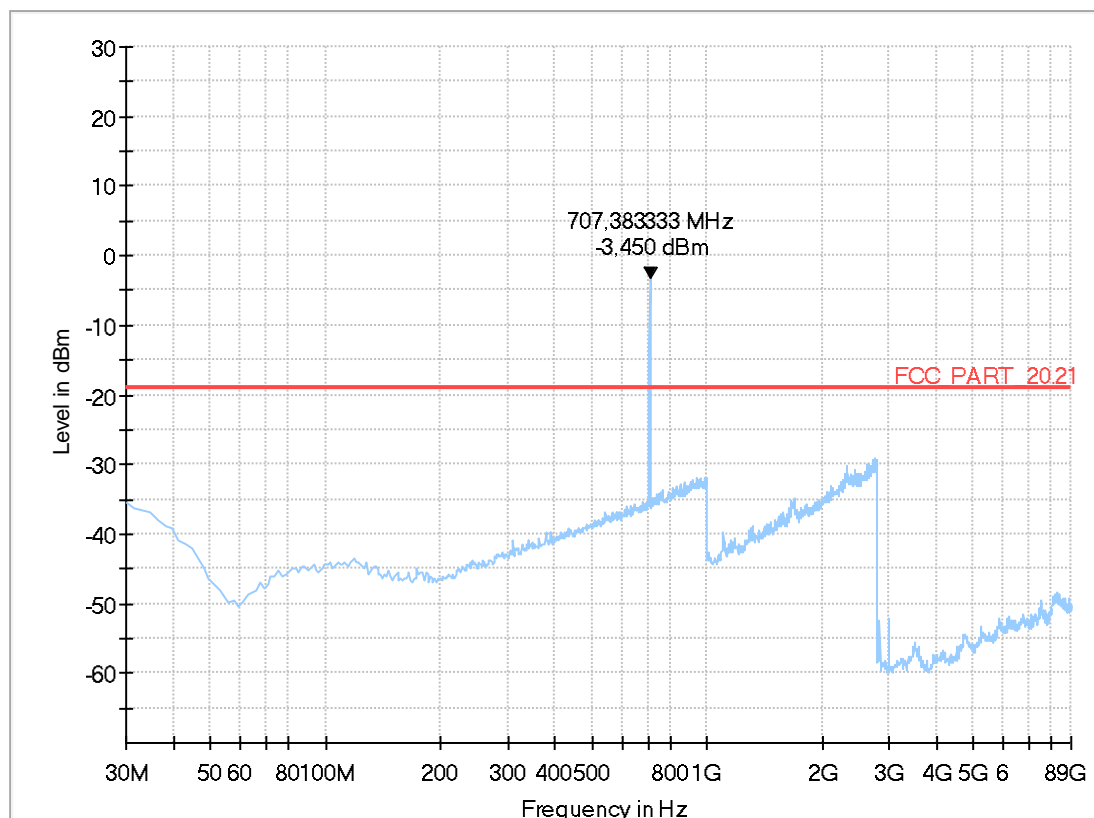
### Common Information

Test Description:	Radiated emission related to 3m
Test Site:	FAR
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 12
Operator Name:	HEI
Comment:	Downlink 733,3MHz/ Uplink: 708,3 MHz / I=0,167A

### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna

Full Spectrum





## 8.10\_TX\_AWGN\_Band13\_Booster

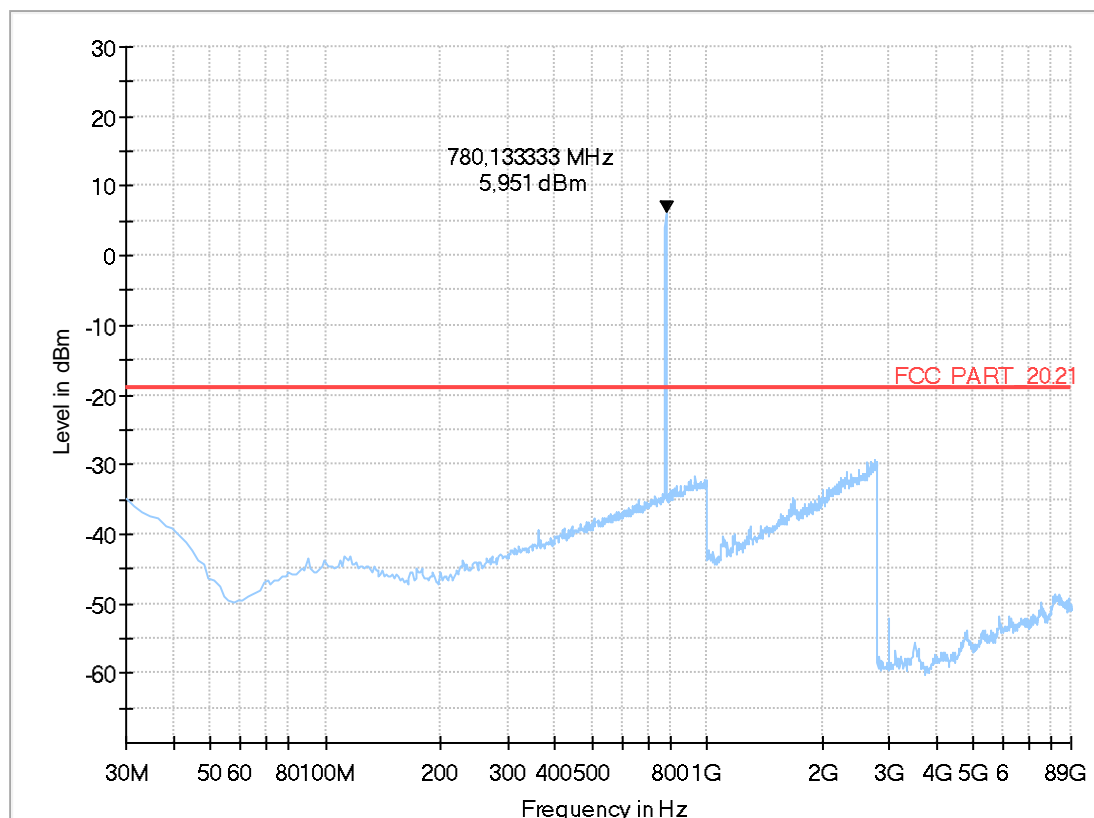
### Common Information

Test Description:	Radiated emission related to 3m
Test Site:	FAR
Test Standard:	FCC 20.21 / RSS-131
Antenna polarisation:	vertical / horizontal
Operation mode:	TX Uplink/Downlink Band 13
Operator Name:	HEI
Comment:	Downlink 748,8MHz / Uplink: 780,3MHz / I=0,172A

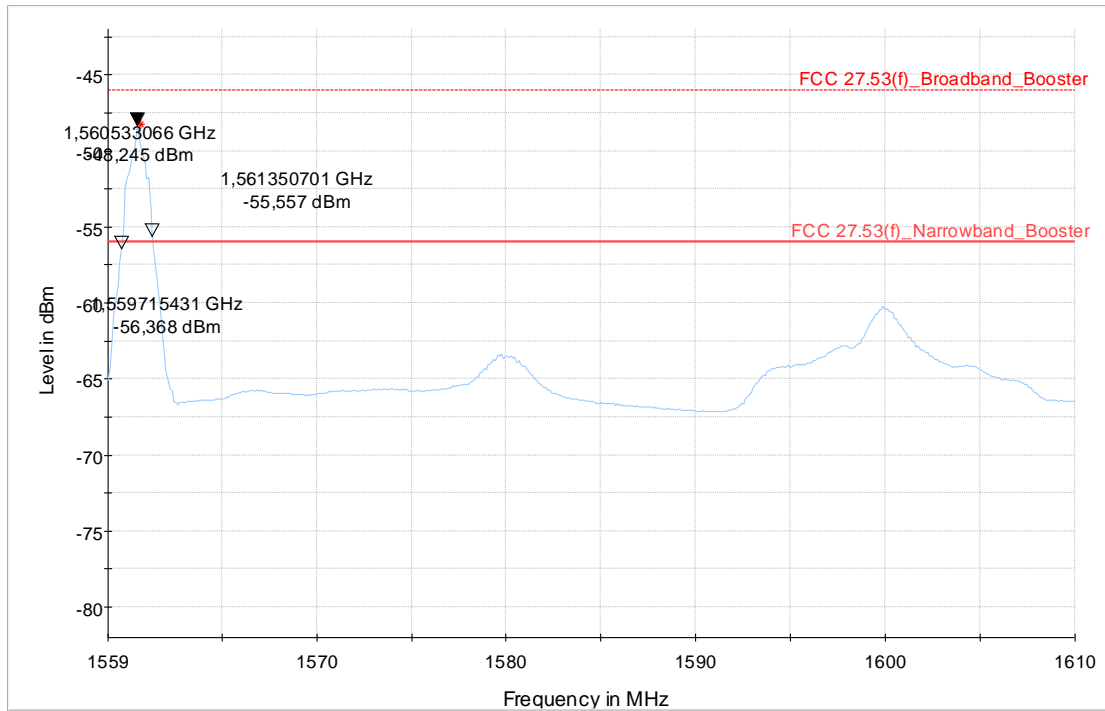
### EUT Information

Manufacturer:	Kathrein Automotive GmbH
EUT Model:	LTE Kompensator US, Model No. 50110340
HW:	13611825_B03V06
SW:	9408752_F01_RC03
Serial Nr.:	190 (17-8-18)
Connected Devices:	Craddle, Antenna

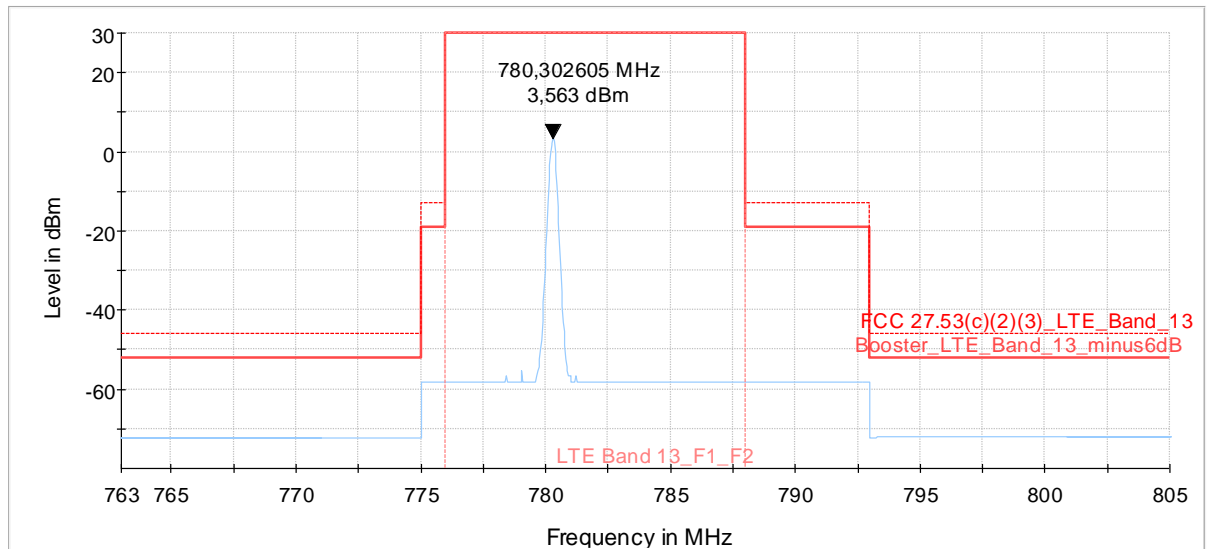
Full Spectrum



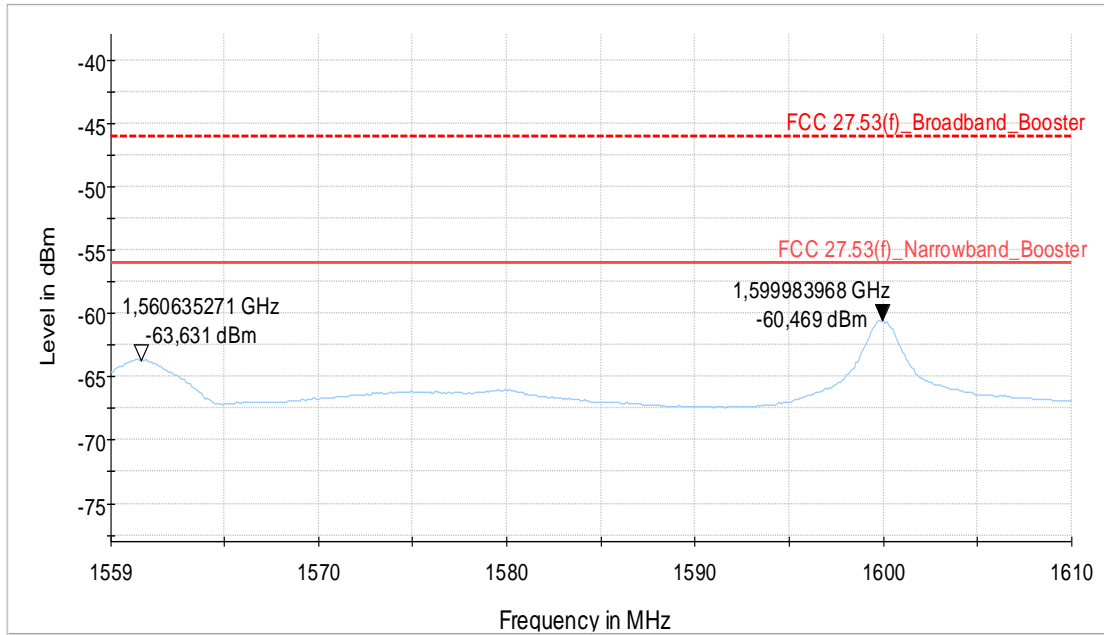
### 8.12\_TX\_GSM\_Band13\_Booster



### 8.11\_TX\_GSM\_Band13\_Booster



### 8.14\_TX\_AWGN\_Band13\_Booster



### 8.13\_TX\_AWGN\_Band13\_Booster

