Ambient temperature: 23°C Relative humidity: 40%

LIST OF MEASUREMENTS

The complete list of measurements called for in 47 CFR Part 90 and ASTM E2213-03 is given below.
In Receiver mode the general Limit of 47 CFR 15.209 was checked.

SUBCLAUSE	PARAMETER TO BE MEASURED	PAGE
	Essential transmitter test suites	
8.10.4	Transmitter frequency stability	3-4
90.377 (8.10.1)	RF output power	5-6
8.10.2.2	Transmitter unwanted emissions outside the 5 GHz ITS frequency band	7-52
8.10.6	Transmitter spectrum mask within the 5 GHz ITS frequency band for 10 MHz channels	53-81
	Essential receiver test suites	
15.209	Receiver spurious emissions	82-96
8.11.2	Adjacent channel selectivity	97-100
8.11.3	Nonadjacent channel selectivity	101-104
8.11.1	Receiver sensitivity	105-106

All parameters were measured for the two radios inside the equipment.

General Radio Data:

Device Class C (max. 20 dBm conducted power)

Type 2 Receiver

According to the definitions of ASTM E2213-03

Ambient temperature: 23°C Relative humidity: 40%

Transmitter frequency stability **SUBCLAUSE 8.10.4**

Rated output power 27 dBm eirp (conducted measurement, 7dBi maximum antenna gain taken into account)

Measured Radio: 1

Test conditions		Transmitter frequency stability (kHz)						
		5860 MHz	5870 MHz	5880 MHz	5890 MHz	5900 MHz	5910 MHz	5920 MHz
T_{nom} (23)°C	V_{nom} (24)V	+1,6	+1,6	+1,6	+1,6	+1,6	+1,6	+1,6
T_{min} (-40)°C	V_{min} (21,6)V	+0,6	+0,6	+0,4	+0,4	+0,4	+0,4	+0,4
	V_{nom} (52,8)V	+0,4	+0,4	+0,4	+0,4	+0,4	+0,4	+0,4
T_{max} (74)°C	V_{min} (21,6)V	+20,4	+20,6	+21,0	+22,6	+24,6	+23,6	+24,6
	V_{nom} (52,8)V	+20,4	+20,6	+21,0	+22,6	+24,6	+23,6	+24,6
Measurement uncertainty		± 1 kHz						

Test conditions		Transmitter frequency stability (ppm)						
		5860 MHz	5870 MHz	5880 MHz	5890 MHz	5900 MHz	5910 MHz	5920 MHz
T_{nom} (23)°C	V_{nom} (24)V	0,273	0,273	0,272	0,272	0,271	0,271	0,270
T_{min} (-40)°C	V_{min} (21,6)V	0,102	0,102	0,068	0,068	0,068	0,068	0,068
	V_{nom} (52,8)V	0,068	0,068	0,068	0,068	0,068	0,068	0,068
T_{max} (74)°C	V_{min} (21,6)V	3,481	3,509	3,571	3,837	4,169	3,993	4,155
	V_{nom} (52,8)V	3,481	3,509	3,571	3,837	4,169	3,993	4,155
Maximum deviation from nominal frequency (ppm)		3,481	3,509	3,571	3,837	4,169	3,993	4,155

LIMIT **SUBCLAUSE 8.10.4**

The transmitted center frequency tolerance shall be ±10 ppm maximum for RSUs and ±10 ppm maximum for OBUs. The transmit center frequency and the symbol clock frequency shall be derived from the same reference oscillator.

Measuring equipment used: EMV-205; NT-216; EMV-213; M-1200

Ambient temperature: 23°C Relative humidity: 40%

Transmitter frequency stability **SUBCLAUSE 8.10.4**

Rated output power 27 dBm eirp (conducted measurement, 7dBi maximum antenna gain taken into account)

Measured Radio: 2

Test conditions		Transmitter frequency stability (kHz)						
		5860 MHz	5870 MHz	5880 MHz	5890 MHz	5900 MHz	5910 MHz	5920 MHz
T_{nom} (23)°C	V_{nom} (24)V	+1,6	+1,8	+1,8	+1,6	+1,8	+1,8	+1,8
T_{min} (-40)°C	V_{min} (21,6)V	+0,2	+0,2	+0,2	0,0	0,0	0,0	0,0
	V_{nom} (52,8)V	+0,2	+0,2	+0,2	0,0	0,0	0,0	0,0
T_{max} (74)°C	V_{min} (21,6)V	+20,4	+20,4	+20,4	+20,4	+20,4	+20,6	+20,6
	V_{nom} (52,8)V	+20,4	+20,4	+20,4	+20,4	+20,4	+20,6	+20,6
Measurement uncertainty		± 1 kHz						

Test conditions		Transmitter frequency stability (ppm)						
		5860 MHz	5870 MHz	5880 MHz	5890 MHz	5900 MHz	5910 MHz	5920 MHz
T_{nom} (23)°C	V_{nom} (24)V	0,273	0,307	0,306	0,272	0,305	0,305	0,304
T_{min} (-40)°C	V_{min} (21,6)V	0,034	0,034	0,034	0,000	0,000	0,000	0,000
	V_{nom} (52,8)V	0,034	0,034	0,034	0,000	0,000	0,000	0,000
T_{max} (74)°C	V_{min} (21,6)V	3,481	3,475	3,469	3,463	3,458	3,486	3,480
	V_{nom} (52,8)V	3,481	3,475	3,469	3,463	3,458	3,486	3,480
Maximum deviation from nominal frequency (ppm)		3,481	3,475	3,469	3,463	3,458	3,486	3,480

LIMIT **SUBCLAUSE 8.10.4**

The transmitted center frequency tolerance shall be ±10 ppm maximum for RSUs and ±10 ppm maximum for OBUs. The transmit center frequency and the symbol clock frequency shall be derived from the same reference oscillator.

Measuring equipment used: EMV-205; NT-216; EMV-213; M-1200

Ambient temperature: 23°C Relative humidity: 40%

RF output power **SUBCLAUSE 90.377**

Rated output power 27 dBm eirp (conducted measurement, 7dBi maximum antenna gain taken into account)

Measured Radio: 1

Test conditions		RF output power (dBm) eirp						
		5860 MHz	5870 MHz	5880 MHz	5890 MHz	5900 MHz	5910 MHz	5920 MHz
T_{nom} (23)°C	V_{nom} (48)V	27,0	27,0	27,0	27,0	22,5	22,7	27,0
T_{min} (-40)°C	V_{min} (21,6)V	26,6	26,6	26,7	26,8	22,8	22,9	27,0
	V_{nom} (52,8)V	26,6	26,6	26,7	26,8	22,8	22,9	27,0
T_{max} (74)°C	V_{min} (21,6)V	26,3	26,1	26,1	26,1	22,2	22,3	26,4
	V_{nom} (52,8)V	26,3	26,1	26,1	26,1	22,2	22,3	26,4
Measurement uncertainty		± 0,5 dB						

LIMIT **SUBCLAUSE 90.377**

Channel No.	Frequency range (MHz)	Max. EIRP[1] (dBm)	Channel use
170	5850-5855		Reserved.
172	5855-5865	33	Service Channel.[2]
174	5865-5875	33	Service Channel.
175	5865-5885	23	Service Channel.[3]
176	5875-5885	33	Service Channel.
178	5885-5895	33/44.8	Control Channel.
180	5895-5905	23	Service Channel.
181	5895-5915	23	Service Channel.[3]
182	5905-5915	23	Service Channel.
184	5915-5925	33/40	Service Channel.[4]

Measuring equipment used: EMV-205; NT-216; EMV-213; M-1200

Ambient temperature: 23°C Relative humidity: 40%

RF output power **SUBCLAUSE 90.377**

Rated output power 27 dBm eirp (conducted measurement, 7dBi maximum antenna gain taken into account)

Measured Radio: 2

Test conditions		RF output power (dBm) eirp						
		5860 MHz	5870 MHz	5880 MHz	5890 MHz	5900 MHz	5910 MHz	5920 MHz
T_{nom} (23)°C	V_{nom} (48)V	26,6	26,7	26,6	26,8	22,8	22,9	27,0
T_{min} (-40)°C	V_{min} (21,6)V	26,5	26,4	26,3	26,5	22,5	22,4	26,5
	V_{nom} (52,8)V	26,5	26,4	26,3	26,5	22,5	22,4	26,5
T_{max} (74)°C	V_{min} (21,6)V	26,3	26,1	25,9	25,9	22,1	22,2	26,5
	V_{nom} (52,8)V	26,3	26,1	25,9	25,9	22,1	22,2	26,5
Measurement uncertainty		± 0,5 dB						

LIMIT **SUBCLAUSE 90.377**

Channel No.	Frequency range (MHz)	Max. EIRP[1] (dBm)	Channel use
170	5850-5855		Reserved.
172	5855-5865	33	Service Channel.[2]
174	5865-5875	33	Service Channel.
175	5865-5885	23	Service Channel.[3]
176	5875-5885	33	Service Channel.
178	5885-5895	33/44.8	Control Channel.
180	5895-5905	23	Service Channel.
181	5895-5915	23	Service Channel.[3]
182	5905-5915	23	Service Channel.
184	5915-5925	33/40	Service Channel.[4]

Measuring equipment used: EMV-205; NT-216; EMV-213; M-1200

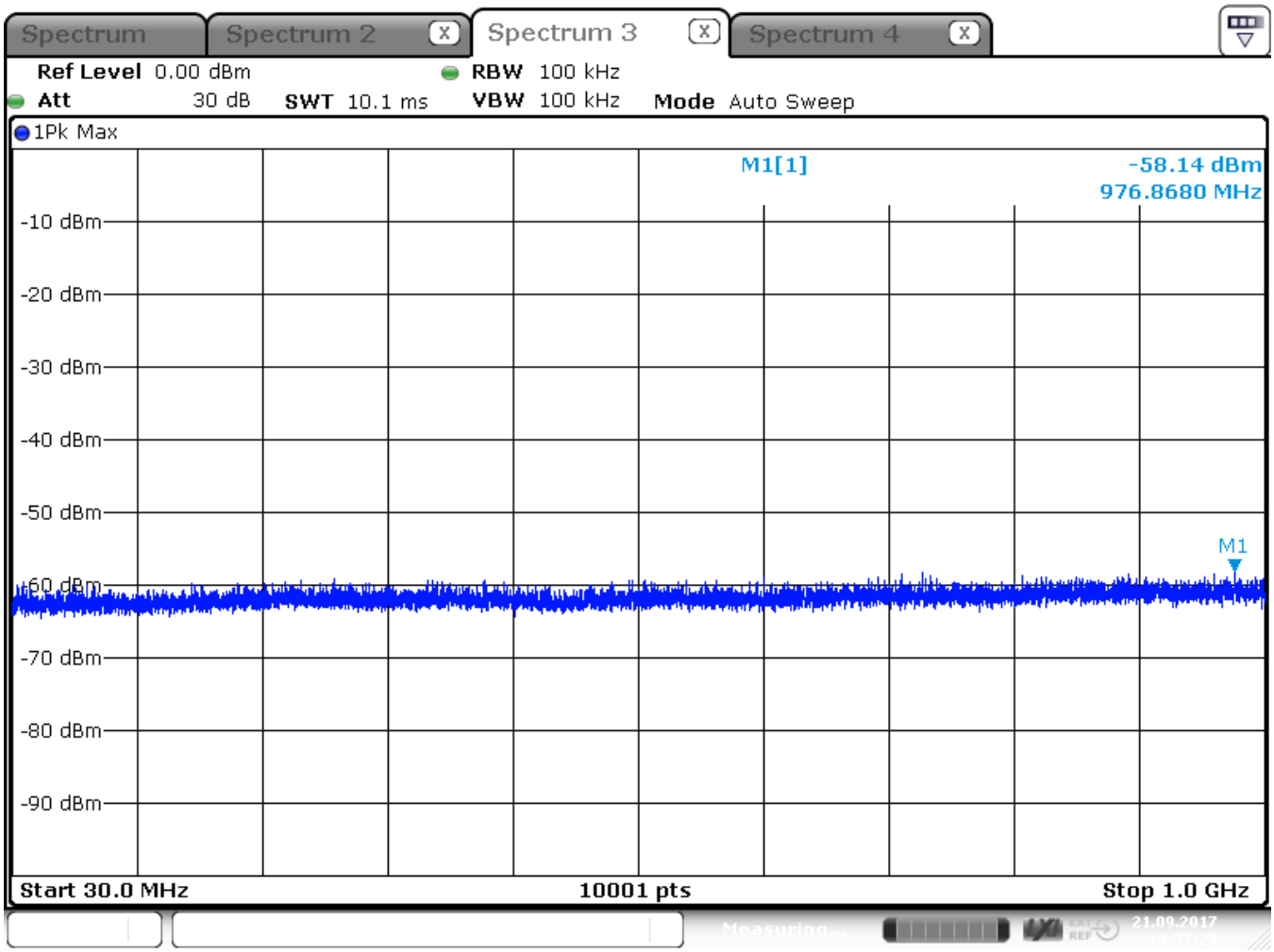
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5860 MHz Modulated



Date: 21.SEP.2017 13:57:29

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

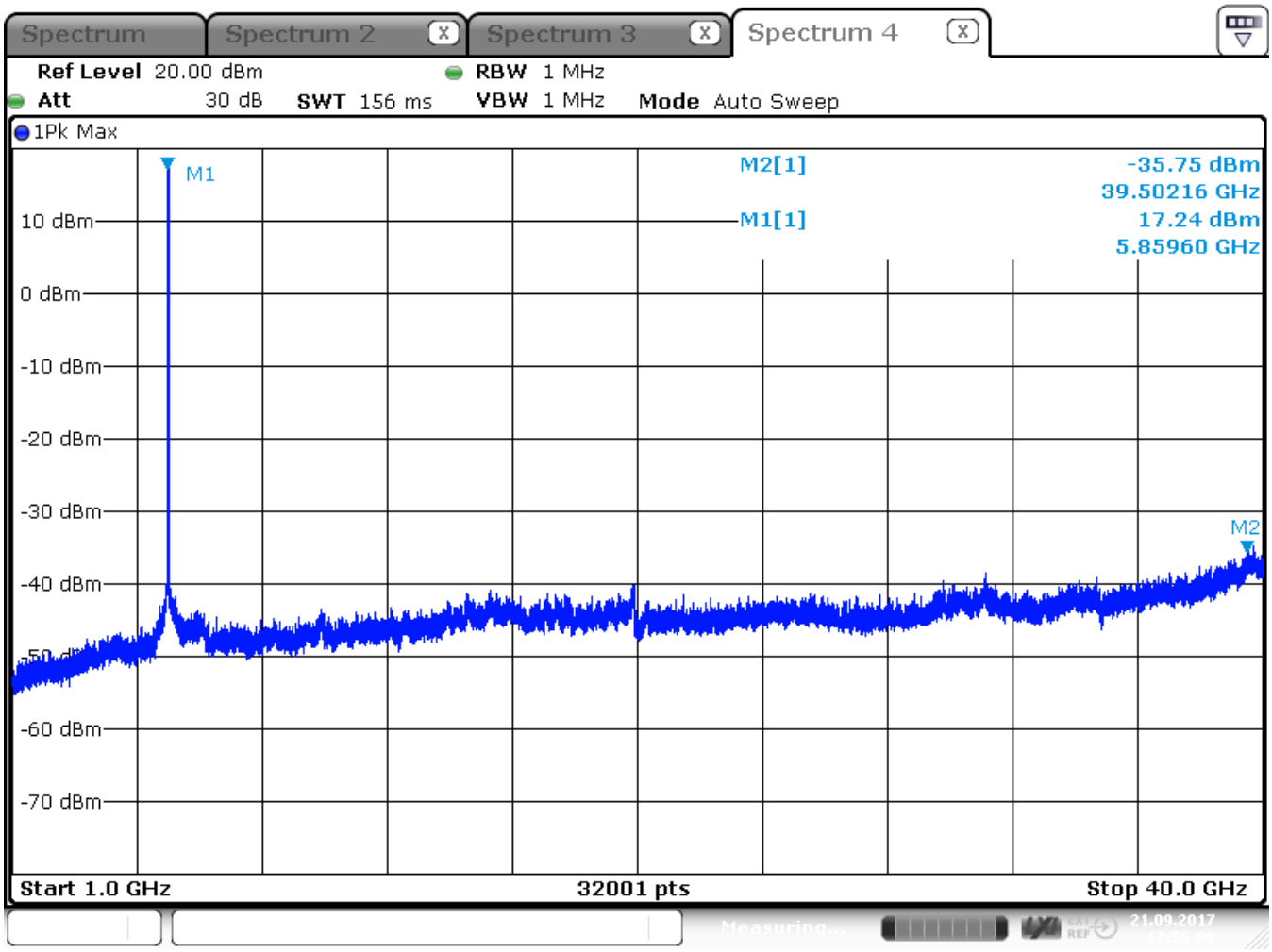
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5860 MHz Modulated



Date:21.SEP.2017 13:56:08

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

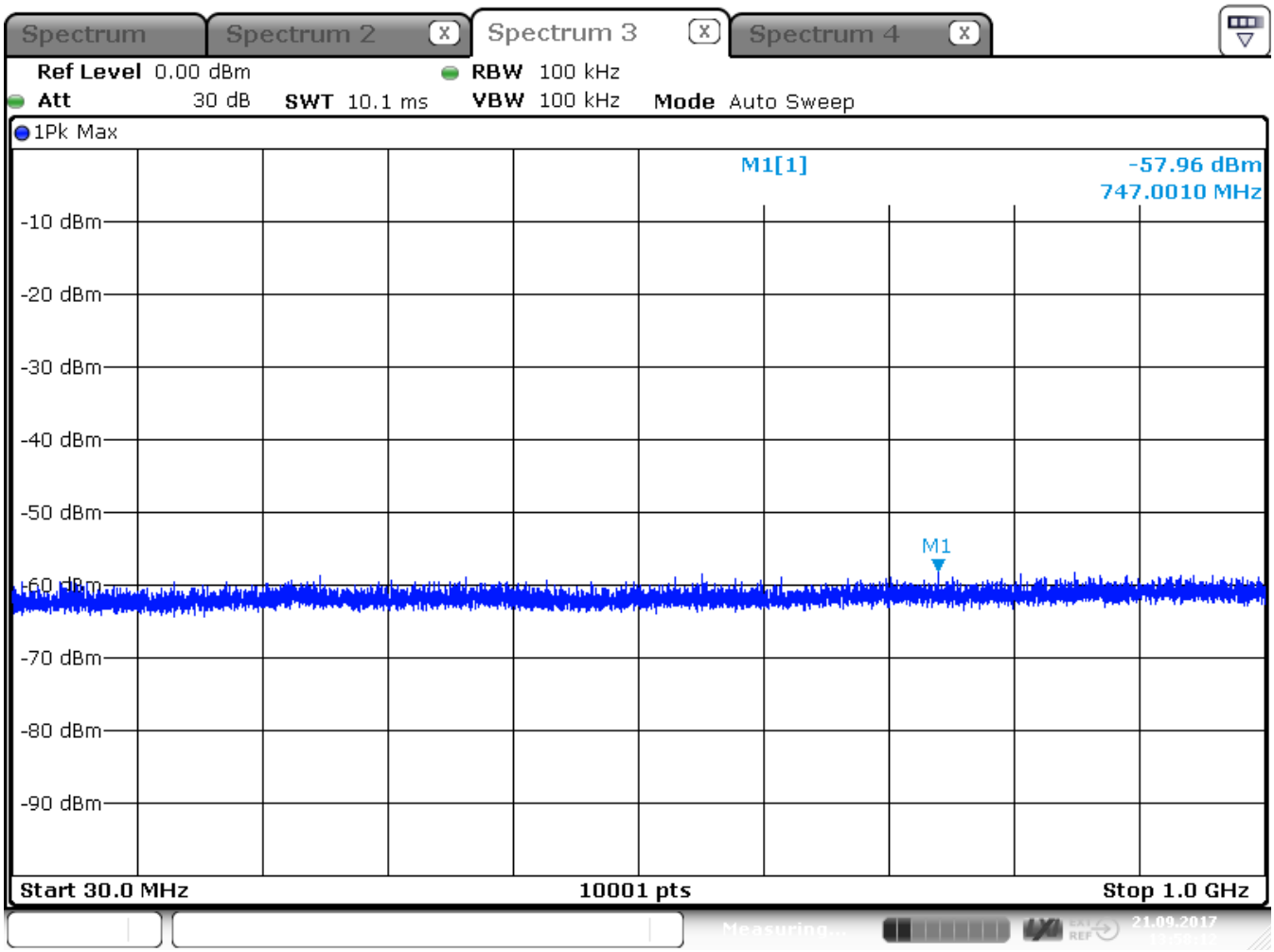
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5870 MHz Modulated



Date:21.SEP.2017 13:58:12

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

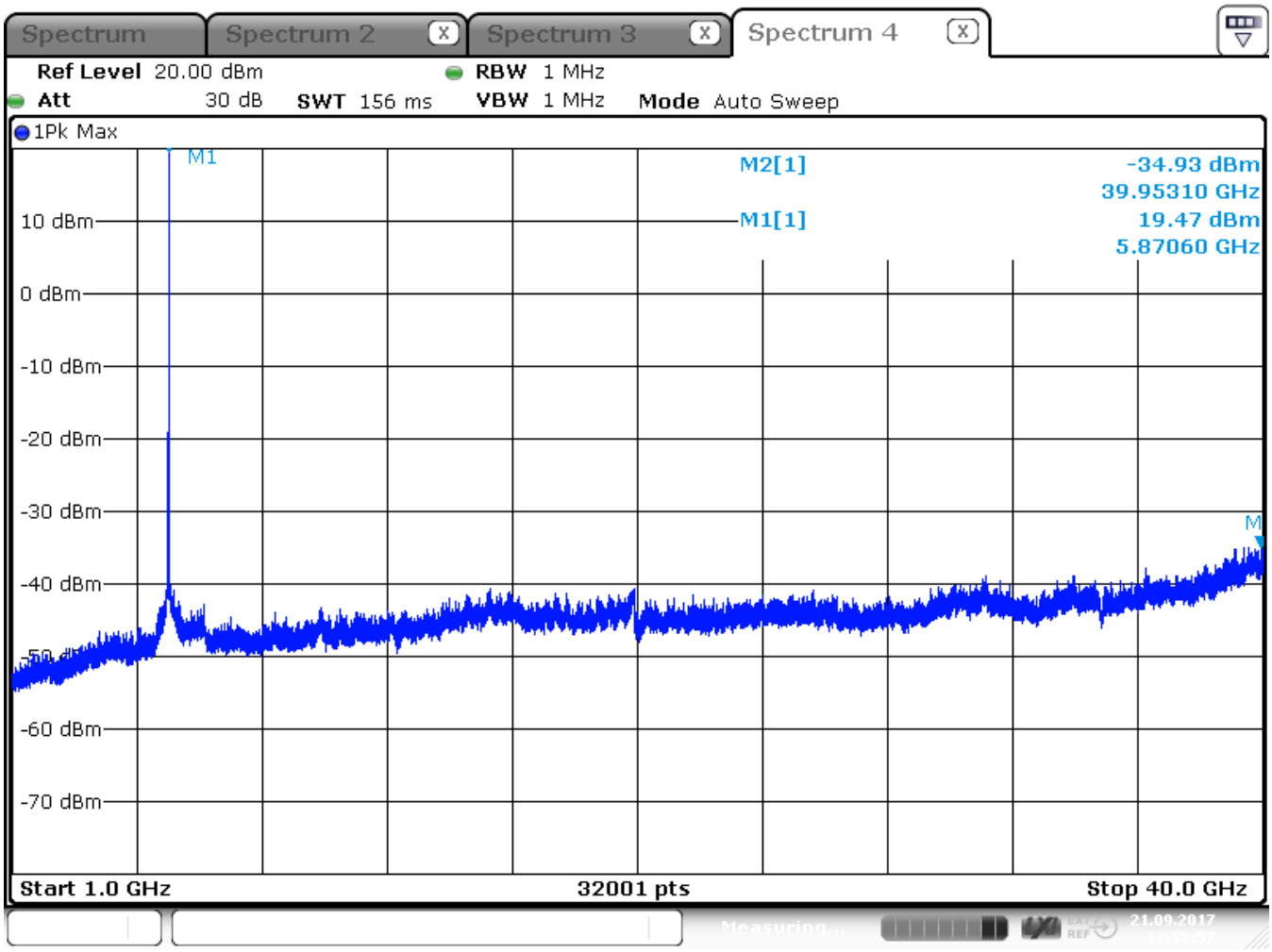
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5870 MHz Modulated



Date:21.SEP.2017 13:58:57

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

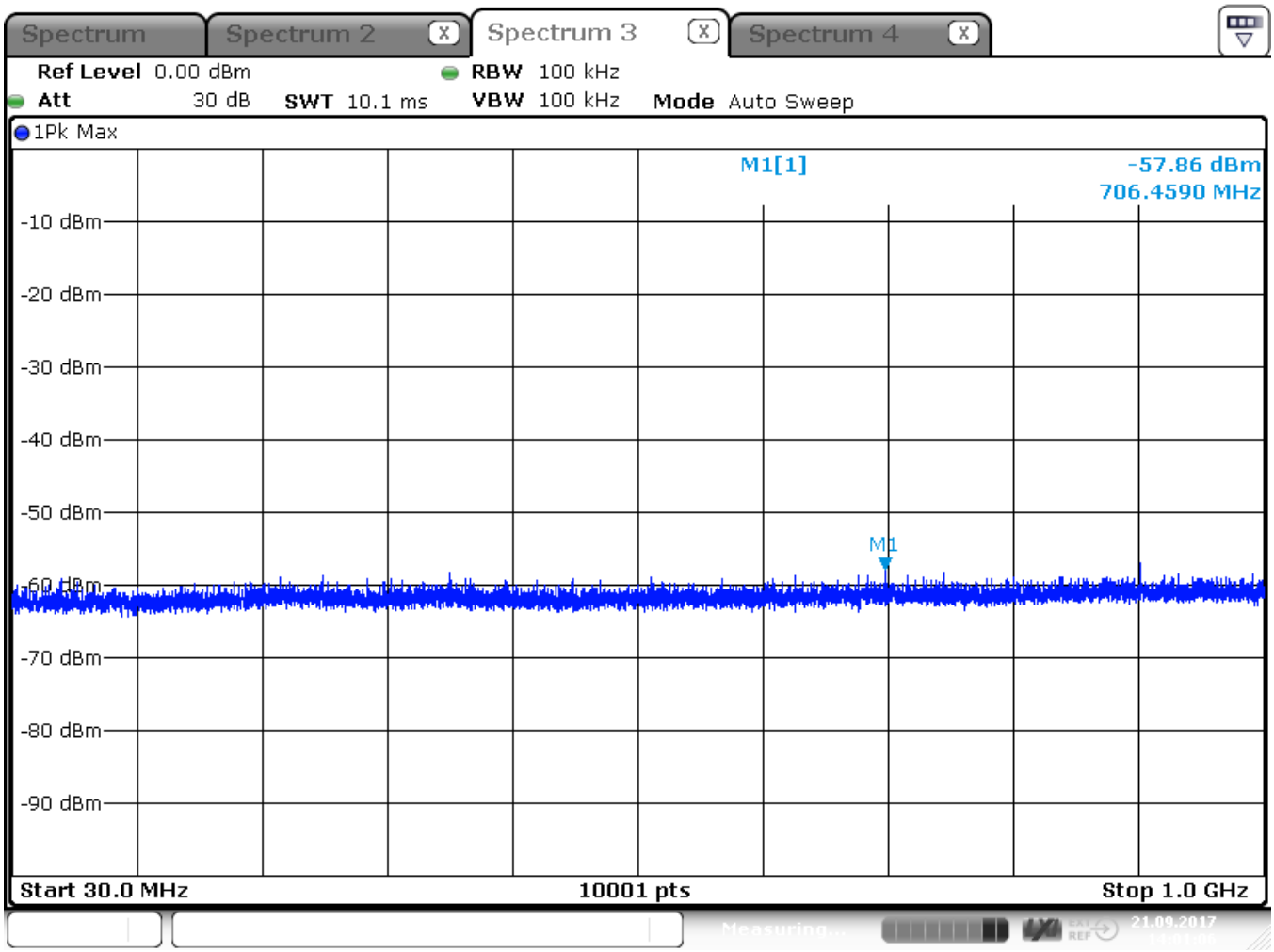
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5880 MHz Modulated



Date:21.SEP.2017 14:01:06

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

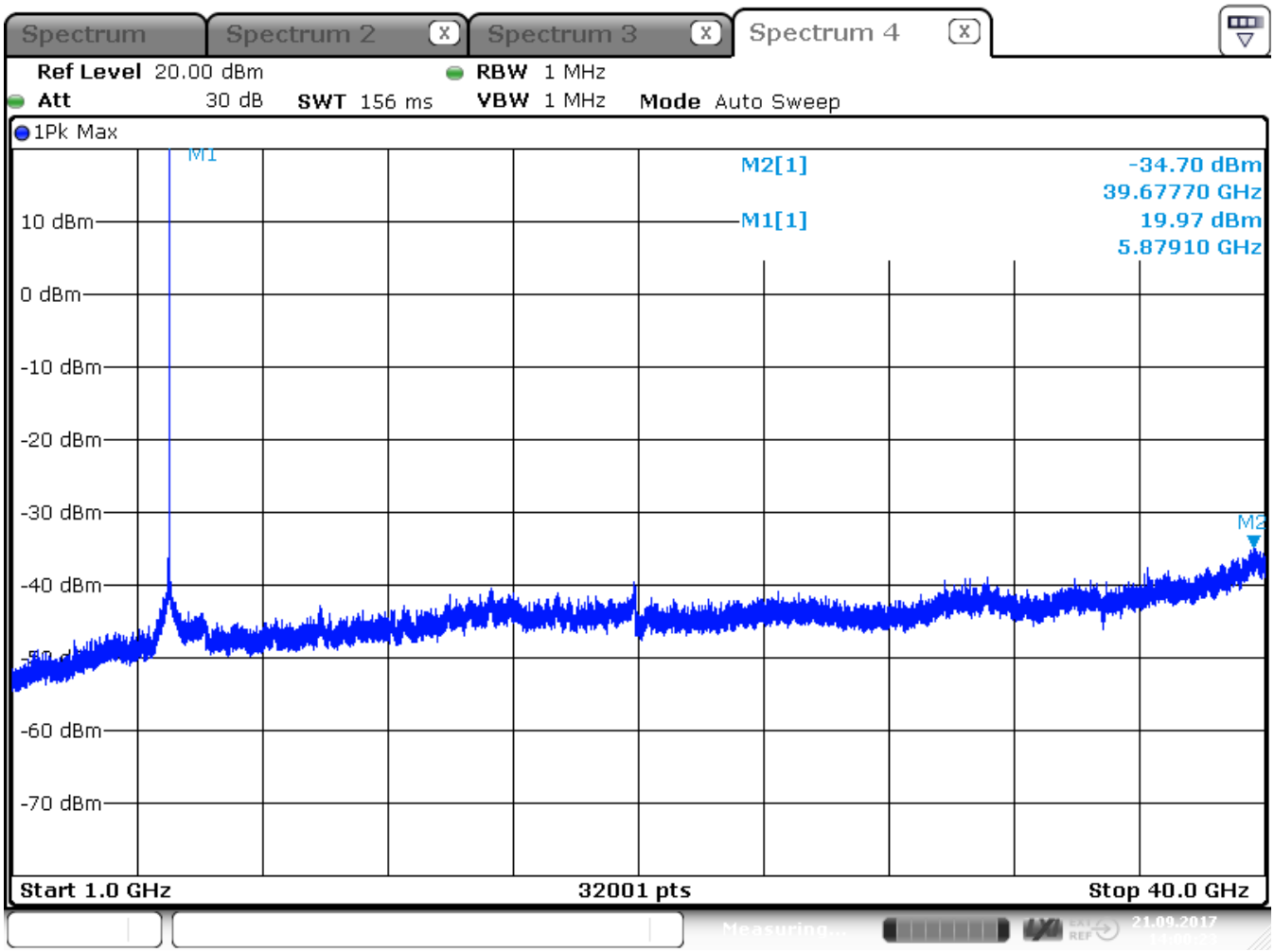
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5880 MHz Modulated



Date:21.SEP.2017 14:00:23

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

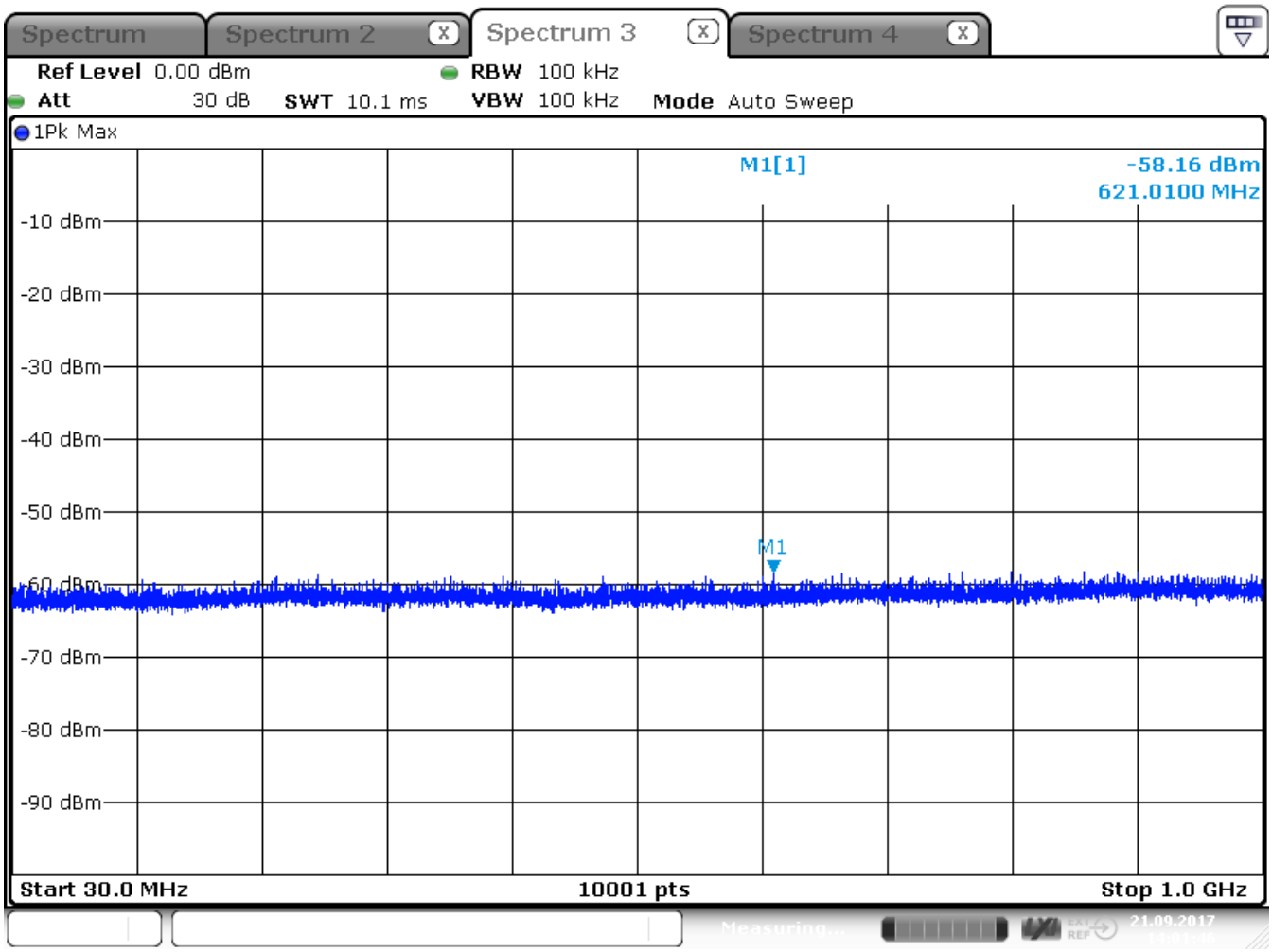
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5890 MHz Modulated



Date:21.SEP.2017 14:01:46

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

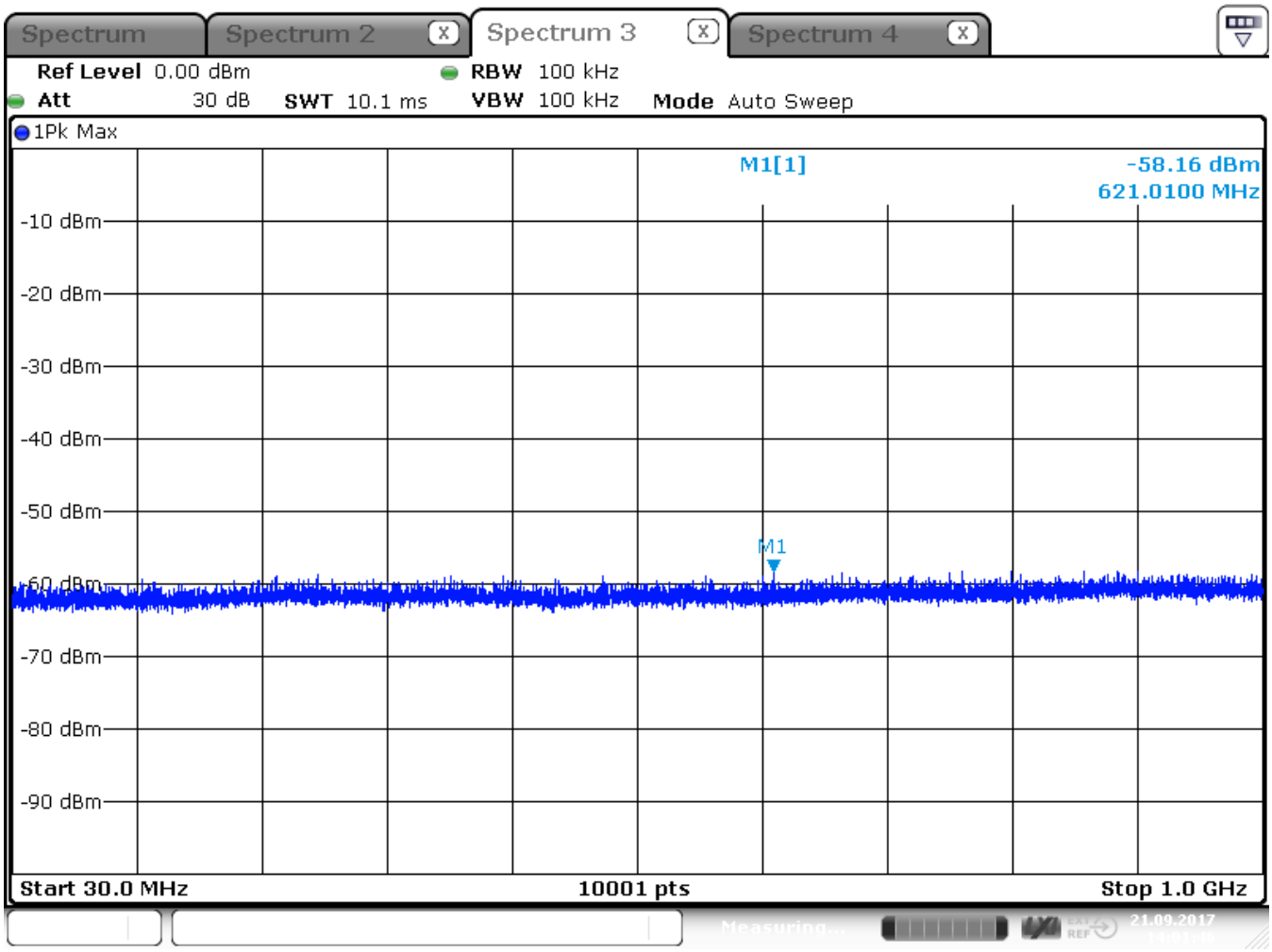
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5890 MHz Modulated



Date:21.SEP.2017 14:01:46

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

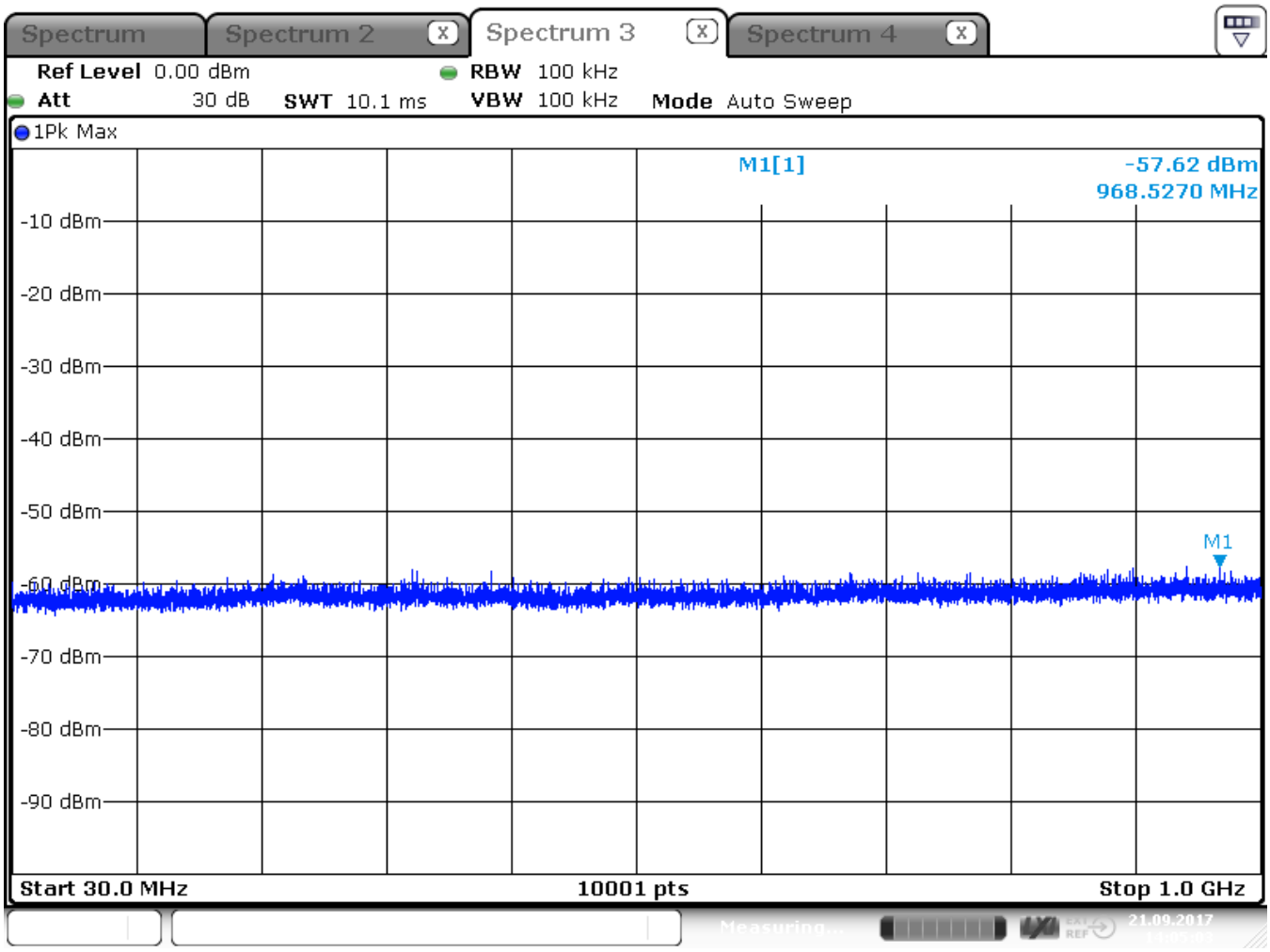
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5900 MHz Modulated



Date:21.SEP.2017 14:05:04

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

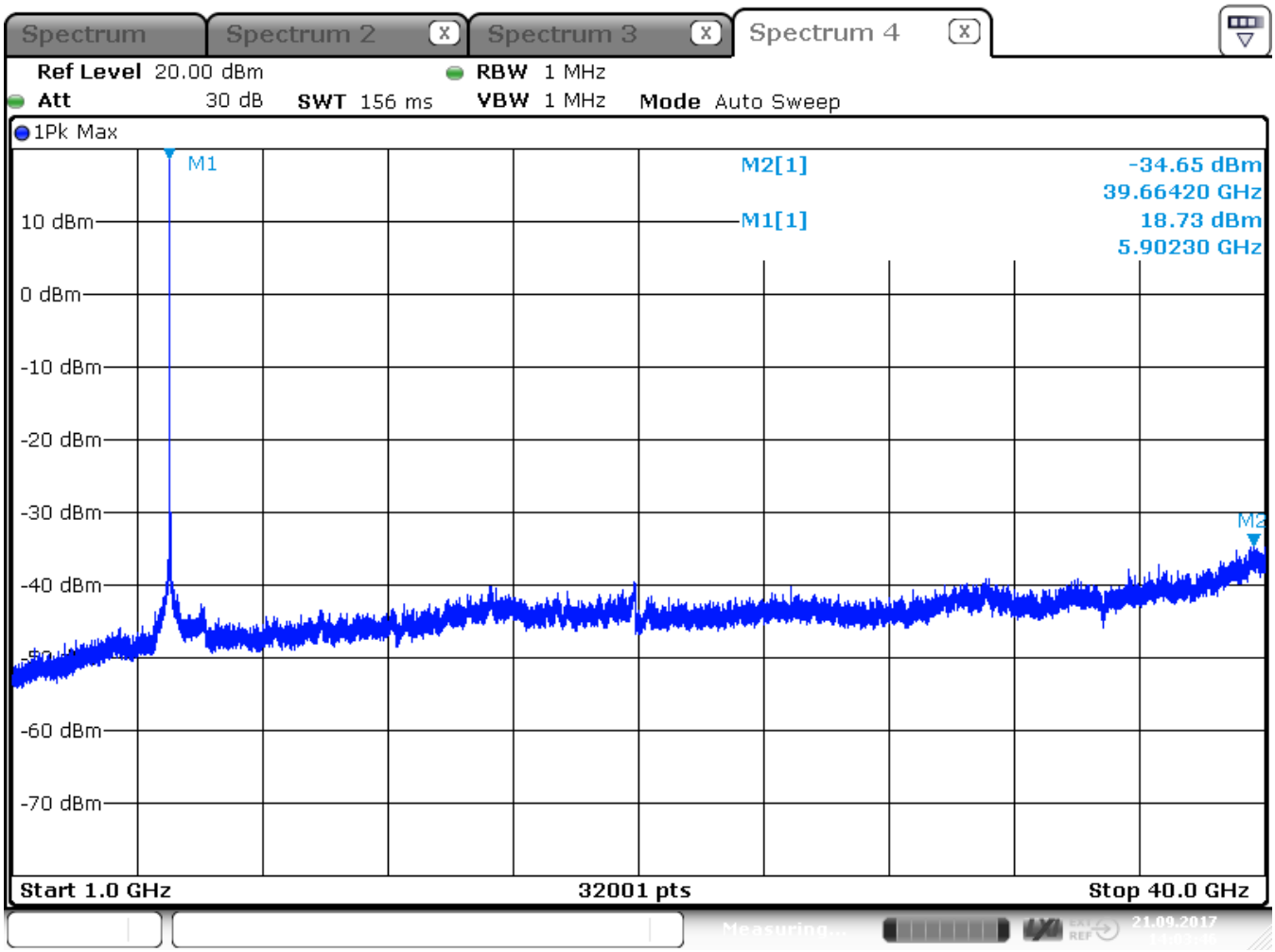
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5900 MHz Modulated



Date:21.SEP.2017 14:03:46

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

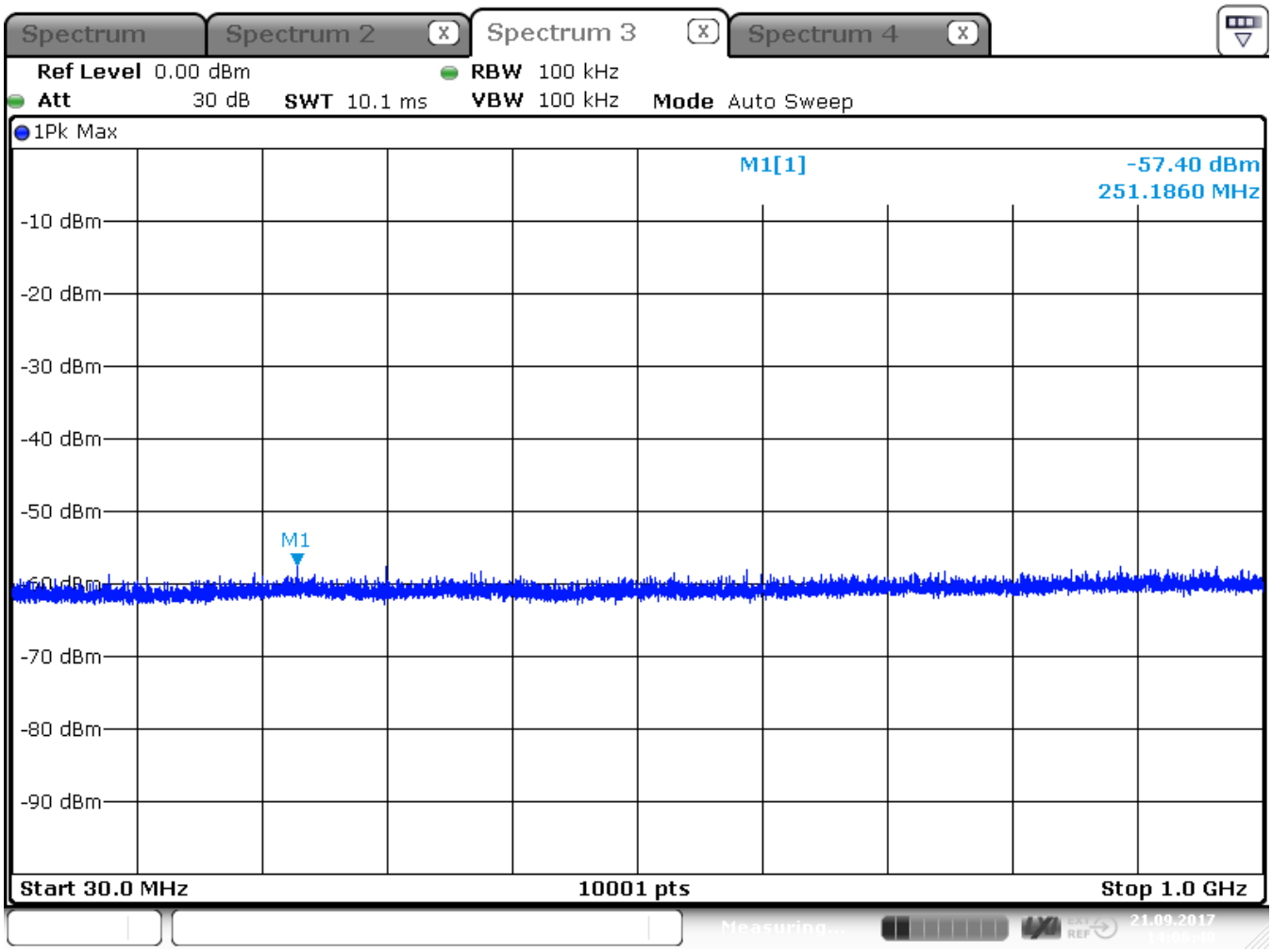
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5910 MHz Modulated



Date:21.SEP.2017 14:06:41

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

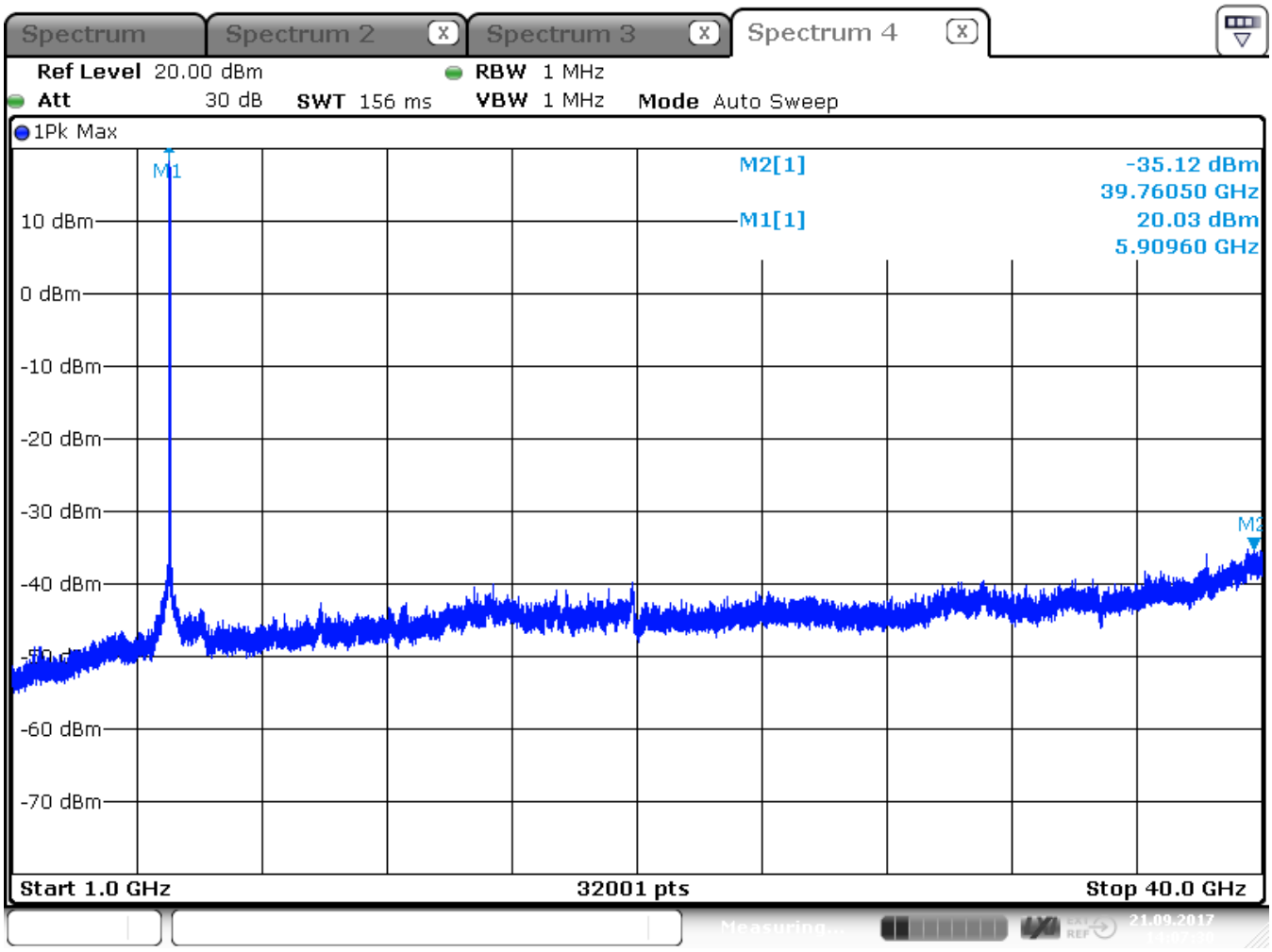
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5910 MHz Modulated



Date:21.SEP.2017 14:07:31

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

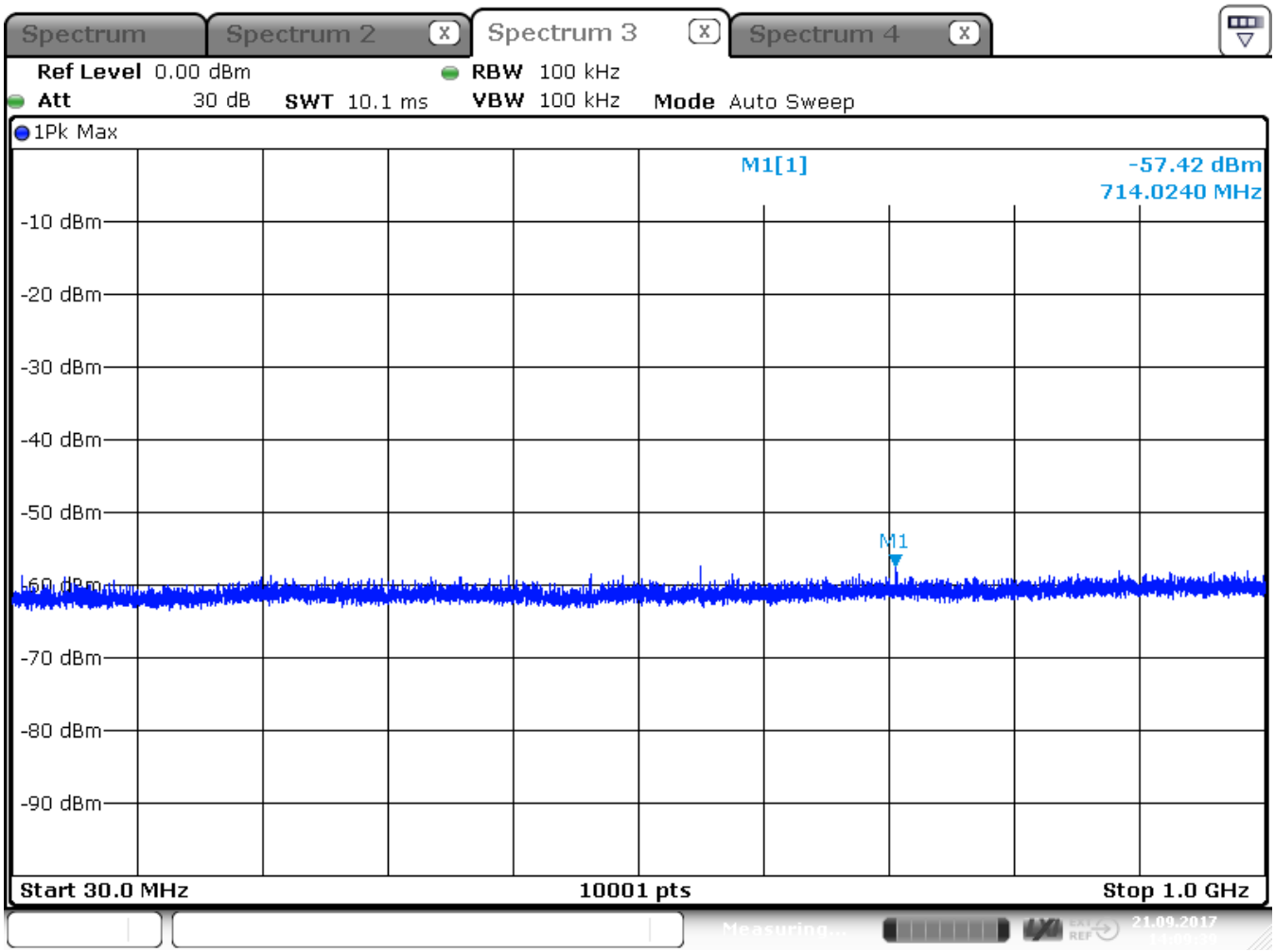
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5920 MHz Modulated



Date:21.SEP.2017 14:09:39

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

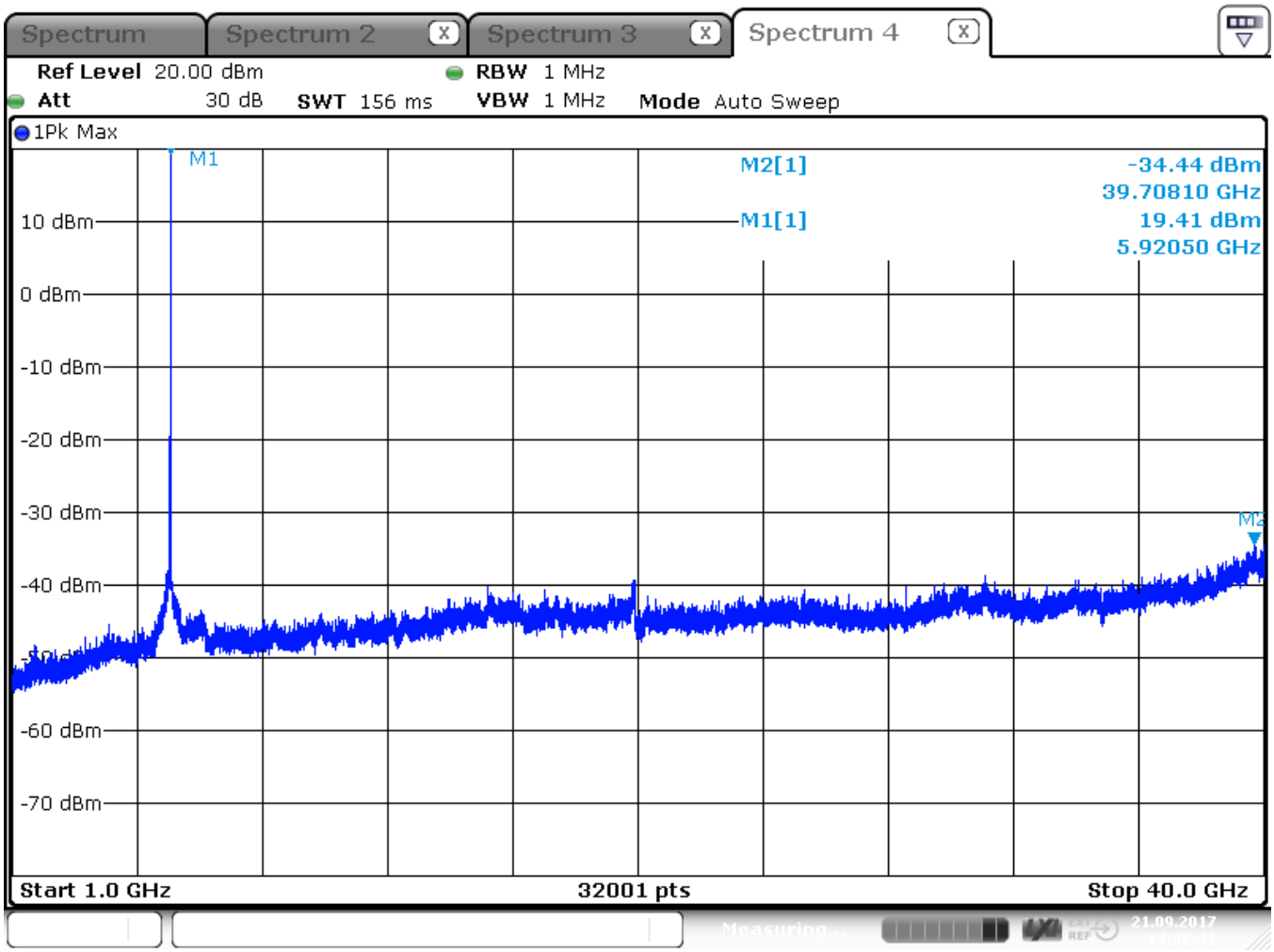
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1

Transmitter operating – 5920 MHz Modulated



Date:21.SEP.2017 14:08:41

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

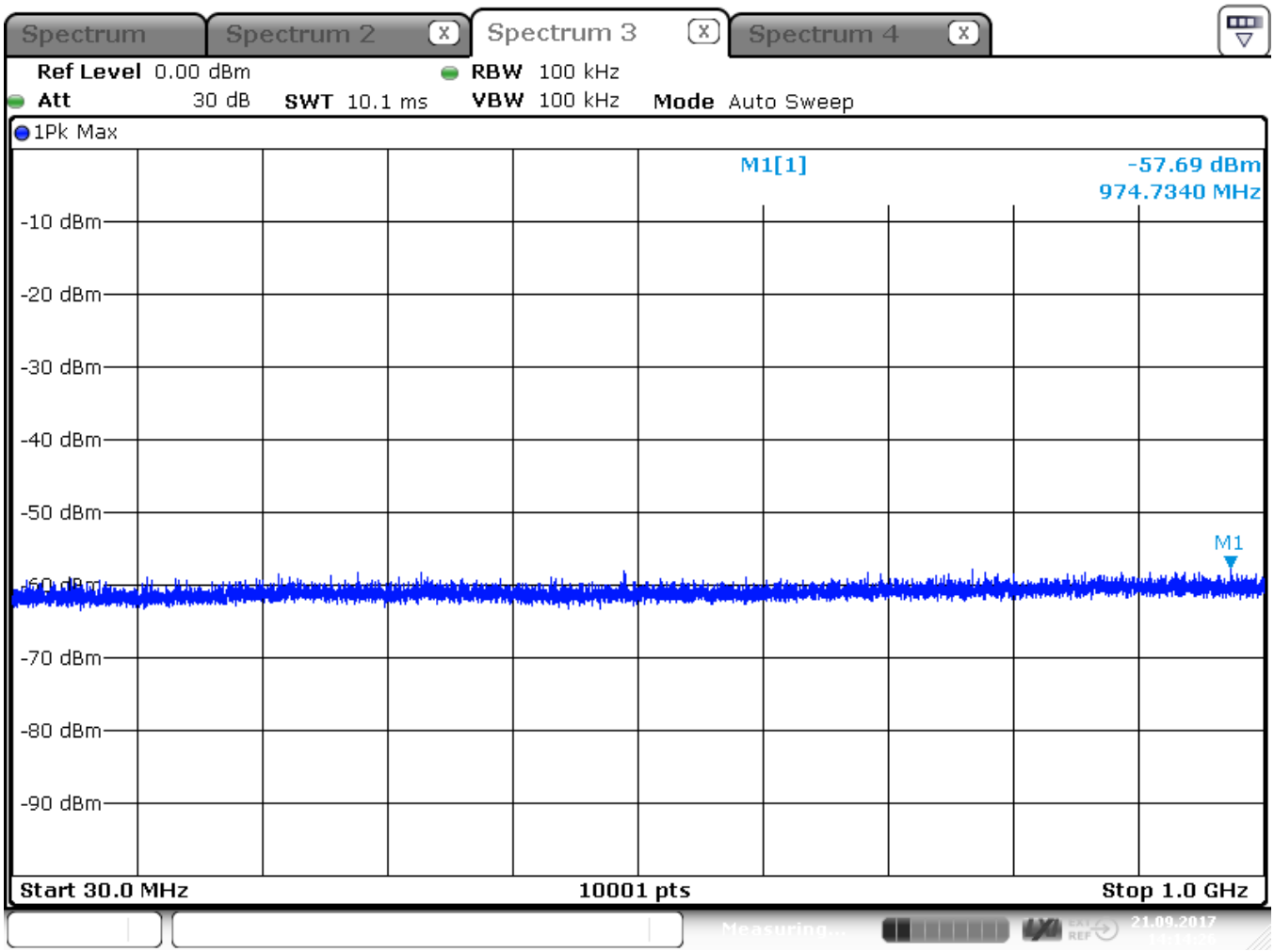
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5860 MHz Modulated



Date:21.SEP.2017 14:14:26

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

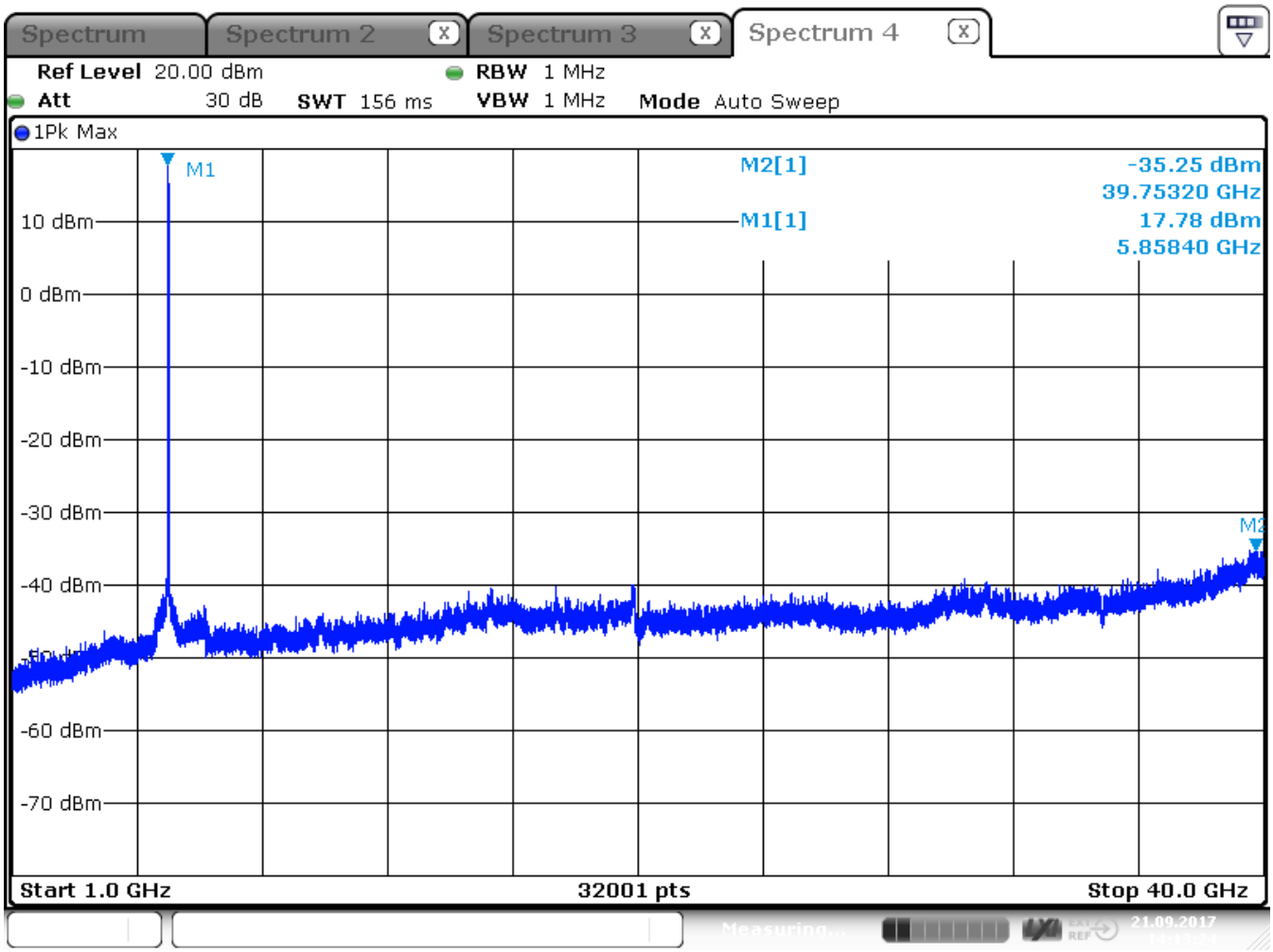
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5860 MHz Modulated



Date:21.SEP.2017 14:13:24

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

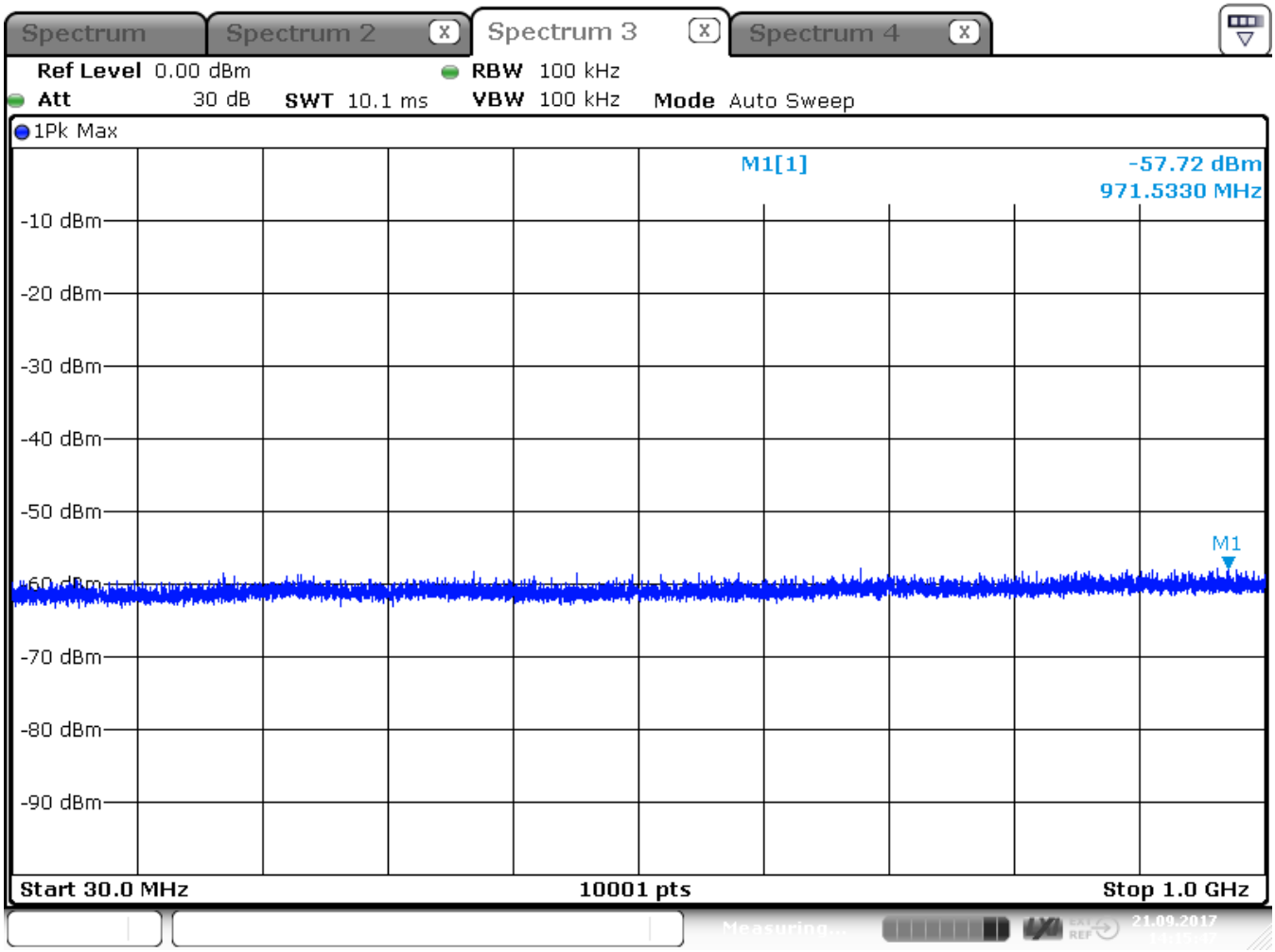
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5870 MHz Modulated



Date:21.SEP.2017 14:15:47

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

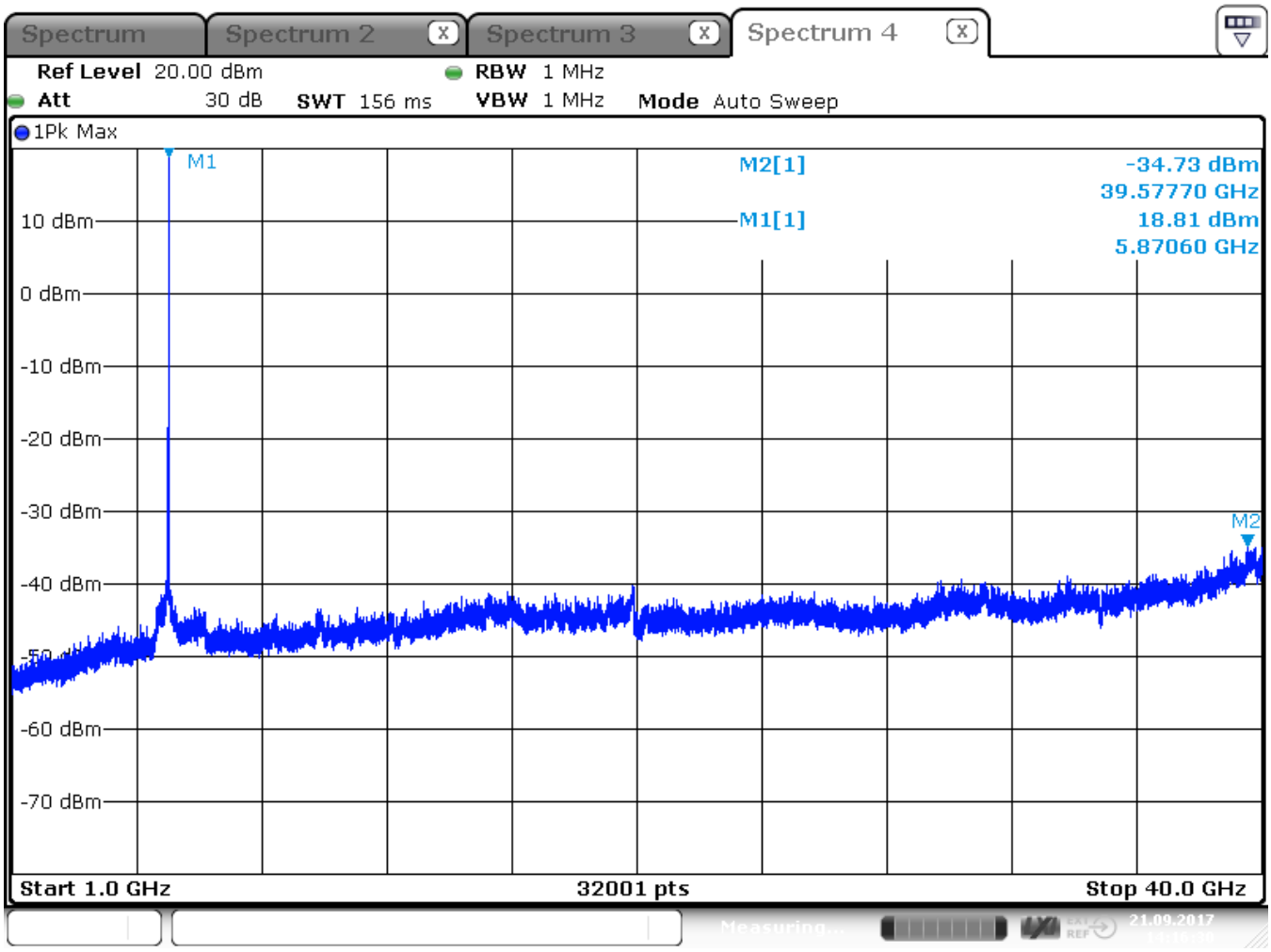
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5870 MHz Modulated



Date:21.SEP.2017 14:16:31

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

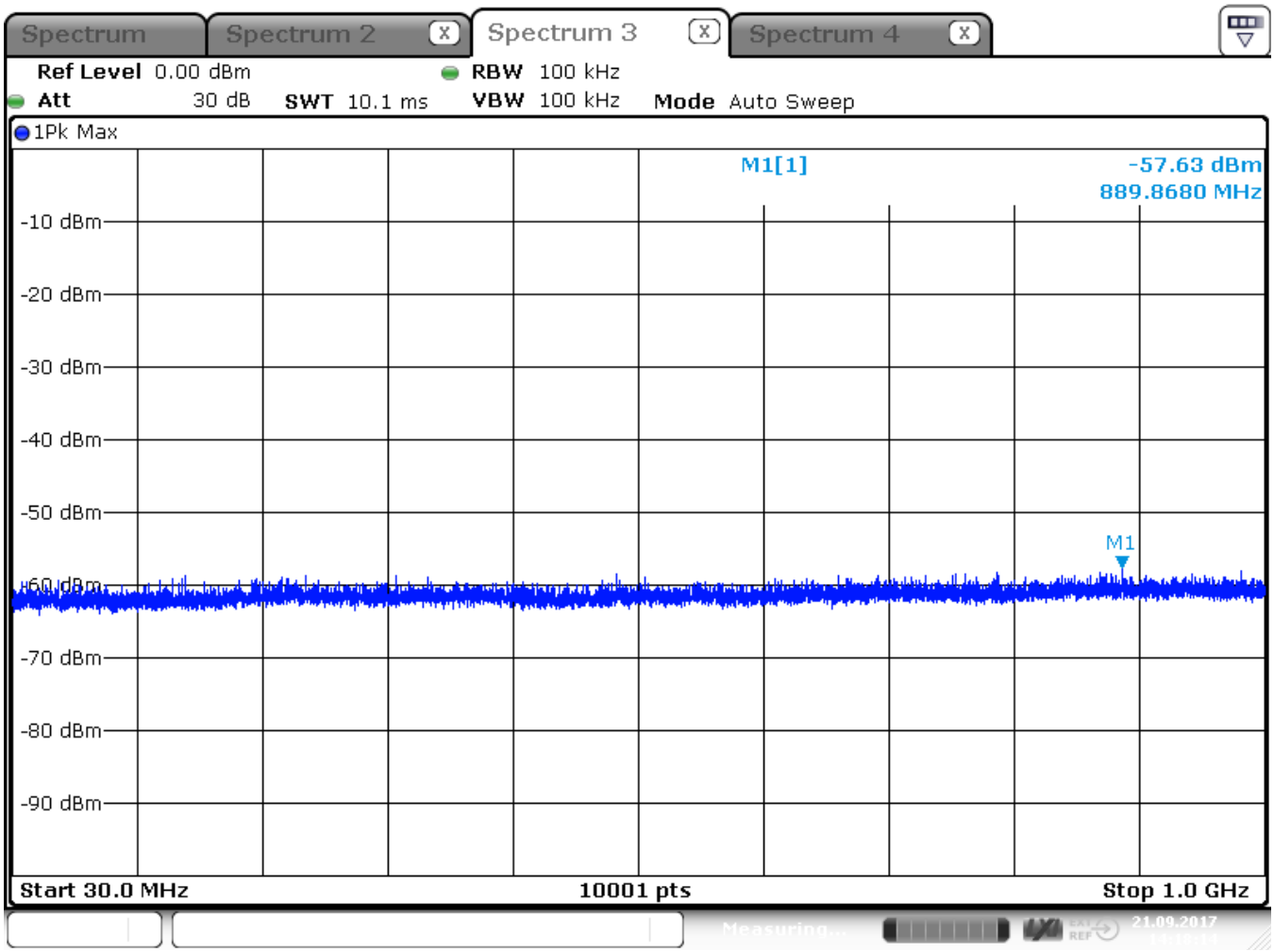
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5880 MHz Modulated



Date: 21.SEP.2017 14:18:15

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

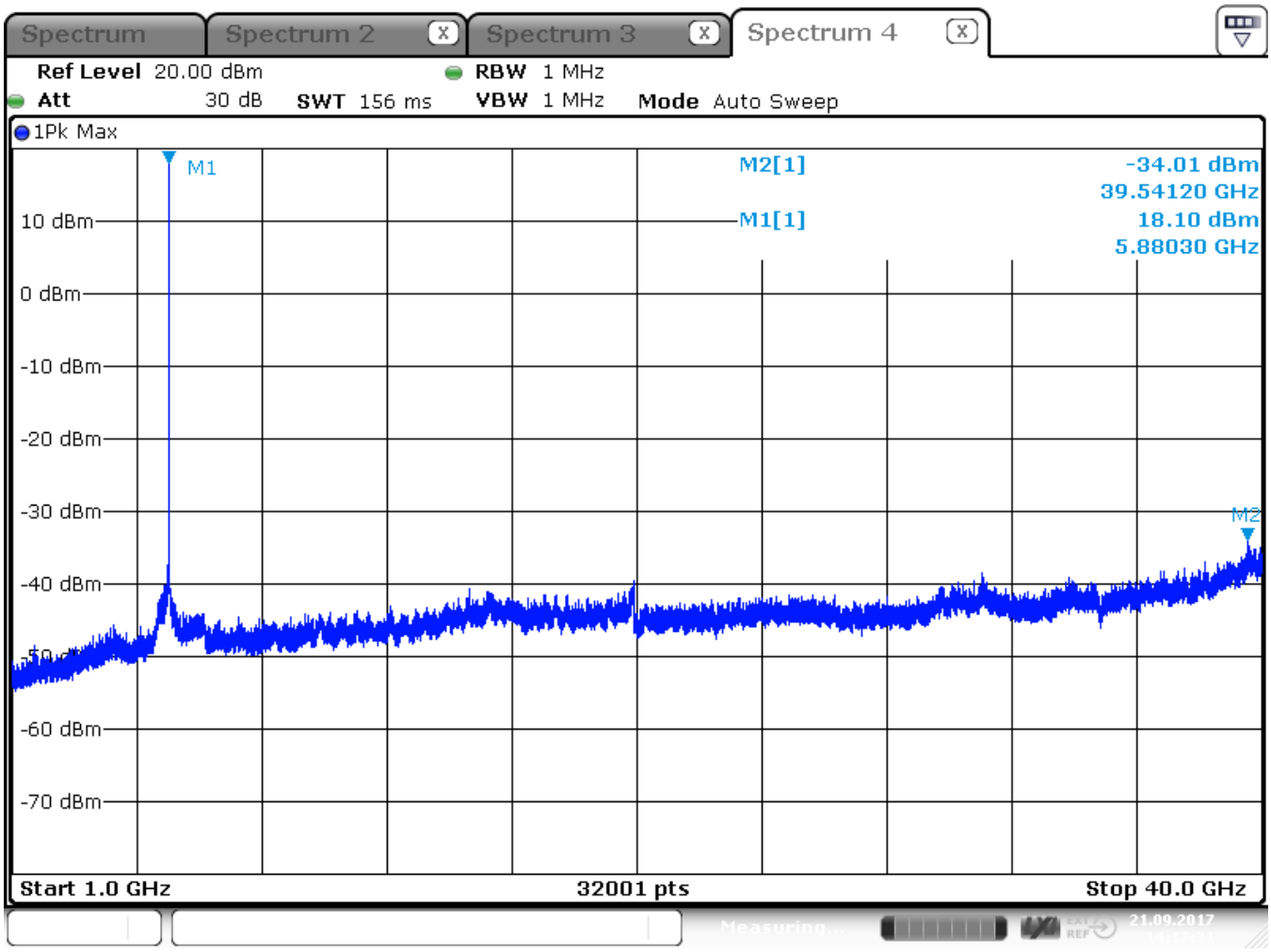
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5880 MHz Modulated



Date:21.SEP.2017 14:17:31

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

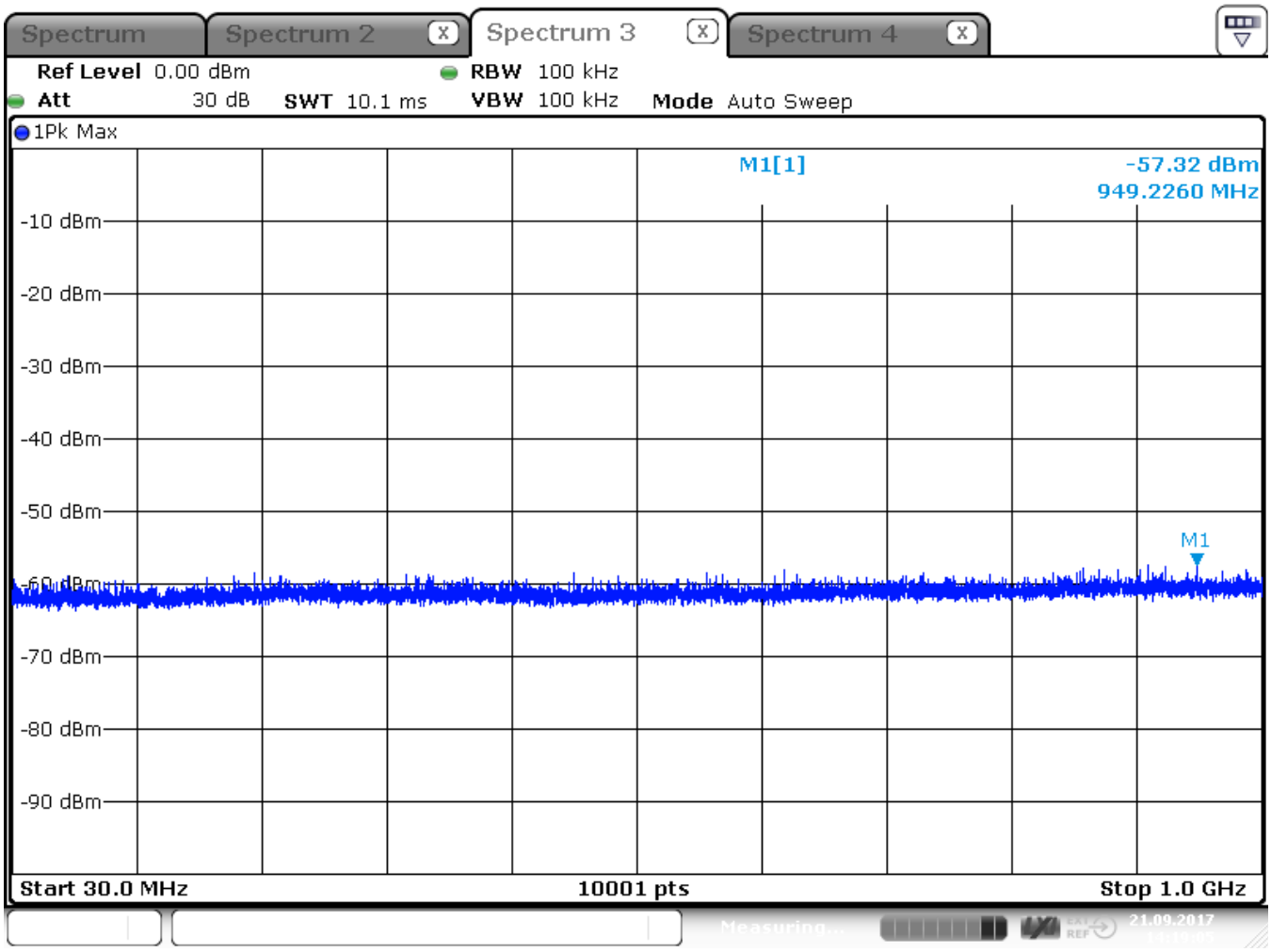
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5890 MHz Modulated



Date:21.SEP.2017 14:19:05

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

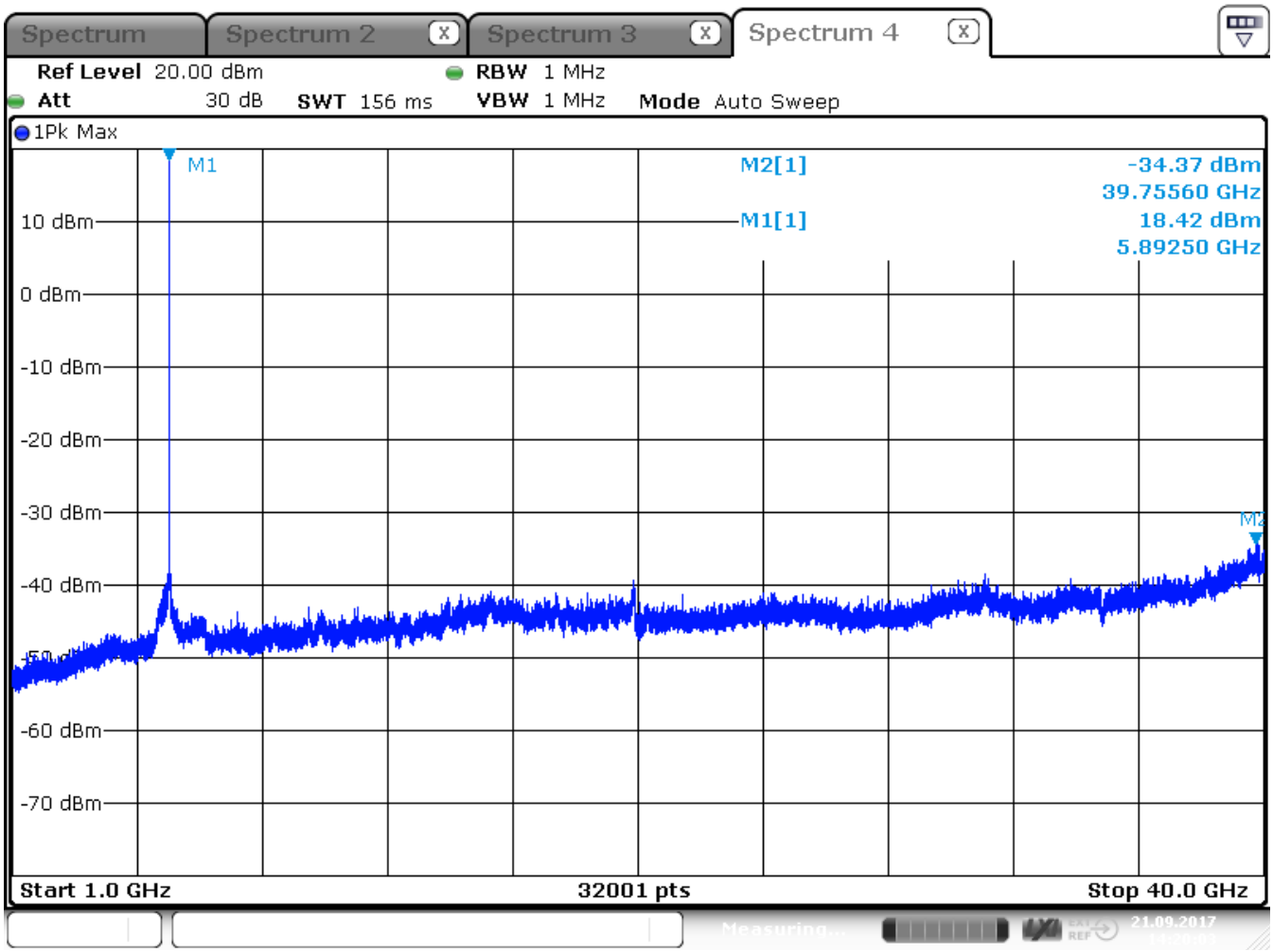
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5890 MHz Modulated



Date:21.SEP.2017 14:20:04

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

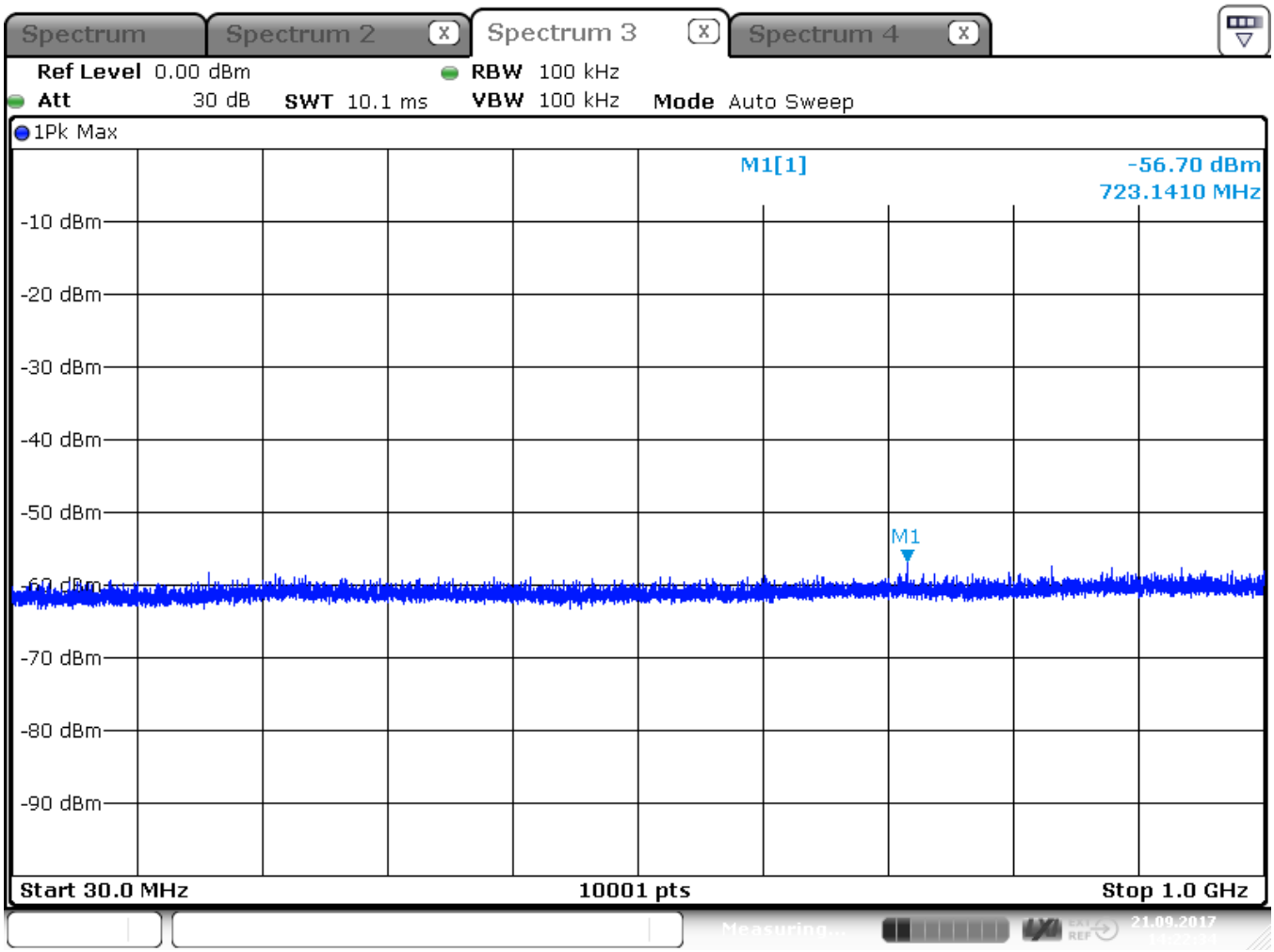
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5900 MHz Modulated



Date:21.SEP.2017 14:22:34

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

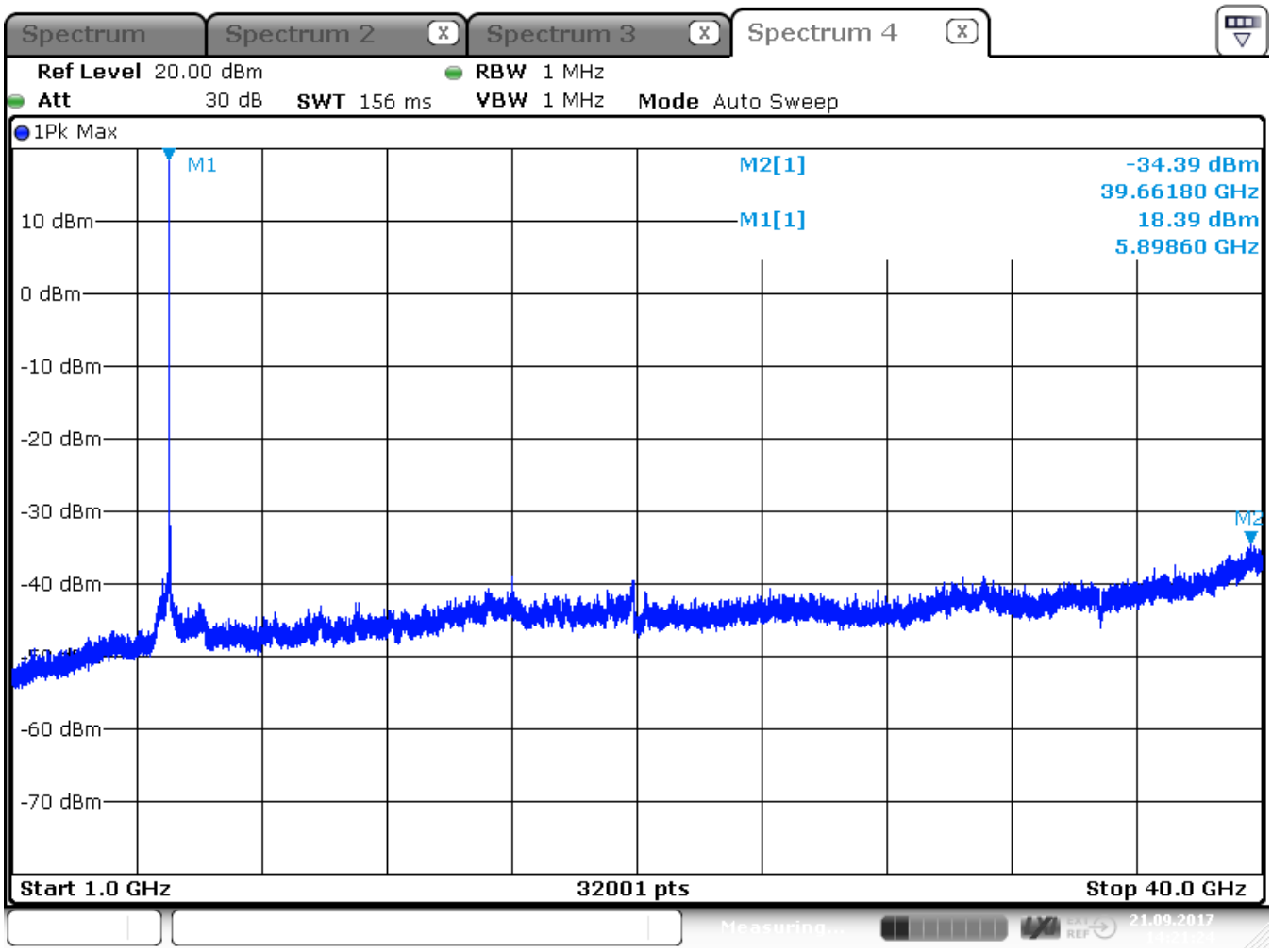
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5900 MHz Modulated



Date:21.SEP.2017 14:21:25

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

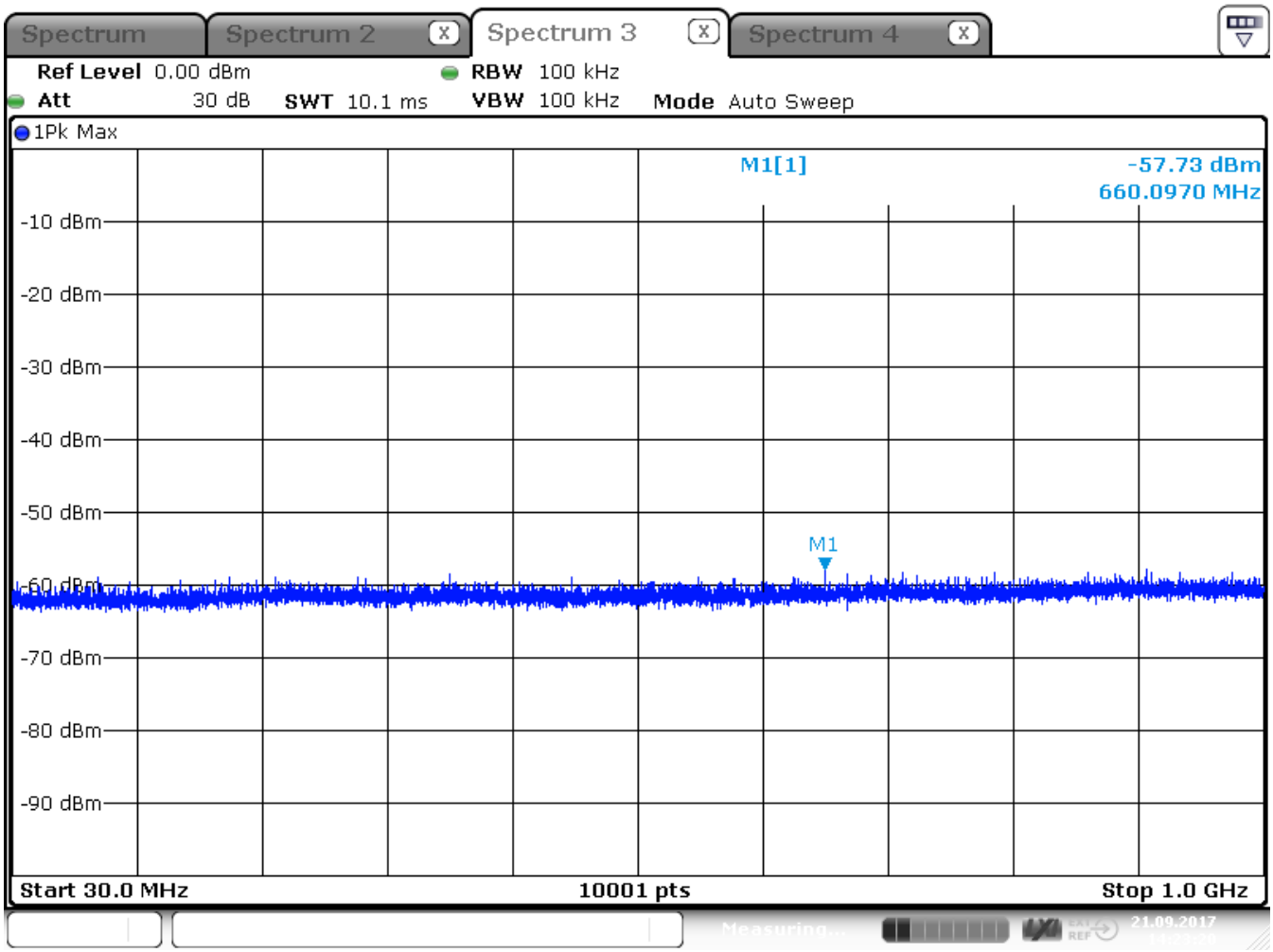
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5910 MHz Modulated



Date:21.SEP.2017 14:23:20

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

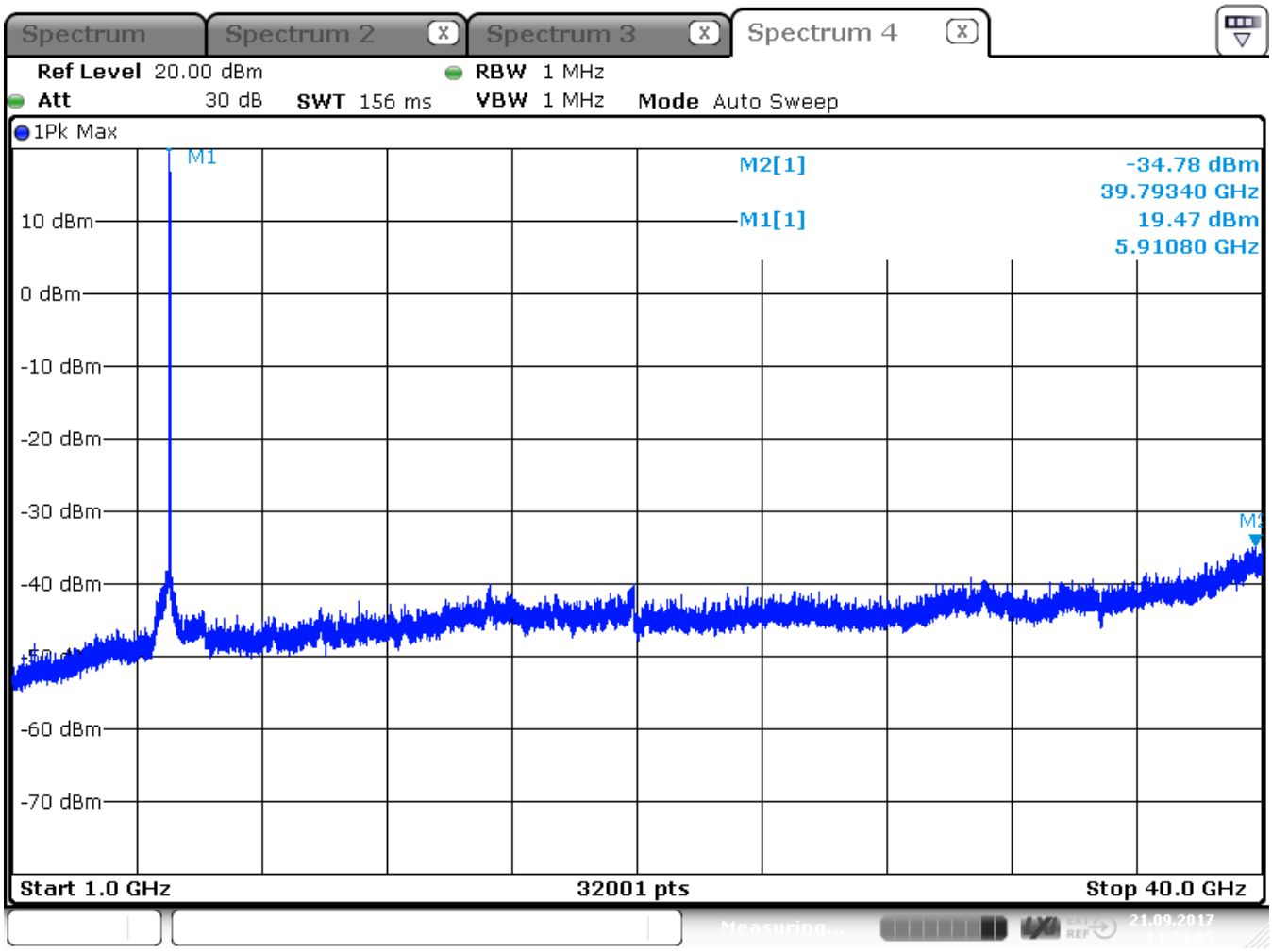
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5910 MHz Modulated



Date:21.SEP.2017 14:24:05

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

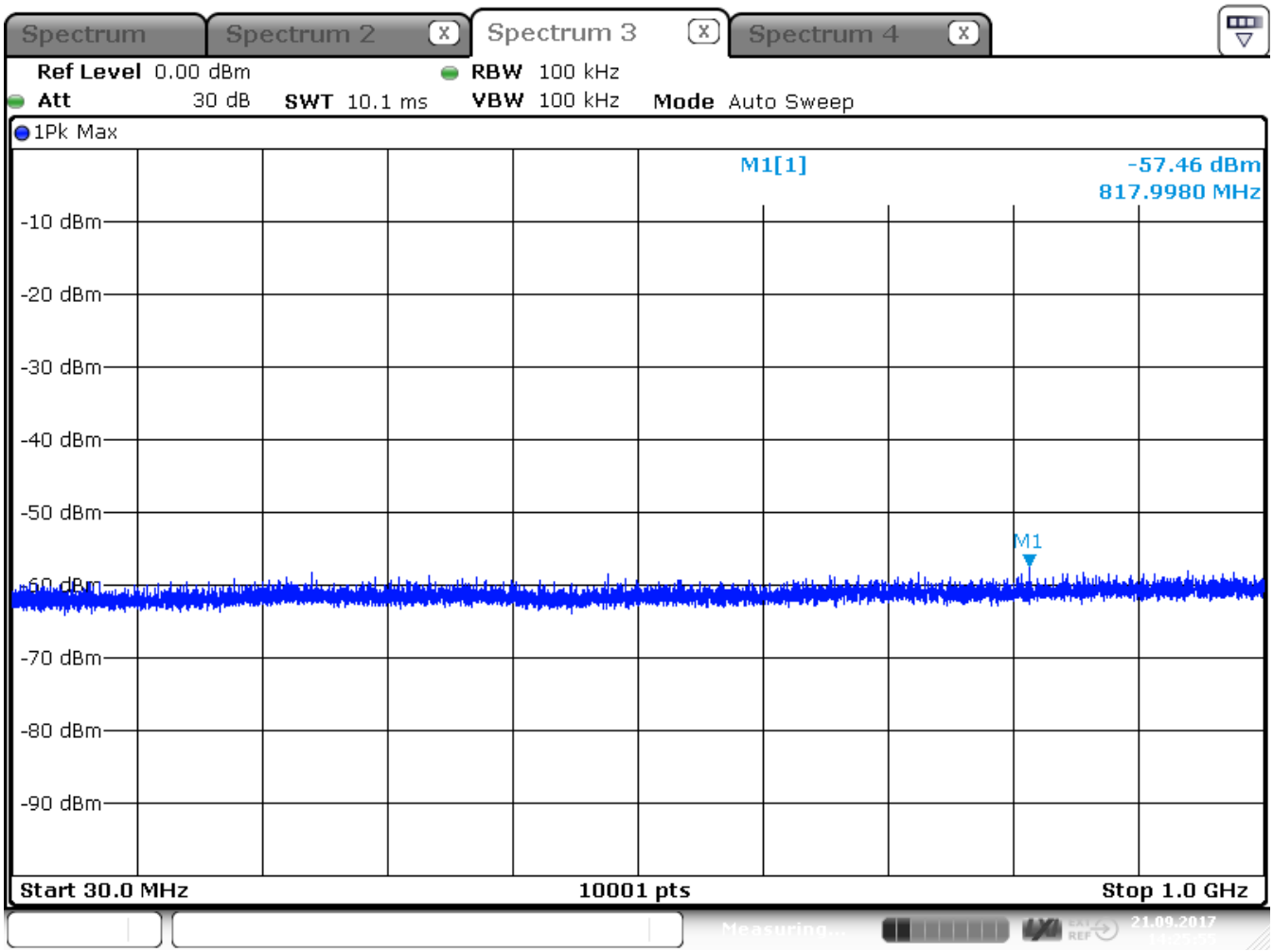
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5920 MHz Modulated



Date:21.SEP.2017 14:25:56

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

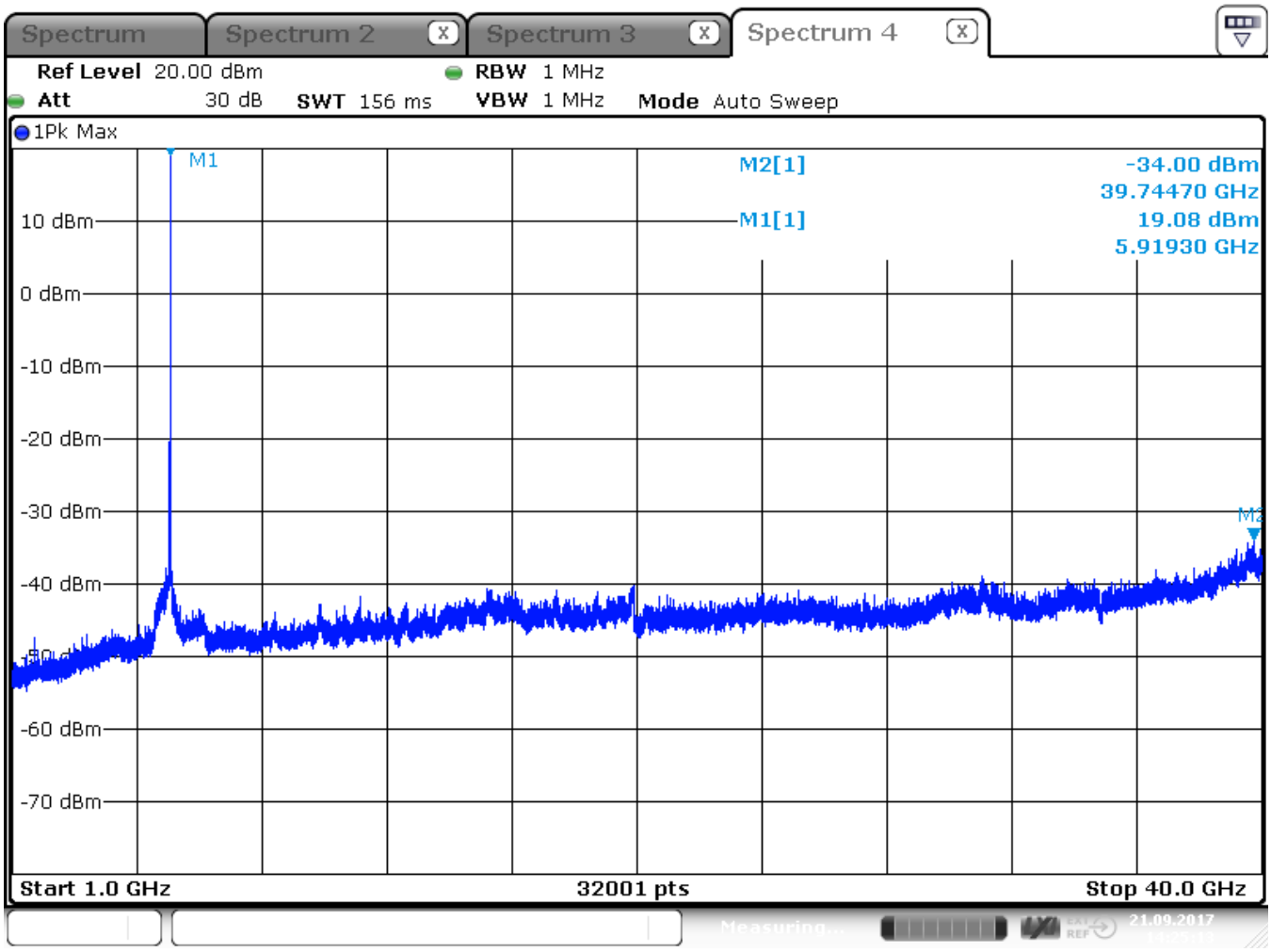
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 2

Transmitter operating – 5920 MHz Modulated



Date: 21.SEP.2017 14:25:13

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-205

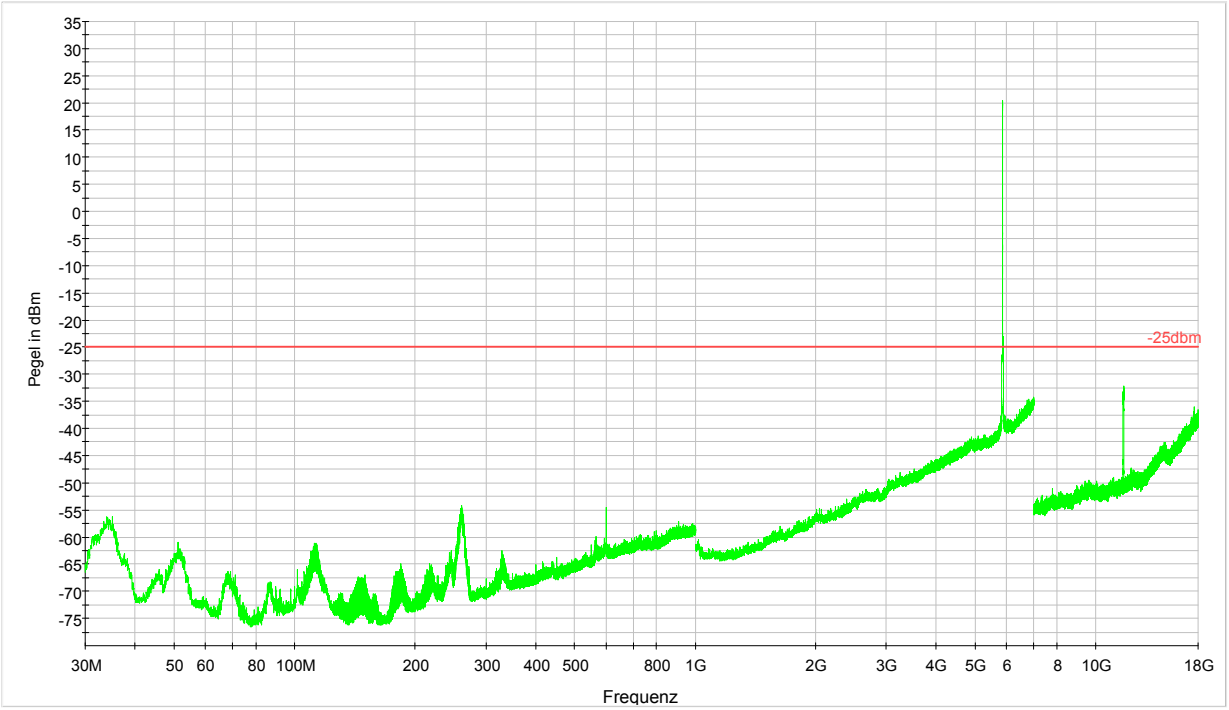
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5860 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

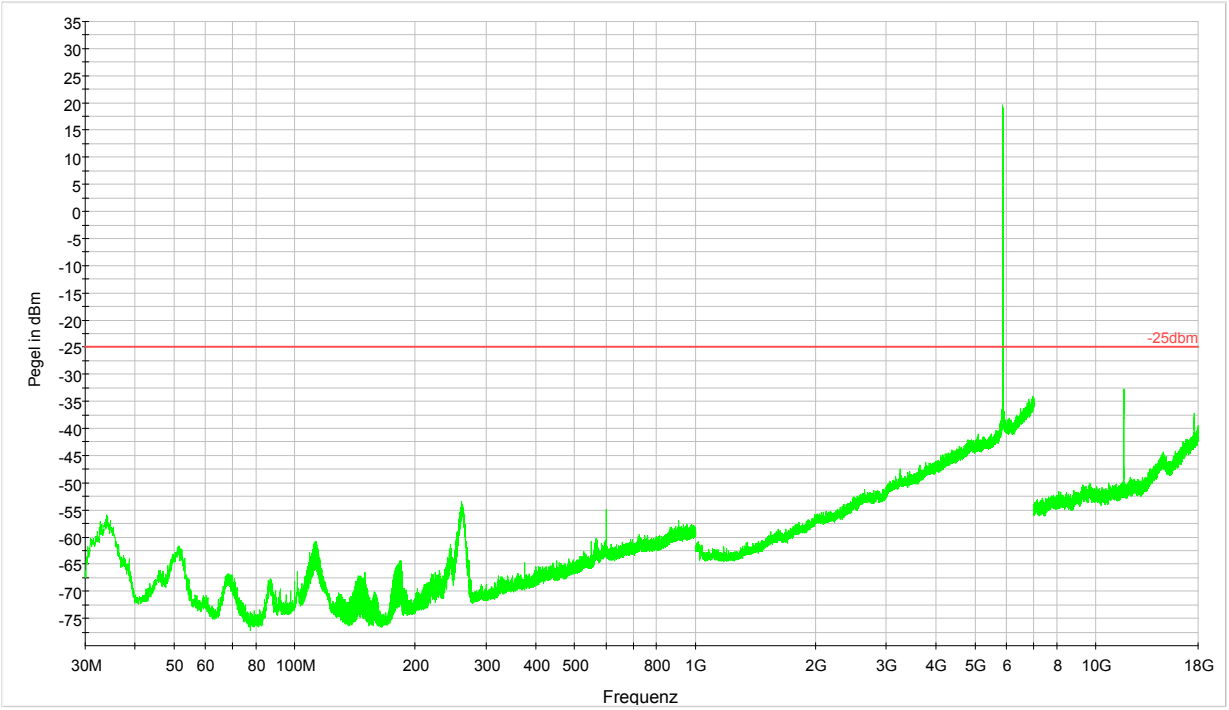
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5870 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

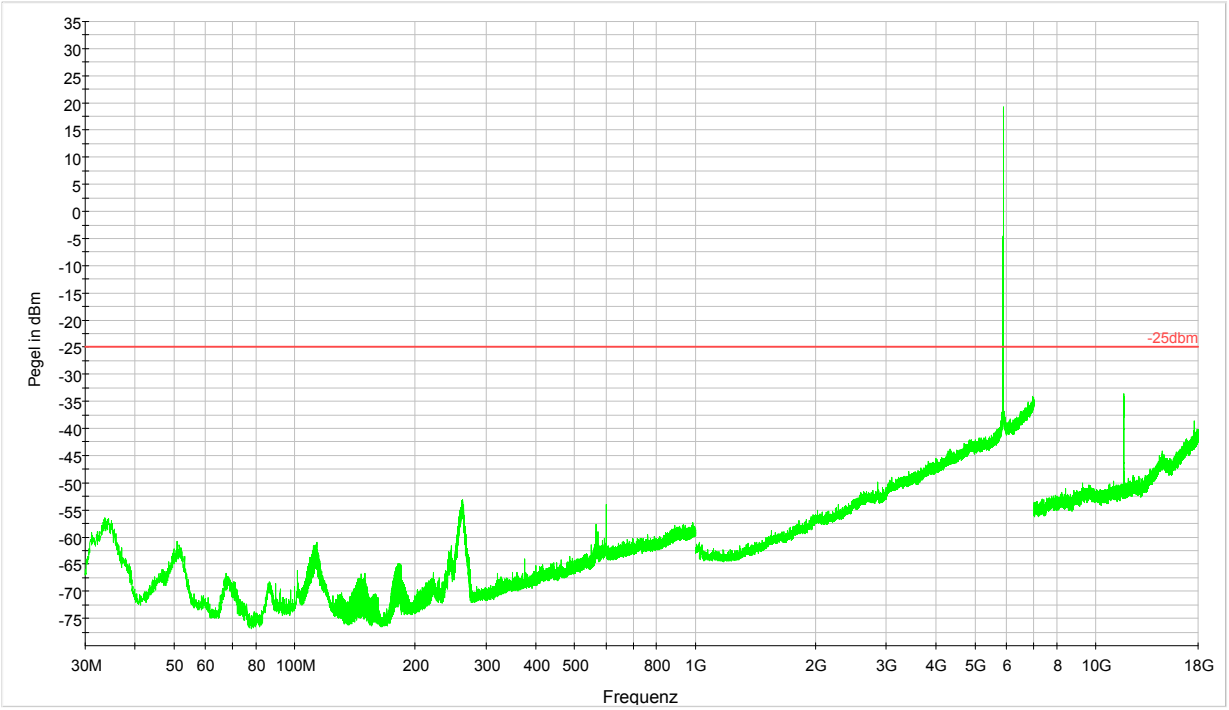
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5880 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

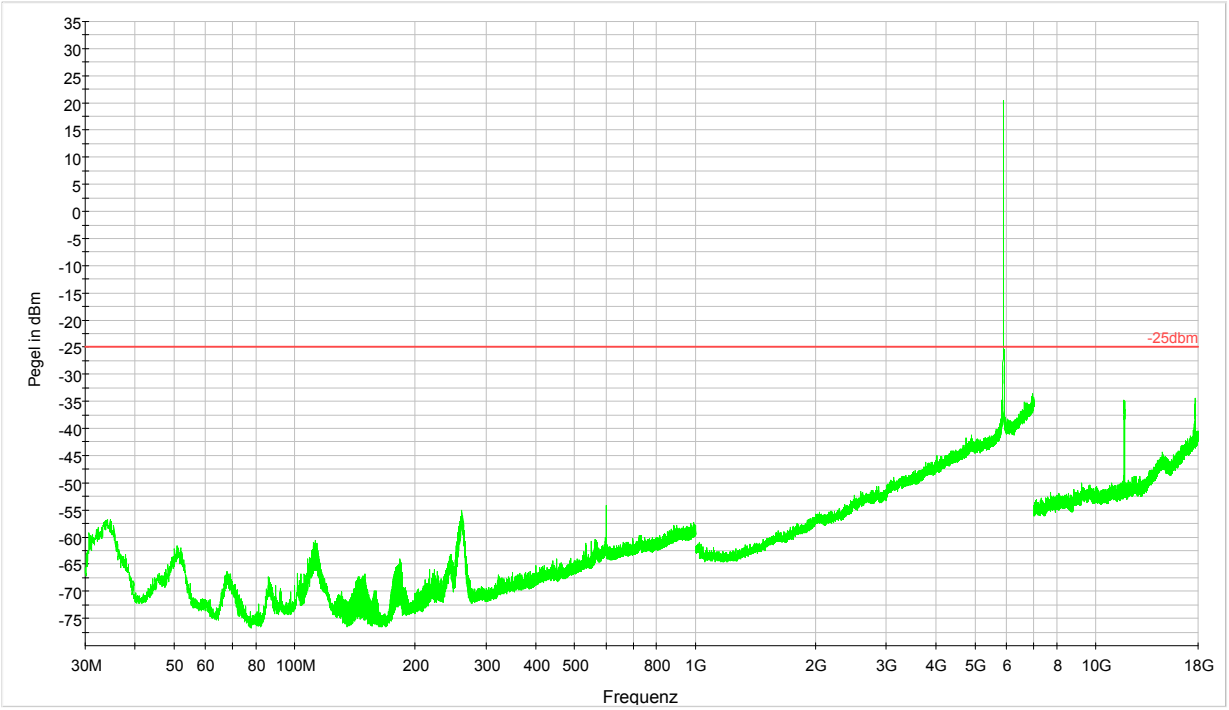
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5890 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

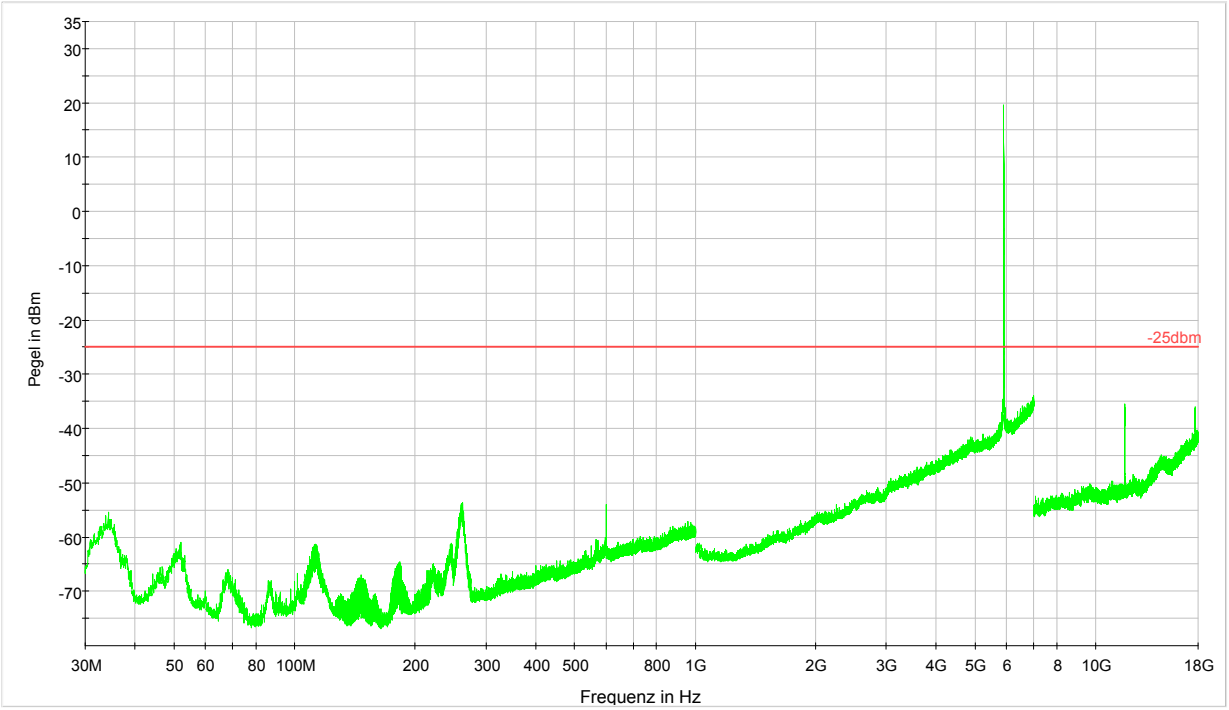
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5900 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

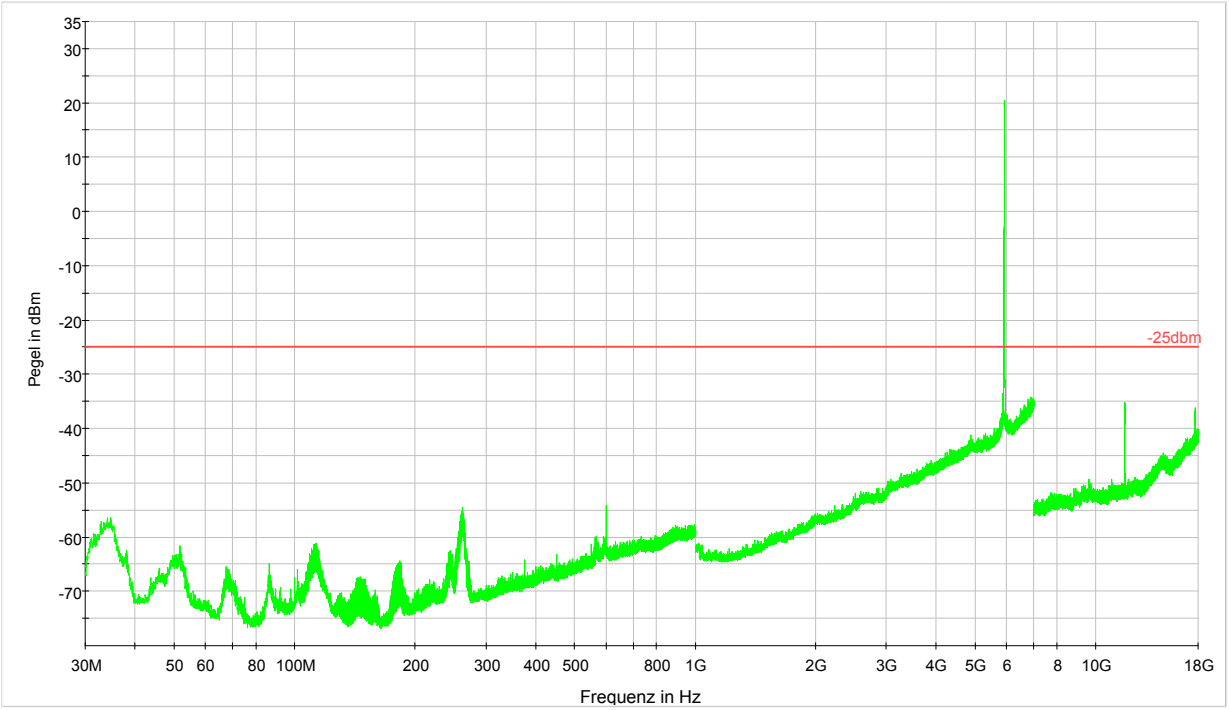
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5910 MHz Modulated



PK+_MAXH:RIS-9160_TX_CH6_Ant1 [RIS-9160_TX_CH6_Ant1.Result:2]
PK+_MAXH:RIS-9160_TX_CH6_Ant1_F2 100k [RIS-9160_TX_CH6_Ant1_F2 100k.Result:2]
PK+_MAXH:RIS-9160_TX_CH6_Ant1_F3a [RIS-9160_TX_CH6_Ant1_F3a.Result:2]
-25dbm [..\EMI radiated\]

Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

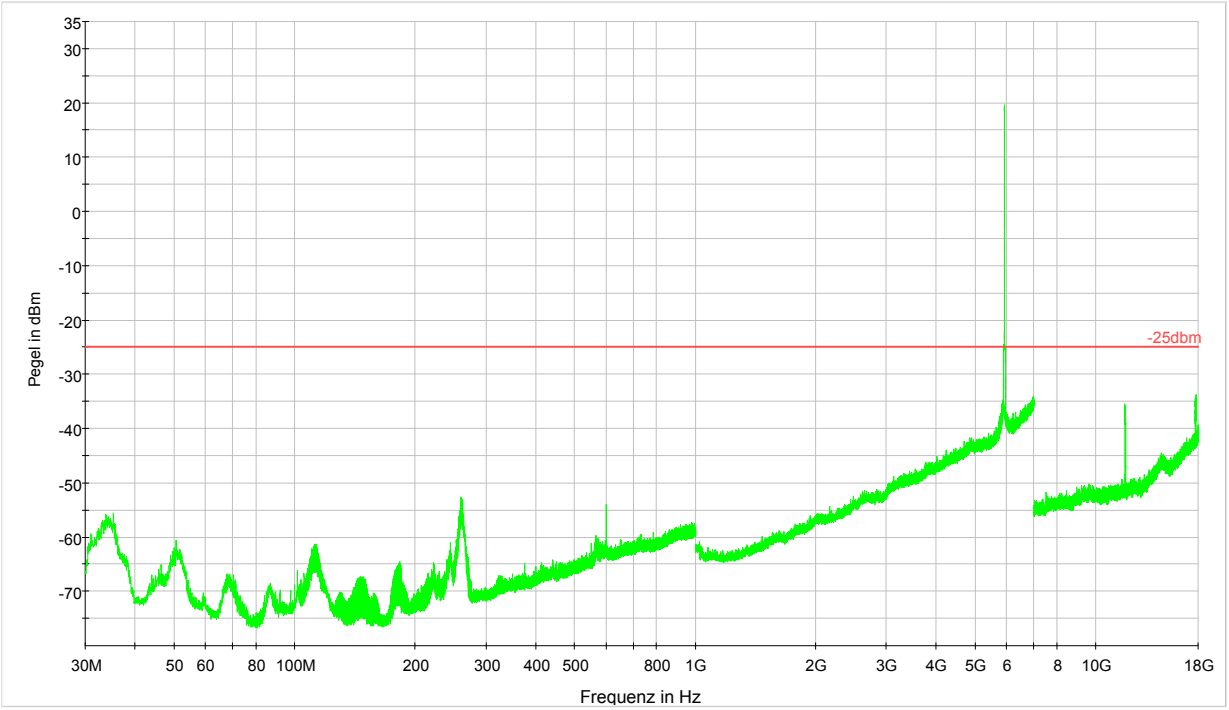
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via Power over Ethernet

Transmitter operating – 5920 MHz Modulated



PK+_MAXH:RIS-9160_TX_CH7_Ant1 [RIS-9160_TX_CH7_Ant1.Result:2]
PK+_MAXH:RIS-9160_TX_CH7_Ant1_F2 100k [RIS-9160_TX_CH7_Ant1_F2 100k.Result:2]
PK+_MAXH:RIS-9160_TX_CH7_Ant1_F3a [RIS-9160_TX_CH7_Ant1_F3a.Result:2]
-25dbm [..\EMI radiated\]

Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

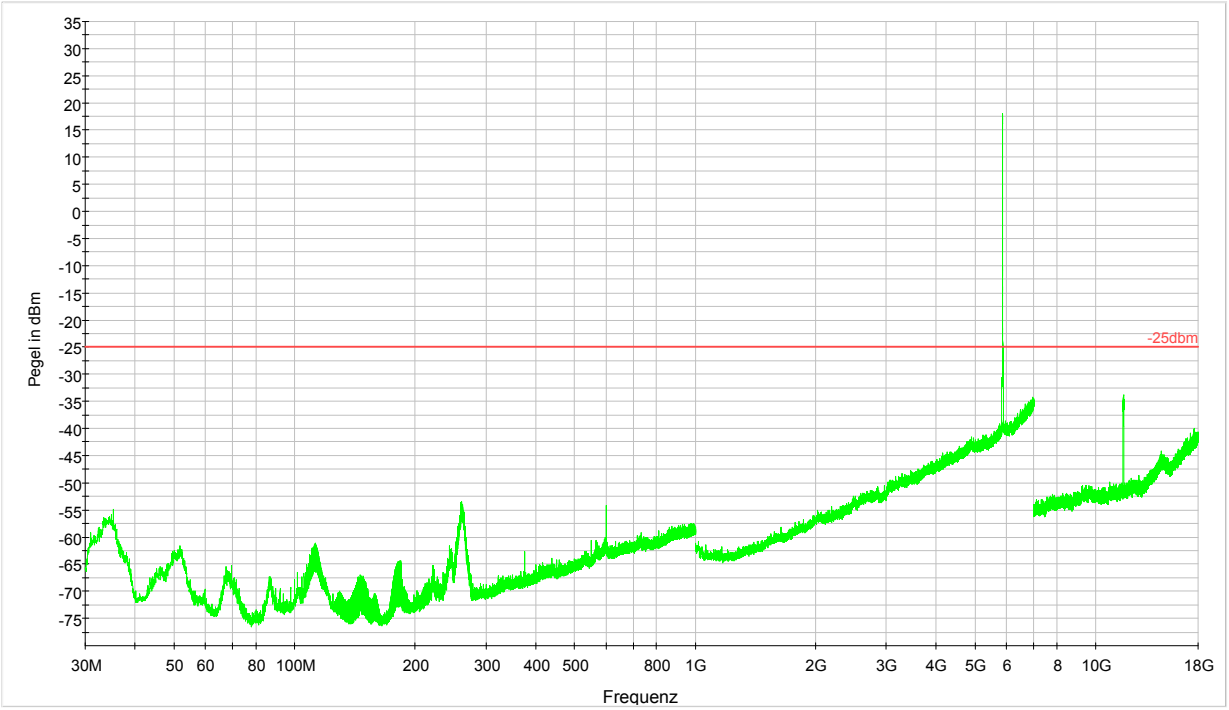
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5860 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

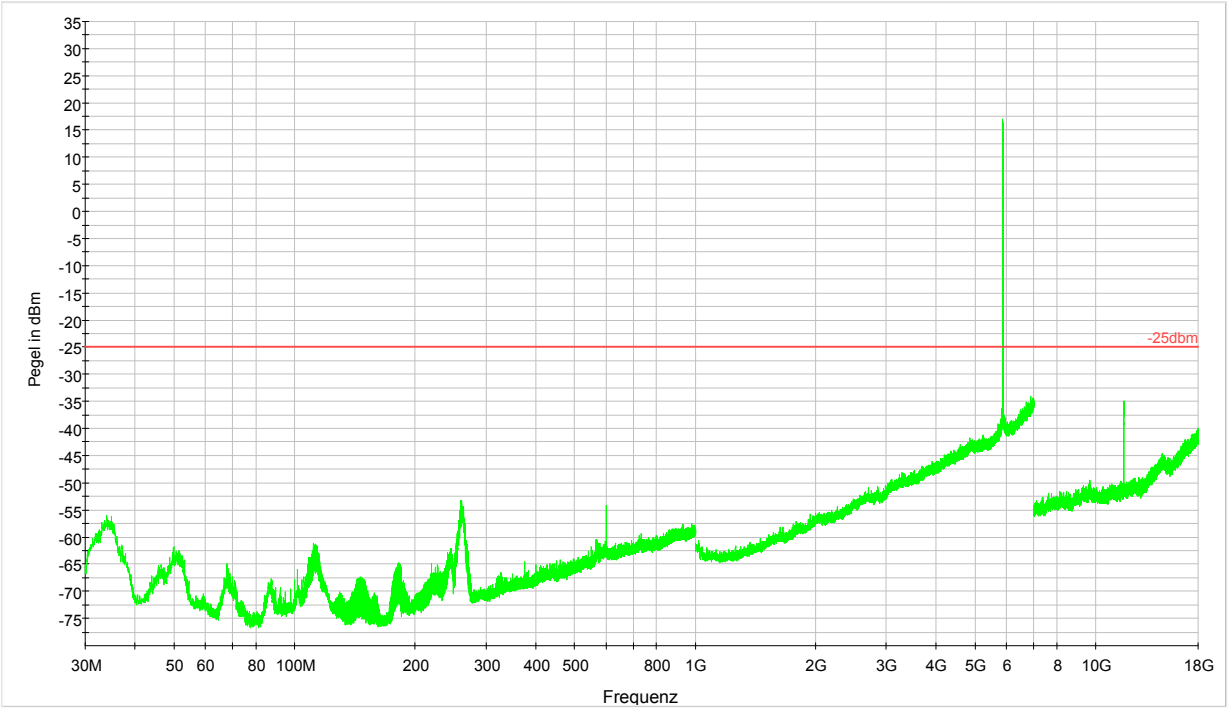
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5870 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

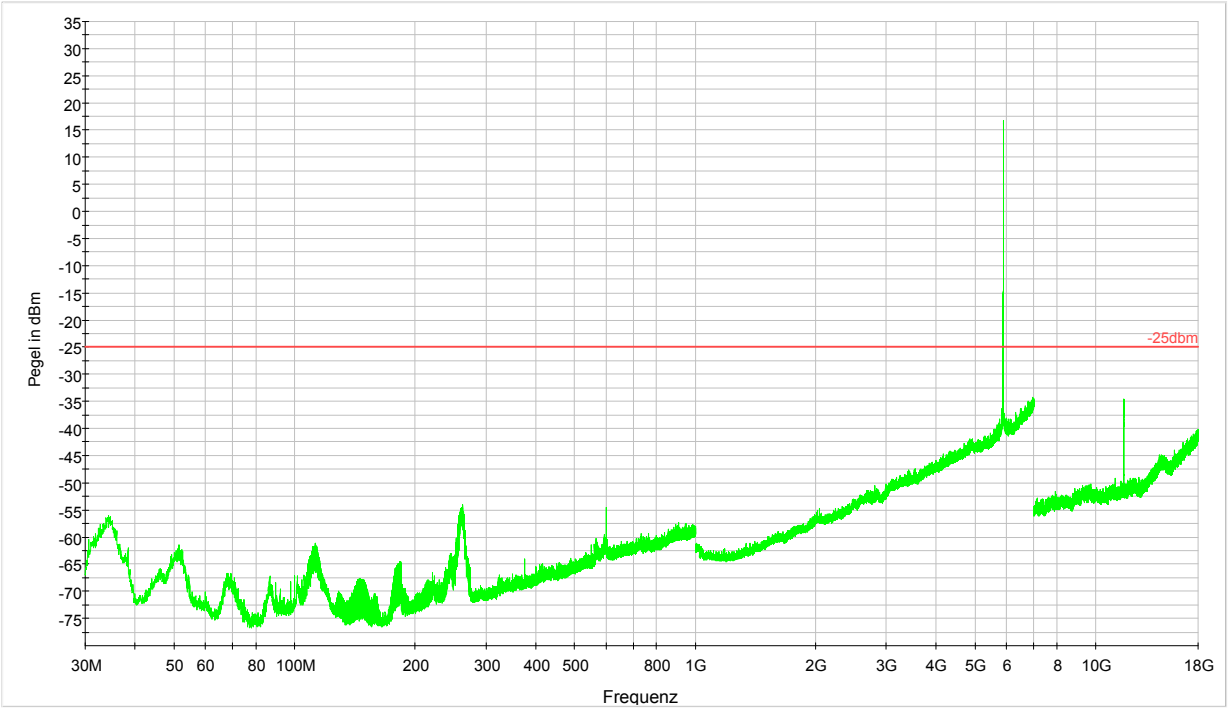
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5880 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

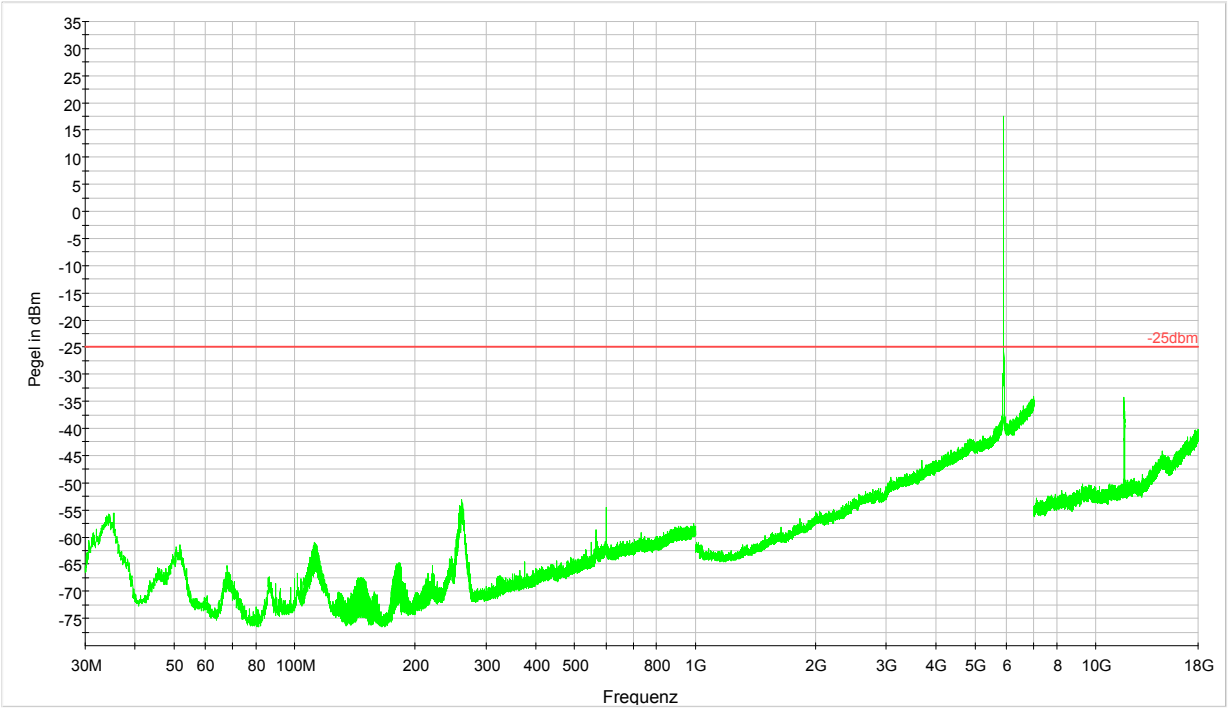
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5890 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

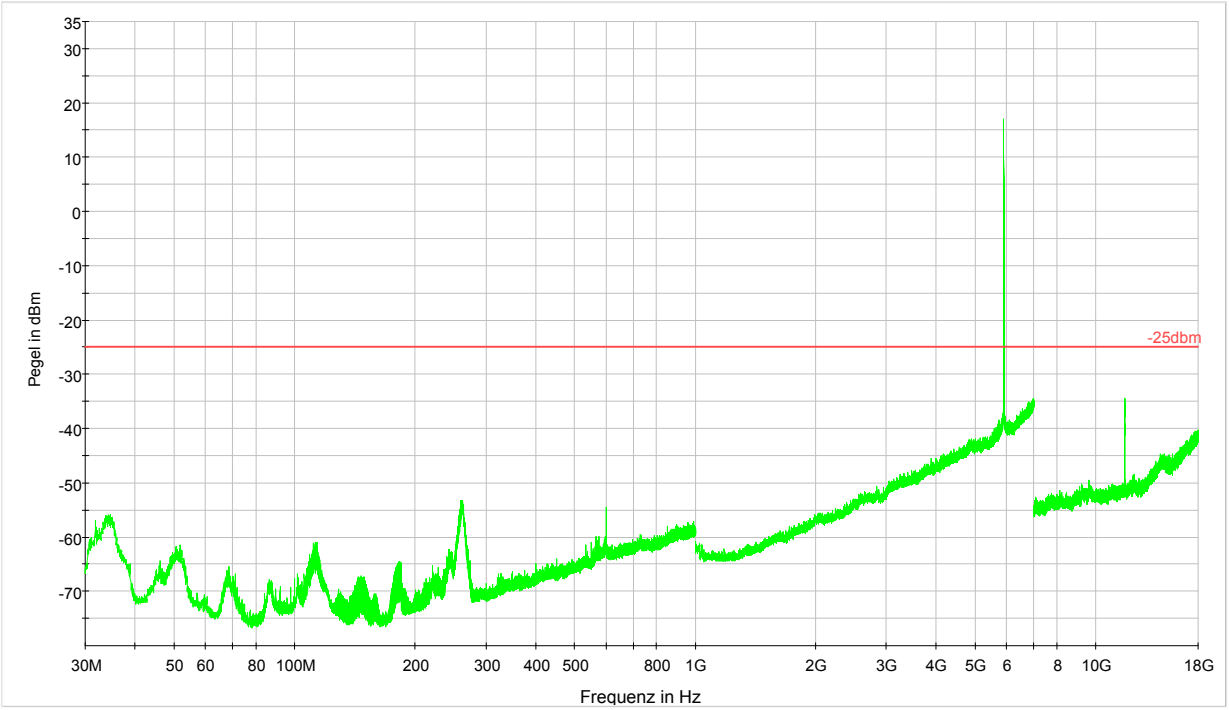
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5900 MHz Modulated



PK+_MAXH:RIS-9160_TX_CH5_Ant2 [RIS-9160_TX_CH5_Ant2.Result:2]
PK+_MAXH:RIS-9160_TX_CH5_Ant2_F2 100k [RIS-9160_TX_CH5_Ant2_F2 100k.Result:2]
PK+_MAXH:RIS-9160_TX_CH5_Ant2_F3a [RIS-9160_TX_CH5_Ant2_F3a.Result:2]
-25dbm [..\EMI radiated\]

Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

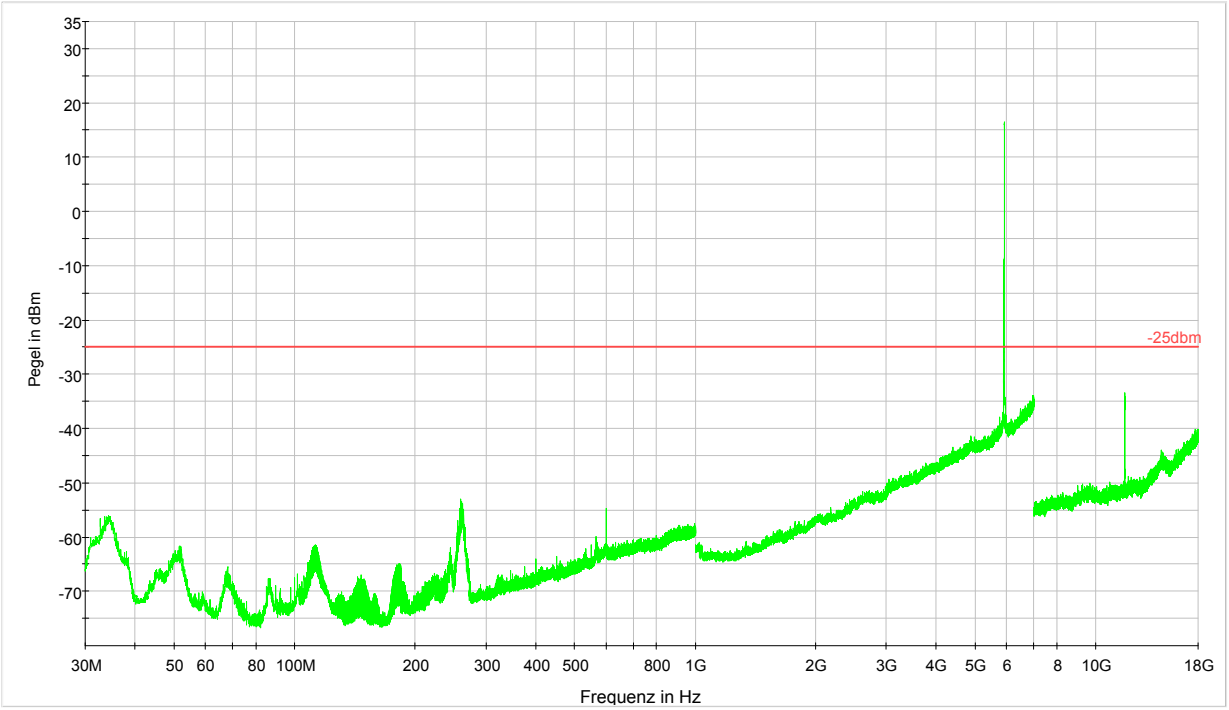
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5910 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

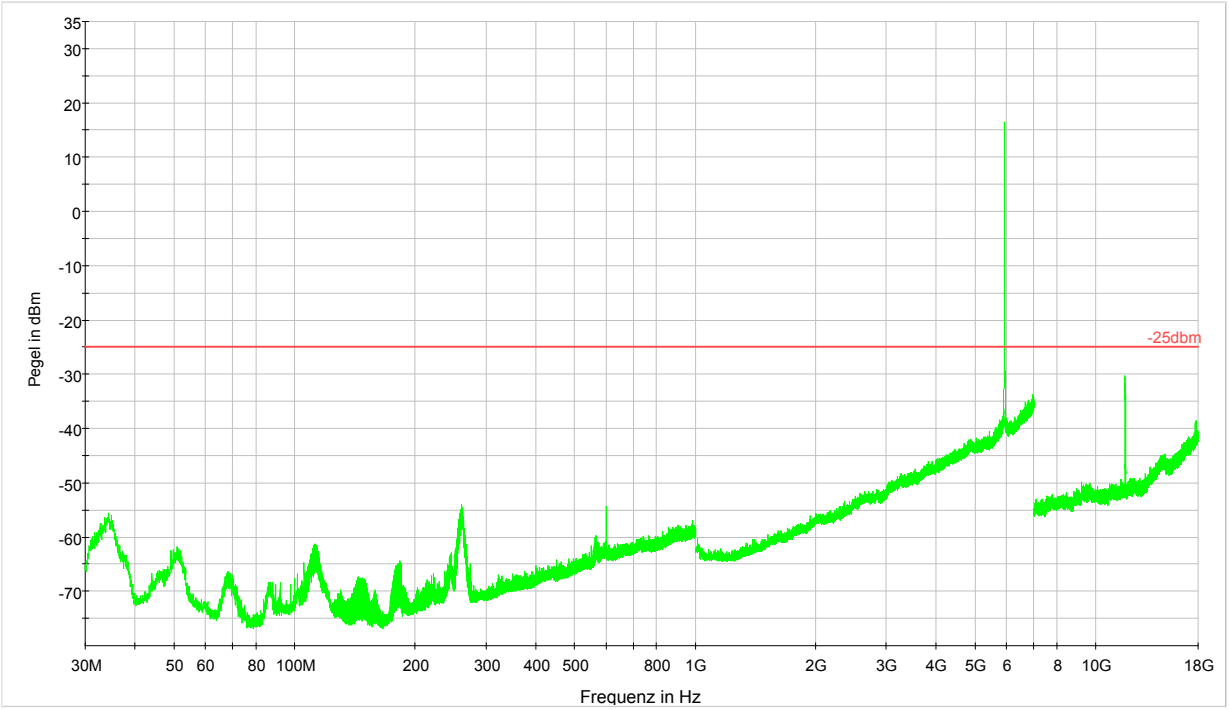
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via Power over Ethernet

Transmitter operating – 5920 MHz Modulated



PK+_MAXH:RIS-9160_TX_CH7_Ant2 [RIS-9160_TX_CH7_Ant2.Result:2]
PK+_MAXH:RIS-9160_TX_CH7_Ant2_F2 100k [RIS-9160_TX_CH7_Ant2_F2 100k.Result:2]
PK+_MAXH:RIS-9160_TX_CH7_Ant2_F3a [RIS-9160_TX_CH7_Ant2_F3a.Result:2]
-25dbm [..\EMI radiated\]

Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

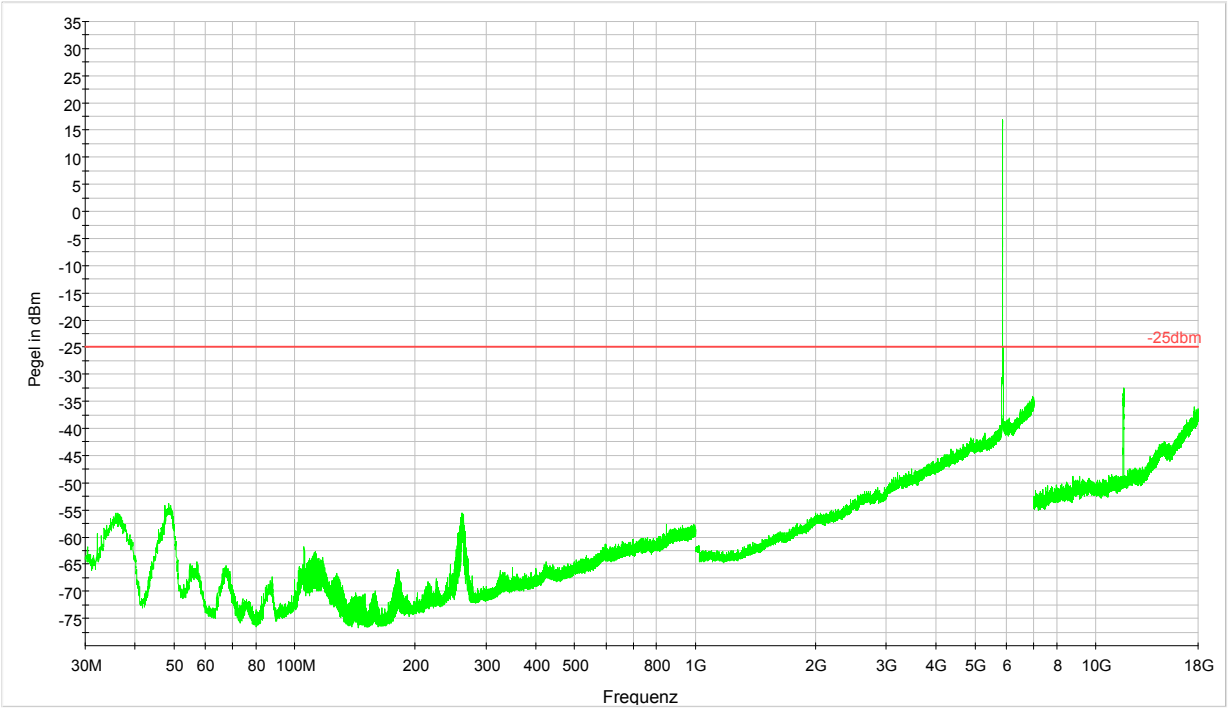
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via 48V DC

Transmitter operating – 5860 MHz Modulated



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LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

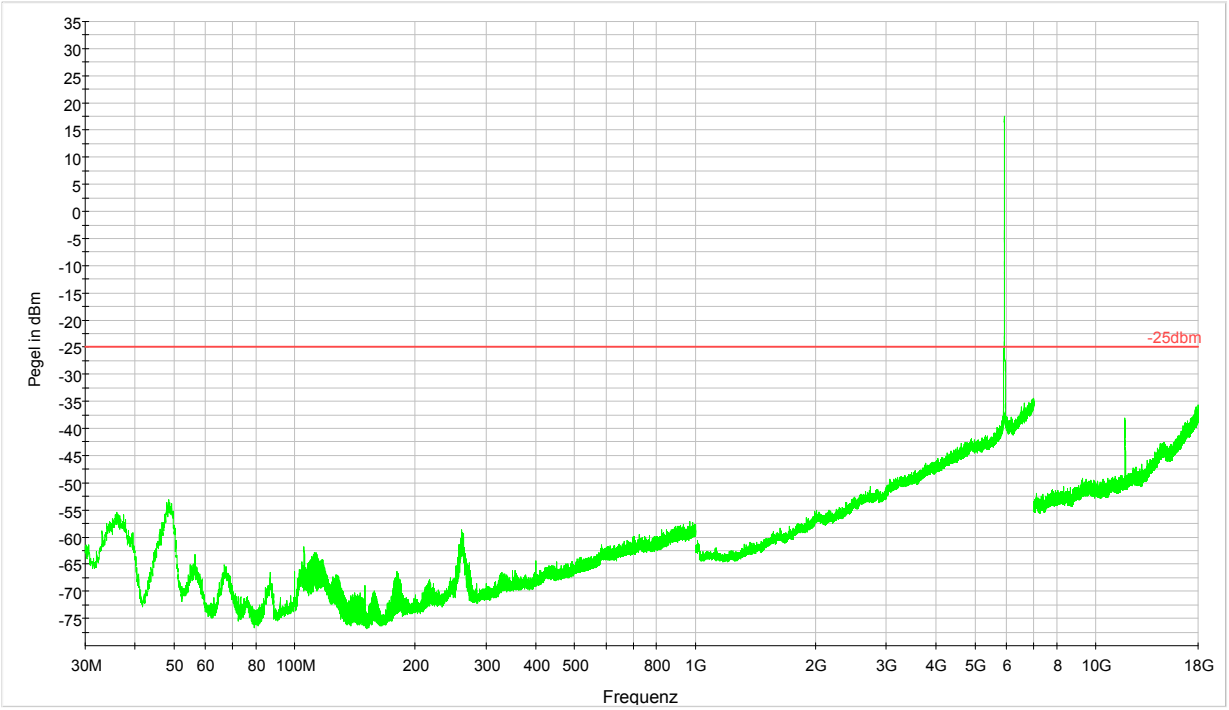
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 1 – powered via 48V DC

Transmitter operating – 5920 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

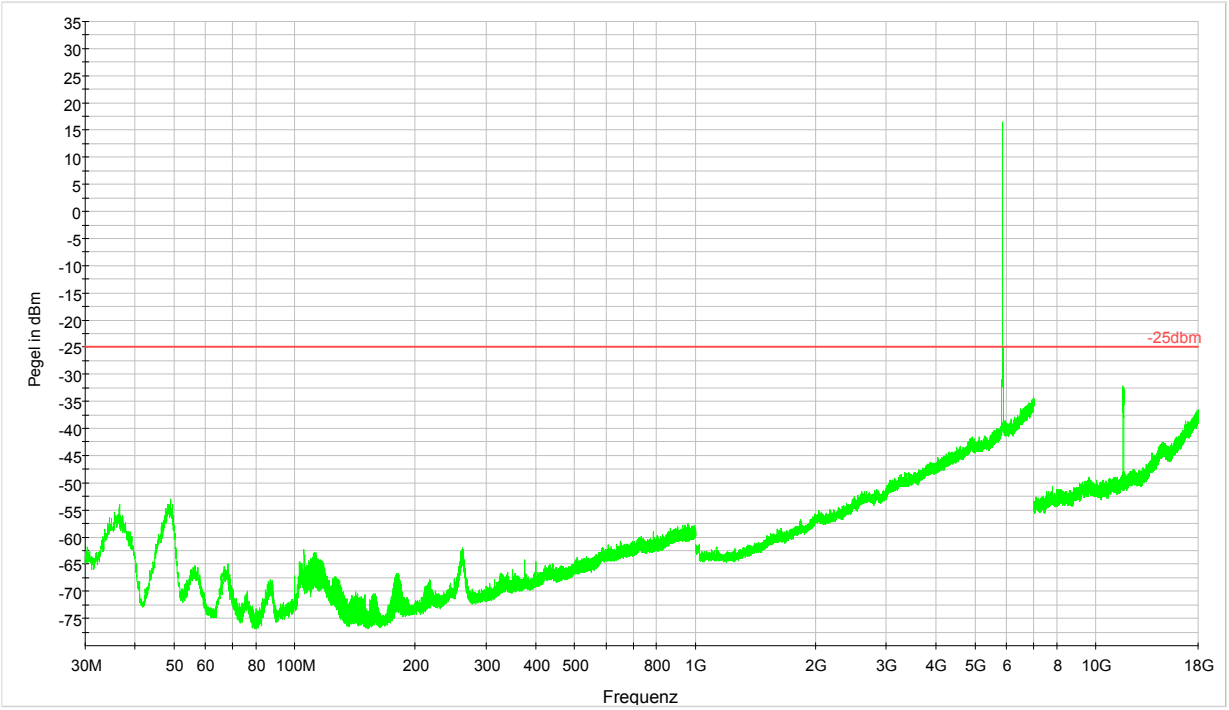
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via 48V DC

Transmitter operating – 5860 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

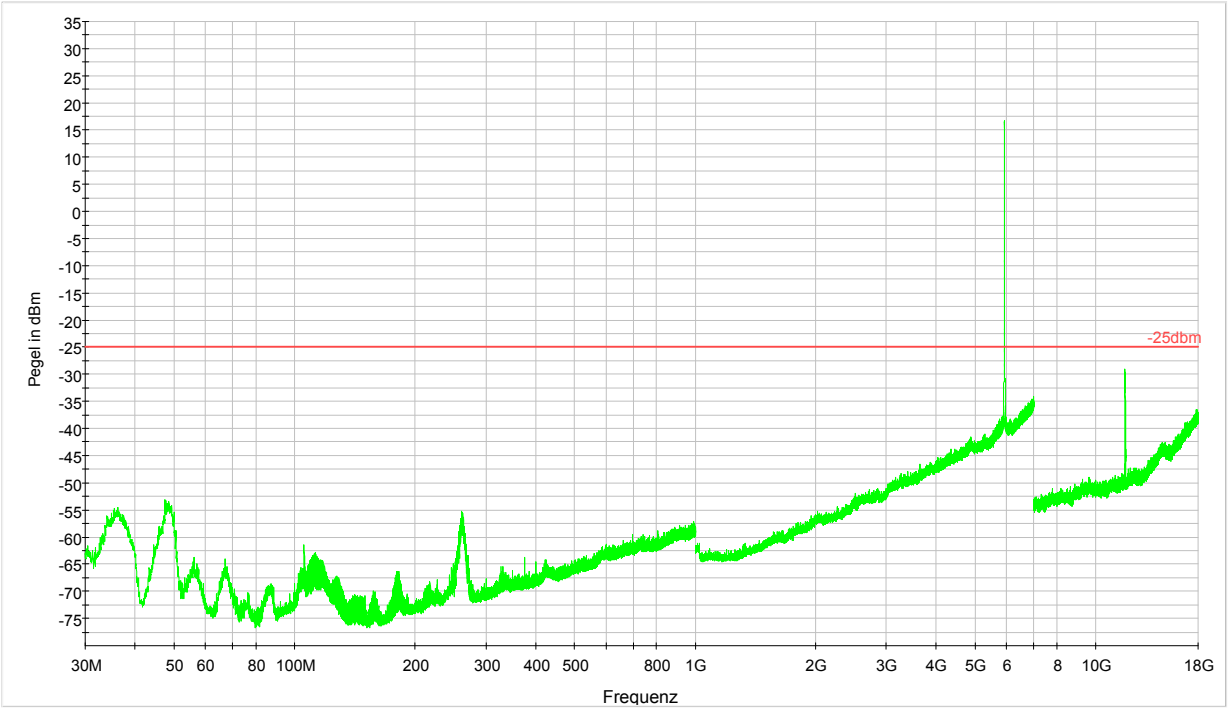
Ambient temperature: 23°C Relative humidity: 40%

Transmitter unwanted emissions outside the 5 GHz ITS frequency band SUBCLAUSE 8.10.2.2

Rated output power 27 dBm eirp (radiated measurement)

Measured Radio: 2 – powered via 48V DC

Transmitter operating – 5920 MHz Modulated



Although the measurement above ends at 18 GHz, radiated measurements were made up to 40 GHz, but no graph is available. No emissions above noise level were found above 18 GHz.

LIMITS SUBCLAUSE 8.10.2.2.2

The transmitted spectral mask for class A, B, C, and D devices are shown in Figs. 12-15. In addition, all DSRC site installations shall limit the EIRP in the transmitted spectrum to −25 dBm or less in the 100 kHz at the channel edges and the band edges.

TEST EQUIPMENT USED: EMV-100; EMV-101; EMV-102; EMV-103; EMV-110; EMV-111; EMV-112; EMV-200; EMV-202; NT-456

Ambient temperature: 23°C Relative humidity: 40%

Transmitter spectrum mask within the 5 GHz ITS frequency band for 10 MHz channels SUBCLAUSE 8.10.6

LIMITS SUBCLAUSE 8.10.6

TABLE 10 DSRC Spectrum Mask[A]

NOTE 1—Reduction in Power Spectral Density, dBr.

Class	± 4.5-MHz Offset	± 5.0-MHz Offset	± 5.5-MHz Offset	± 10-MHz Offset	± 15-MHz Offset
Class A	0	-10	-20	-28	-40
Class B	0	-16	-20	-28	-40
Class C	0	-26	-32	-40	-50
Class D	0	-35	-45	-55	-65

[A] From IEEE 802.11a. Copyright 1999 IEEE. All rights reserved.

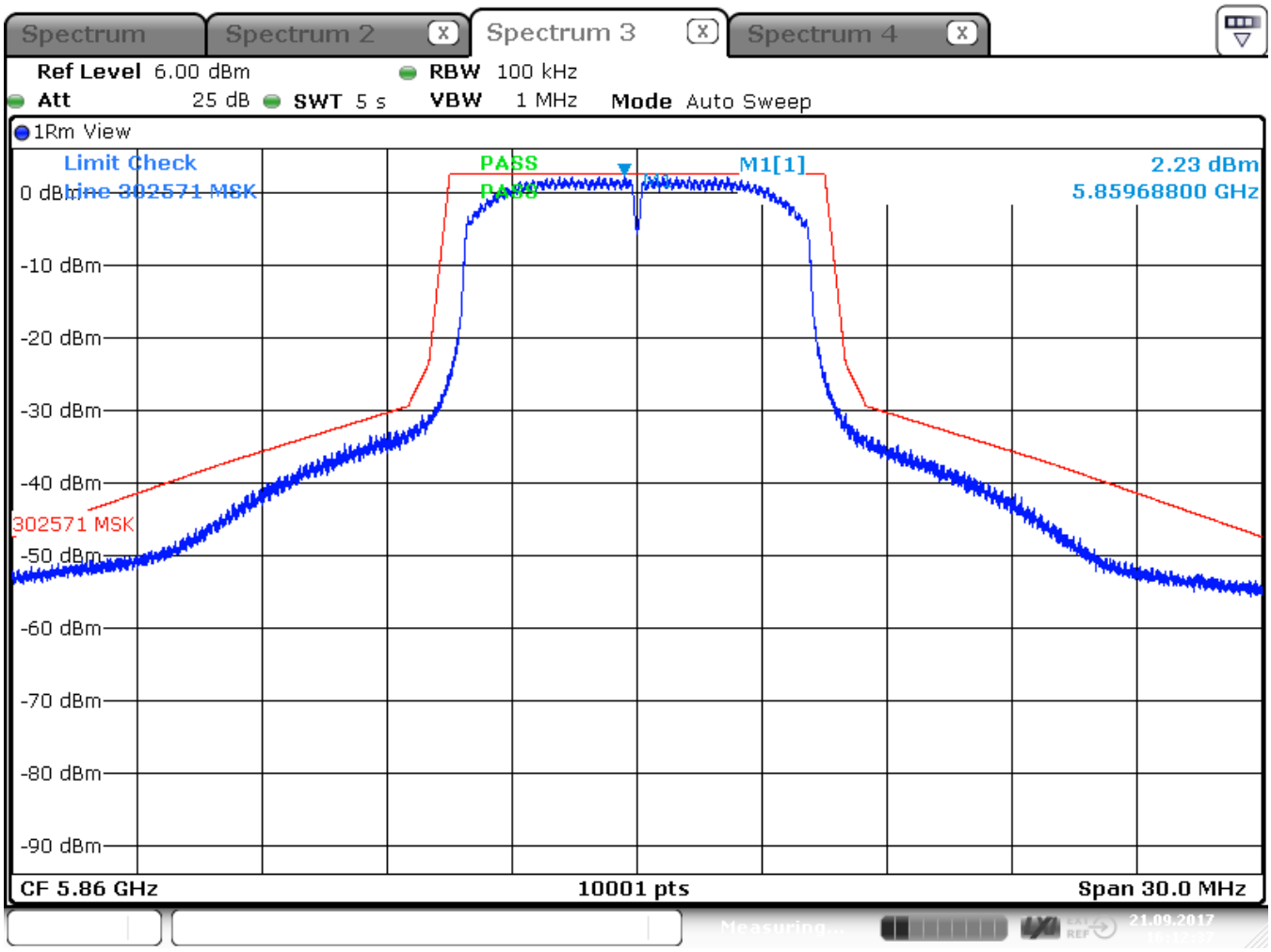
Ambient temperature: 23°C Relative humidity: 40%

Transmitter spectrum mask within the 5 GHz ITS frequency band for 10 MHz channels SUBCLAUSE 8.10.6

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1 – data rate 3 MBps

Transmitter operating – 5860 MHz Modulated



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LIMITS SUBCLAUSE 8.10.6

See page 53.

TEST EQUIPMENT USED: EMV-205

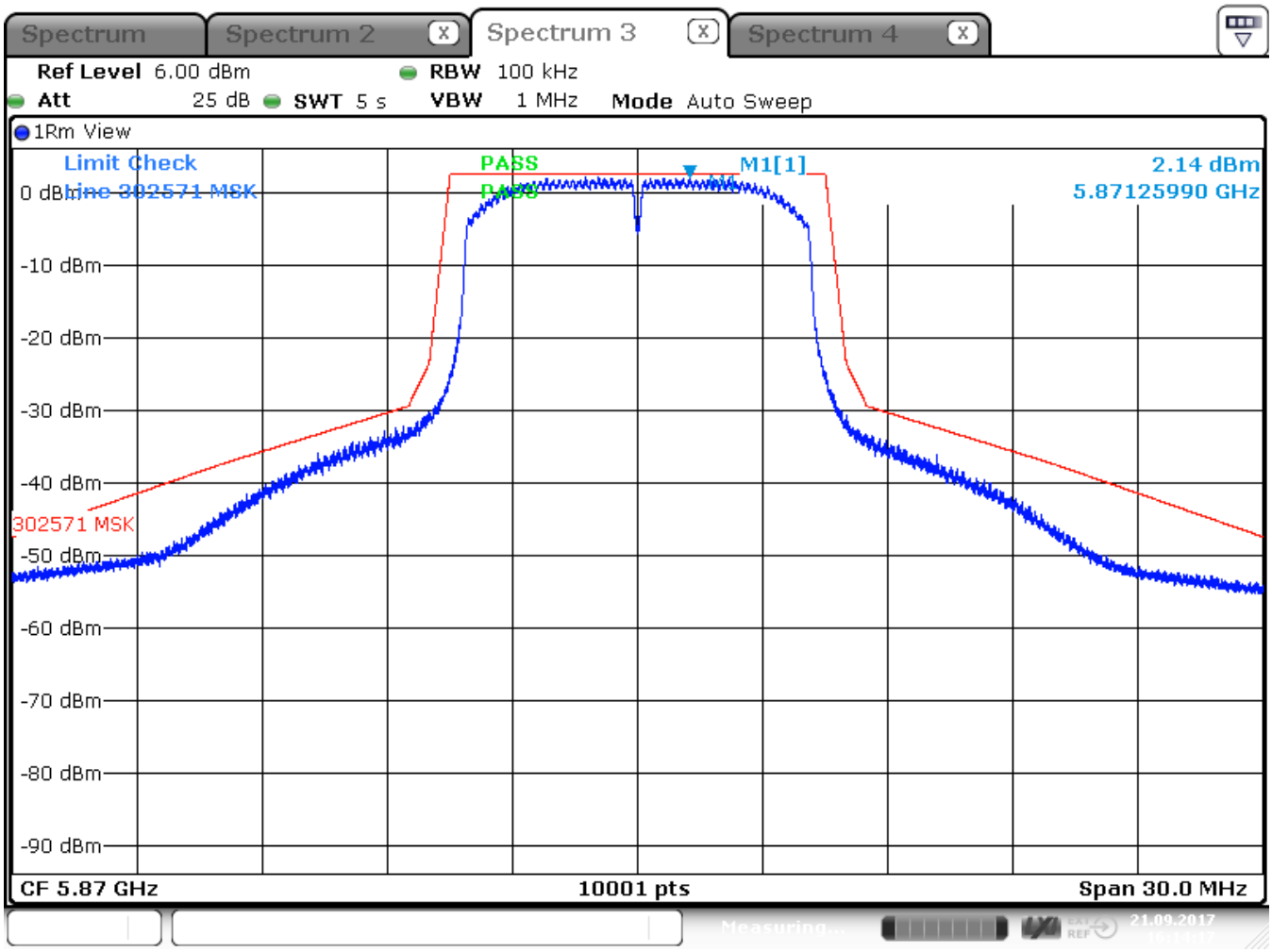
Ambient temperature: 23°C Relative humidity: 40%

Transmitter spectrum mask within the 5 GHz ITS frequency band for 10 MHz channels SUBCLAUSE 8.10.6

Rated output power 27 dBm eirp (conducted measurement)

Measured Radio: 1 – data rate 3 MBps

Transmitter operating – 5870 MHz Modulated



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LIMITS SUBCLAUSE 8.10.6

See page 53.

TEST EQUIPMENT USED: EMV-205