



## 9.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 01, 2013
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 16, 2013
3	Microwave Pre-amplifier	Agilent	8449B	3008A01714	Apr. 17, 2013
4	Microflex Cable	N/A	N/A	1m	Apr. 14, 2013
5	Microflex Cable	AISI	S104-SMAP-1	10m	Apr. 14, 2013
6	Microflex Cable	N/A	N/A	3m	Apr. 14, 2013
7	Test Cable	N/A	LMR-400	966_12m	May. 15, 2013
8	Test Cable	N/A	LMR-400	966_3m	May. 15, 2013
9	Pre-Amplifier	EMC	EMC-330	980001	May. 31, 2013
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 12, 2013

Remark: "N/A" denotes No Model Name, No Serial No. or No Calibration specified.

## 9.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average



## 9.4 TEST PROCEDURES

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1 GHz. For frequencies above 1 GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.
- The testing follows the guidelines in ANSI C63.4 and FCC Public Notice DA 00-705 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

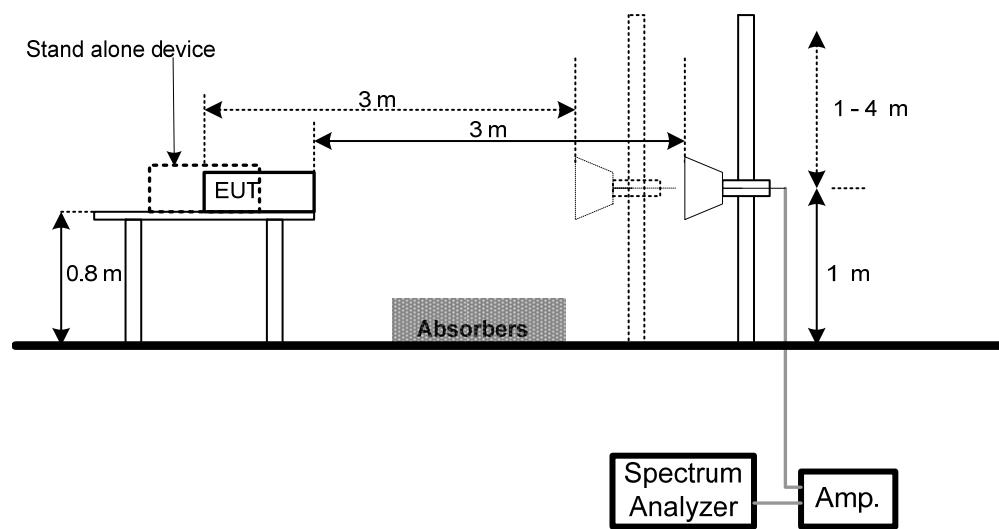
### NOTE:

- Reading in which marked as Peak means measurements by using are Peak Mode with instrument setting in RBW= 1 MHz, VBW= 1 MHz, Swp. Time = Auto.  
Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW= 1 MHz, VBW= 10 Hz, Swp. Time = Auto.
- All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform.

## 9.5 DEVIATION FROM TEST STANDARD

No deviation

## 9.6 TEST SETUP LAYOUT





## **9.7 EUT OPERATING CONDITIONS**

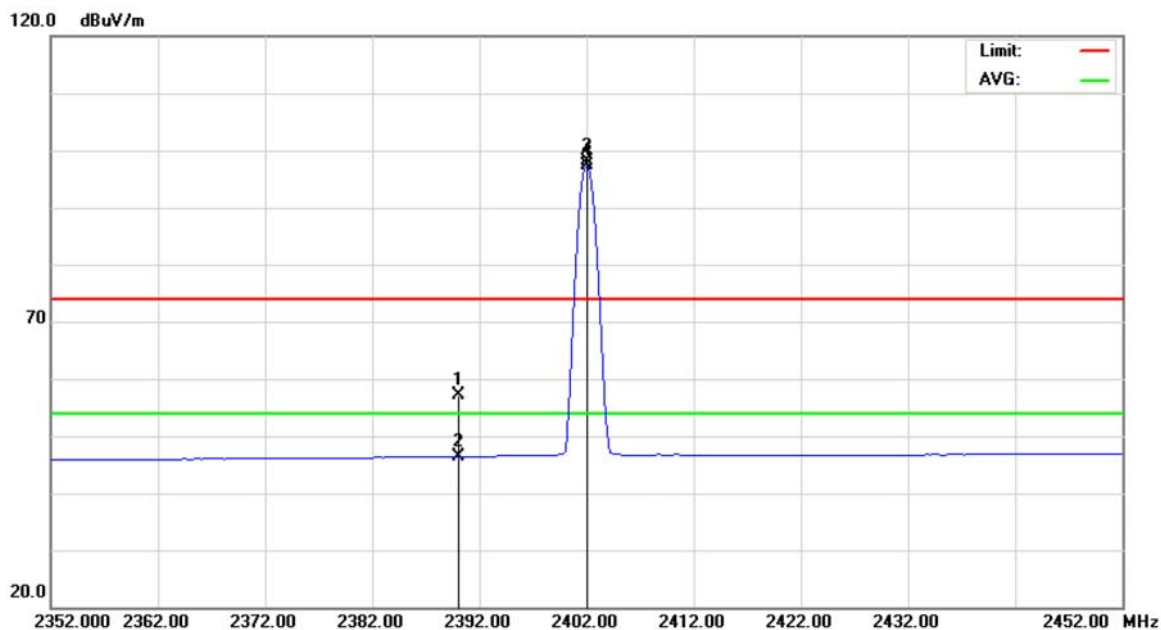
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.



## 9.8 TEST RESULTS

E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		

### Polarization: Vertical

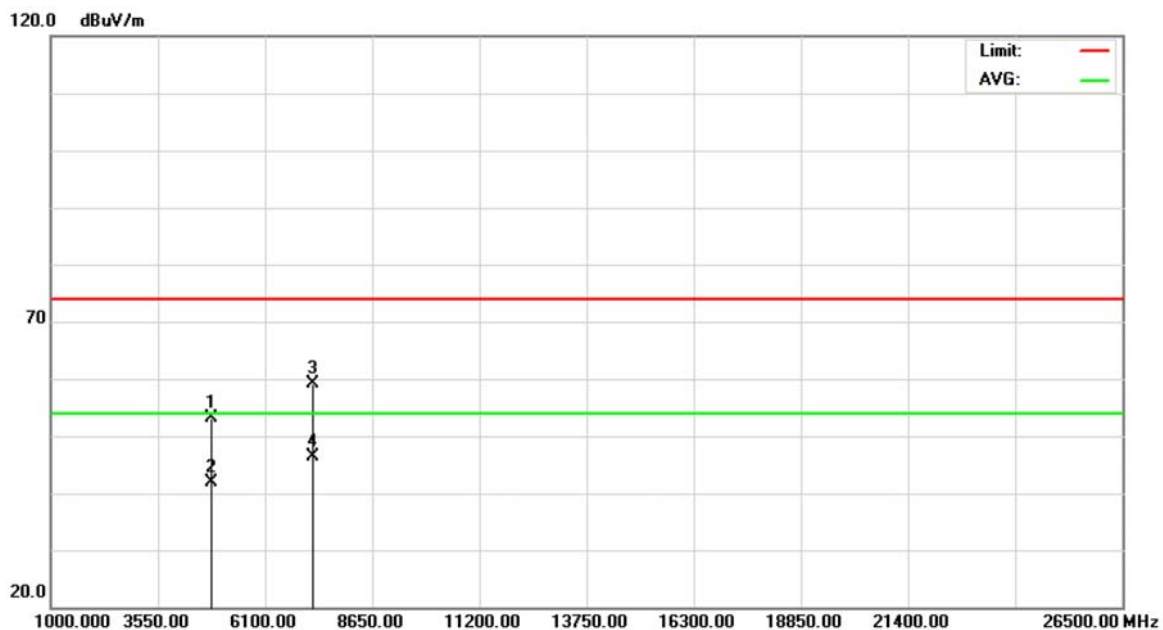


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	23.85	33.25	57.10	74.00	-16.90	peak	
2		2390.000	13.11	33.25	46.36	54.00	-7.64	AVG	
3	X	2402.000	64.79	33.31	98.10	74.00	24.10	peak	
4	*	2402.000	64.07	33.31	97.38	54.00	43.38	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		

**Polarization: Vertical**

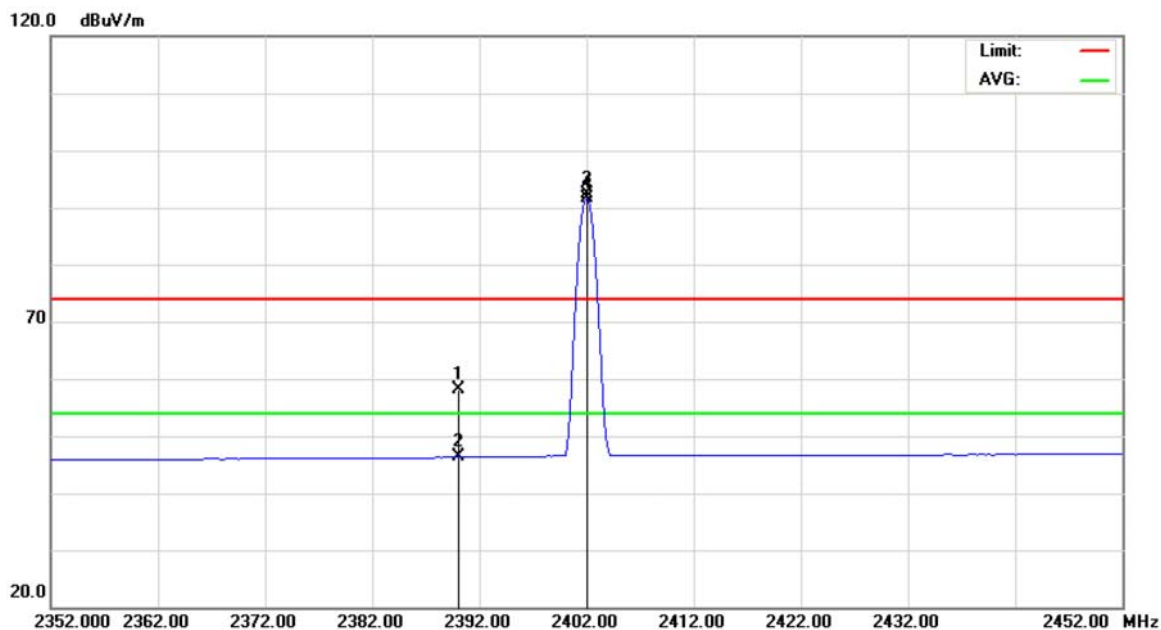


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4804.038	44.51	8.54	53.05	74.00	-20.95	peak	
2		4804.038	33.28	8.54	41.82	54.00	-12.18	AVG	
3		7207.150	42.89	16.18	59.07	74.00	-14.93	peak	
4	*	7207.150	30.29	16.18	46.47	54.00	-7.53	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		

**Polarization: Horizontal**

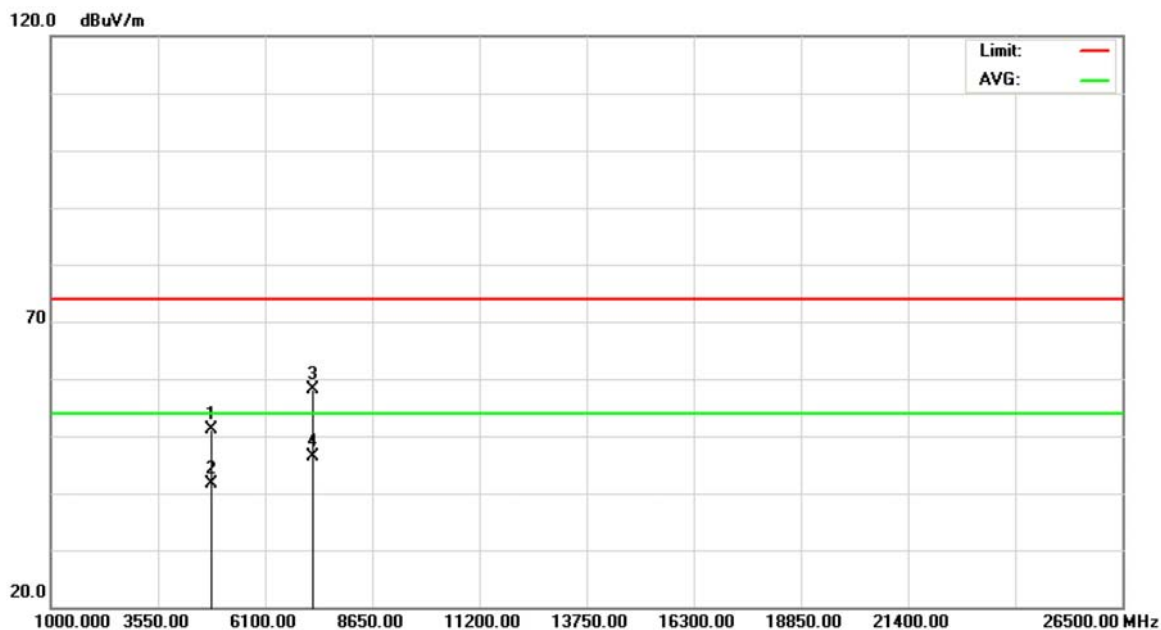


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	24.90	33.25	58.15	74.00	-15.85	peak	
2		2390.000	13.04	33.25	46.29	54.00	-7.71	AVG	
3	X	2402.000	59.04	33.31	92.35	74.00	18.35	peak	
4	*	2402.000	58.27	33.31	91.58	54.00	37.58	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		

**Polarization: Horizontal**

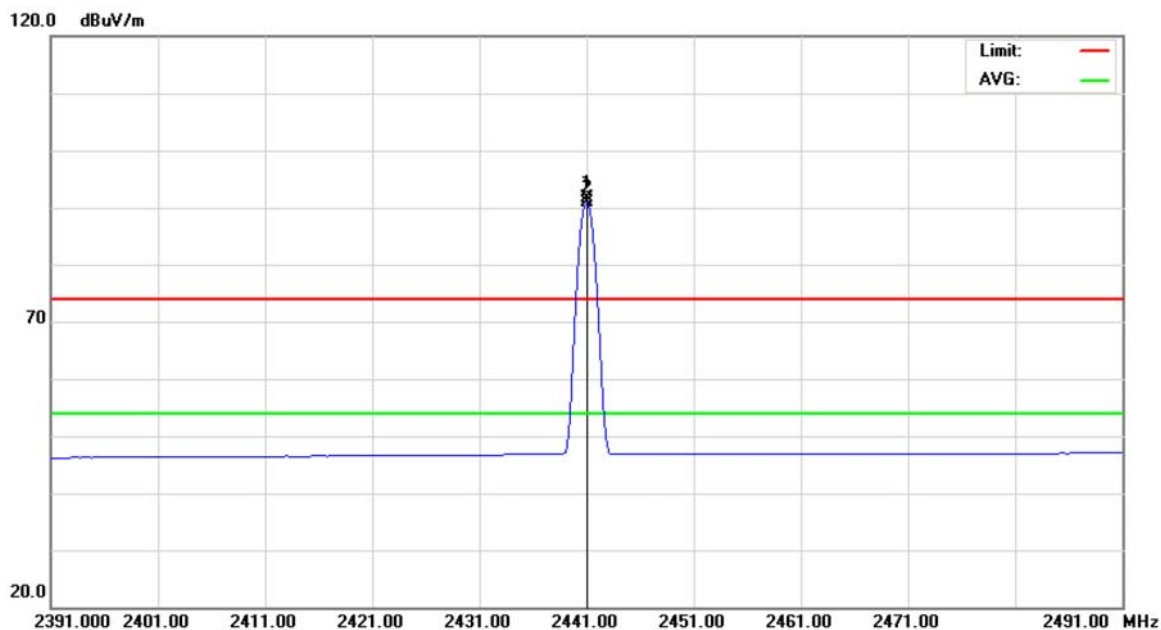


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4803.950	42.58	8.54	51.12	74.00	-22.88	peak	
2		4803.950	33.11	8.54	41.65	54.00	-12.35	AVG	
3		7208.163	42.04	16.18	58.22	74.00	-15.78	peak	
4	*	7208.163	30.31	16.18	46.49	54.00	-7.51	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2441 MHz		

**Polarization: Vertical**



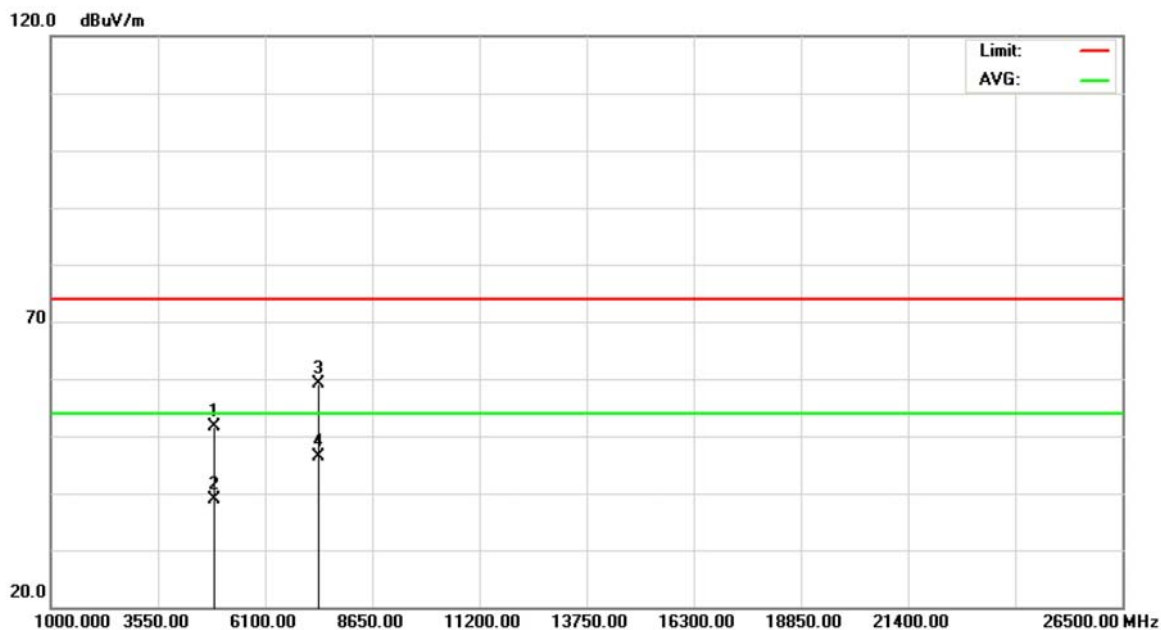
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2441.000	58.01	33.52	91.53	74.00	17.53	peak	
2	*	2441.000	57.31	33.52	90.83	54.00	36.83	AVG	





E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2441 MHz		

**Polarization: Vertical**

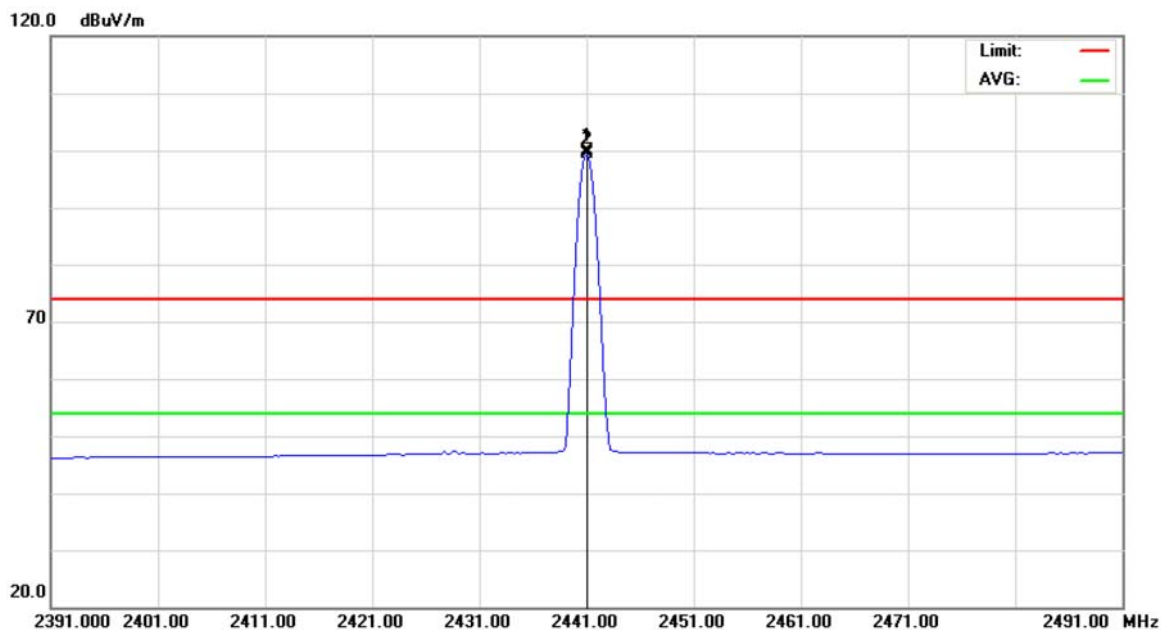


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4881.763	42.90	8.81	51.71	74.00	-22.29	peak	
2		4881.763	30.17	8.81	38.98	54.00	-15.02	AVG	
3		7322.388	42.50	16.58	59.08	74.00	-14.92	peak	
4	*	7322.388	29.90	16.58	46.48	54.00	-7.52	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2441 MHz		

**Polarization: Horizontal**

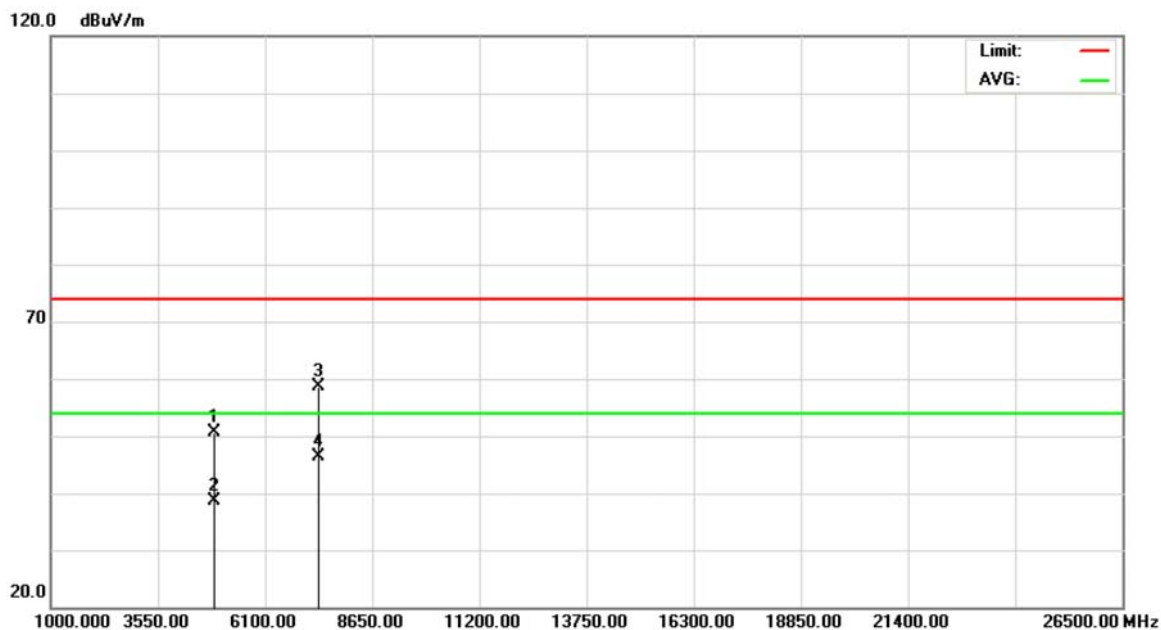


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2441.000	66.34	33.52	99.86	74.00	25.86	peak	
2	*	2441.000	65.74	33.52	99.26	54.00	45.26	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2441 MHz		

**Polarization: Horizontal**

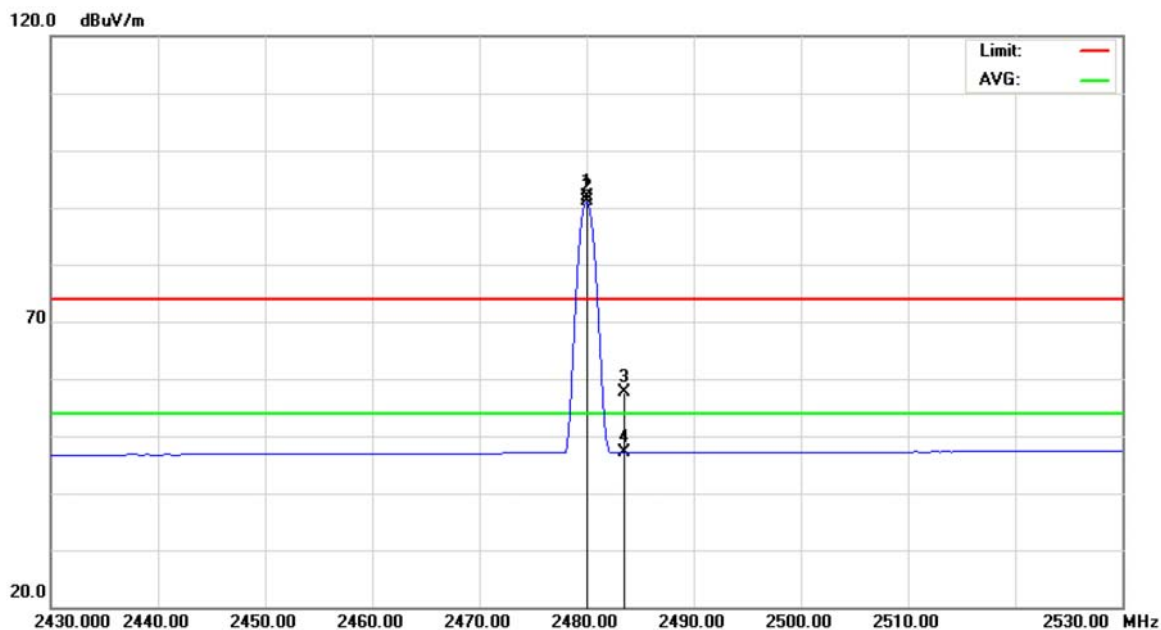


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4882.025	41.82	8.81	50.63	74.00	-23.37	peak	
2		4882.025	29.94	8.81	38.75	54.00	-15.25	AVG	
3		7322.462	42.04	16.58	58.62	74.00	-15.38	peak	
4	*	7322.462	29.87	16.58	46.45	54.00	-7.55	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		

**Polarization: Vertical**

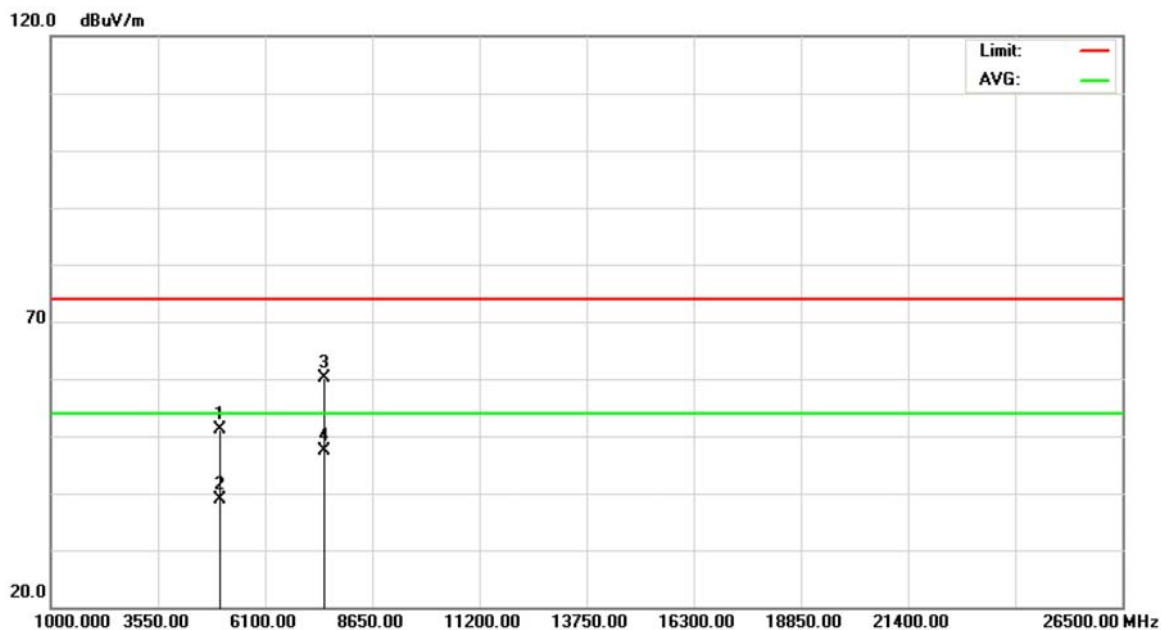


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2480.000	58.11	33.73	91.84	74.00	17.84	peak	
2	*	2480.000	57.32	33.73	91.05	54.00	37.05	AVG	
3		2483.500	24.00	33.75	57.75	74.00	-16.25	peak	
4		2483.500	13.36	33.75	47.11	54.00	-6.89	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		

**Polarization: Vertical**

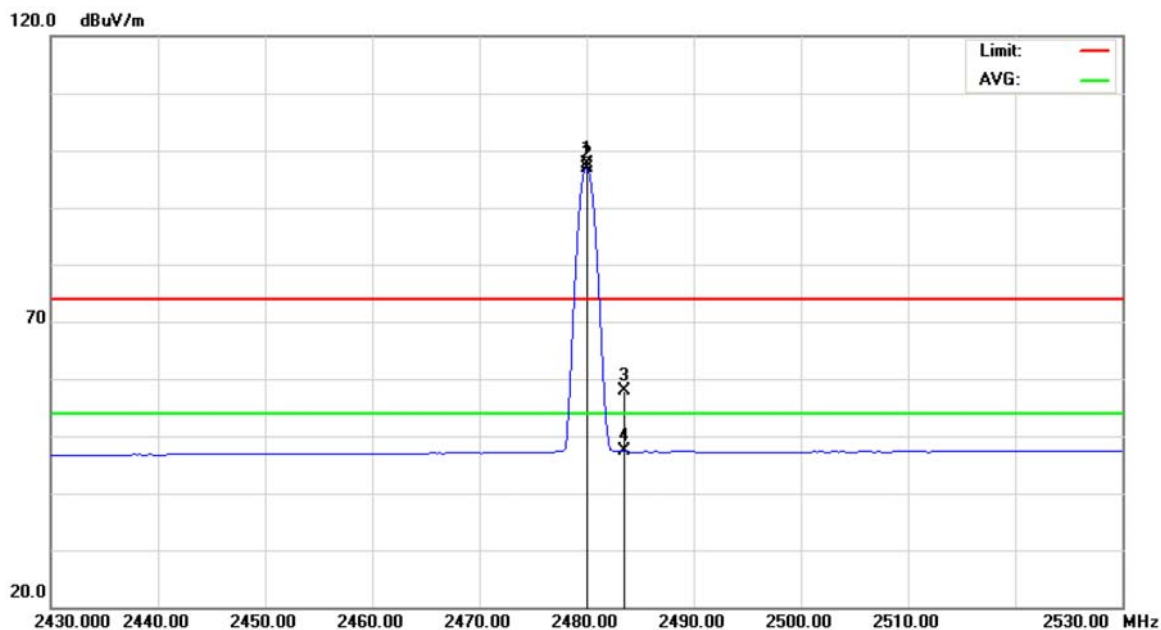


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4959.962	42.07	9.07	51.14	74.00	-22.86	peak	
2		4959.962	29.86	9.07	38.93	54.00	-15.07	AVG	
3		7441.288	43.17	16.99	60.16	74.00	-13.84	peak	
4	*	7441.288	30.51	16.99	47.50	54.00	-6.50	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		

**Polarization: Horizontal**

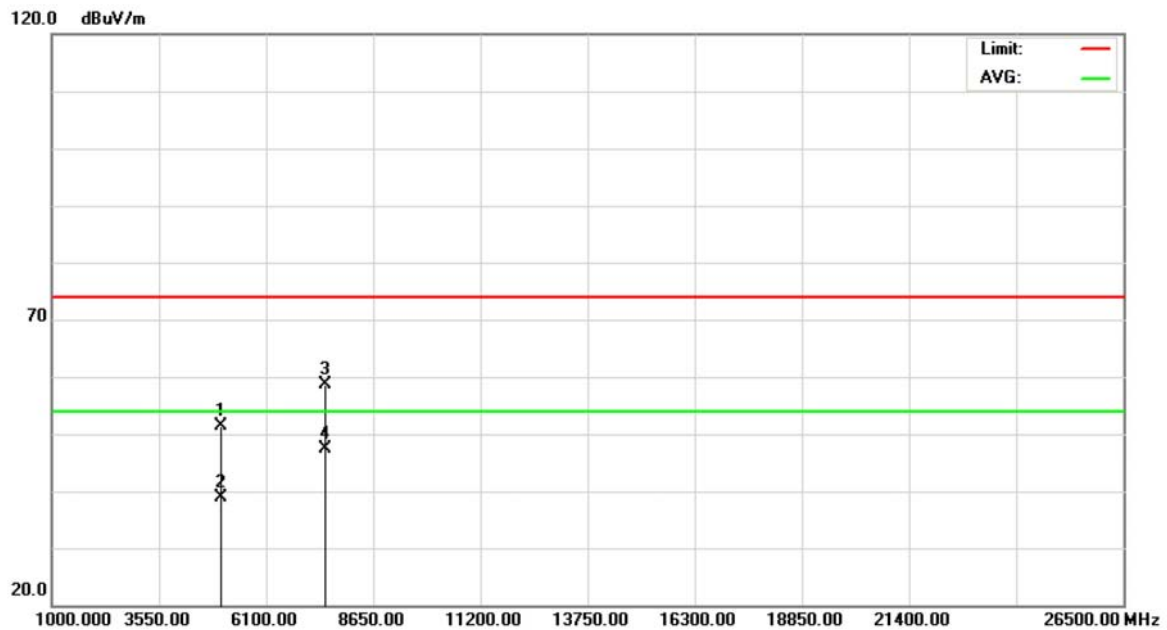


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2480.000	63.82	33.73	97.55	74.00	23.55	peak	
2	*	2480.000	63.27	33.73	97.00	54.00	43.00	AVG	
3		2483.500	24.15	33.75	57.90	74.00	-16.10	peak	
4		2483.500	13.54	33.75	47.29	54.00	-6.71	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		

**Polarization: Horizontal**

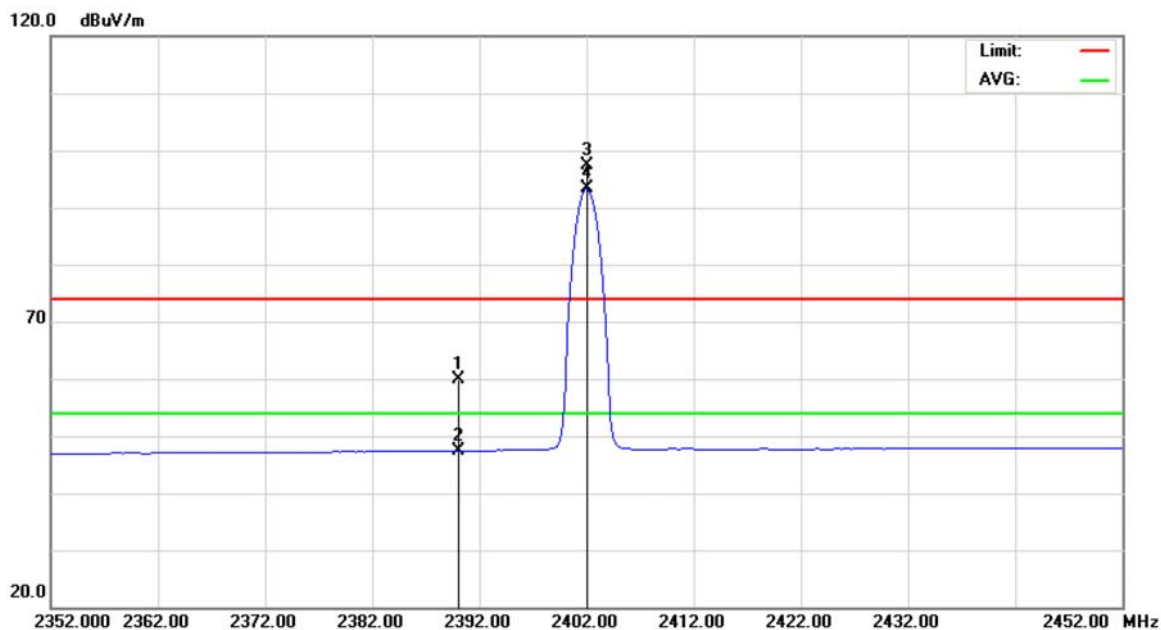


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4960.712	42.23	9.08	51.31	74.00	-22.69	peak	
2		4960.712	29.77	9.08	38.85	54.00	-15.15	AVG	
3		7438.975	41.57	16.98	58.55	74.00	-15.45	peak	
4	*	7438.975	30.49	16.98	47.47	54.00	-6.53	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		

**Polarization: Vertical**



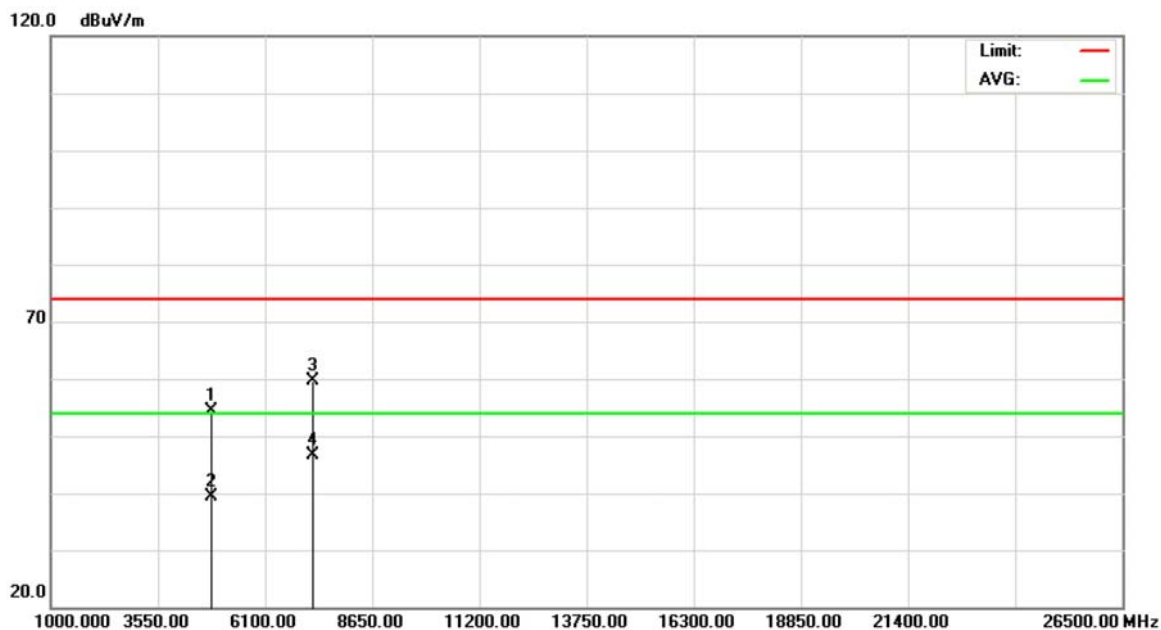
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	25.80	34.09	59.89	74.00	-14.11	peak	
2		2390.000	13.31	34.09	47.40	54.00	-6.60	AVG	
3	X	2402.000	63.22	34.16	97.38	74.00	23.38	peak	
4	*	2402.000	59.13	34.16	93.29	54.00	39.29	AVG	





E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		

**Polarization: Vertical**

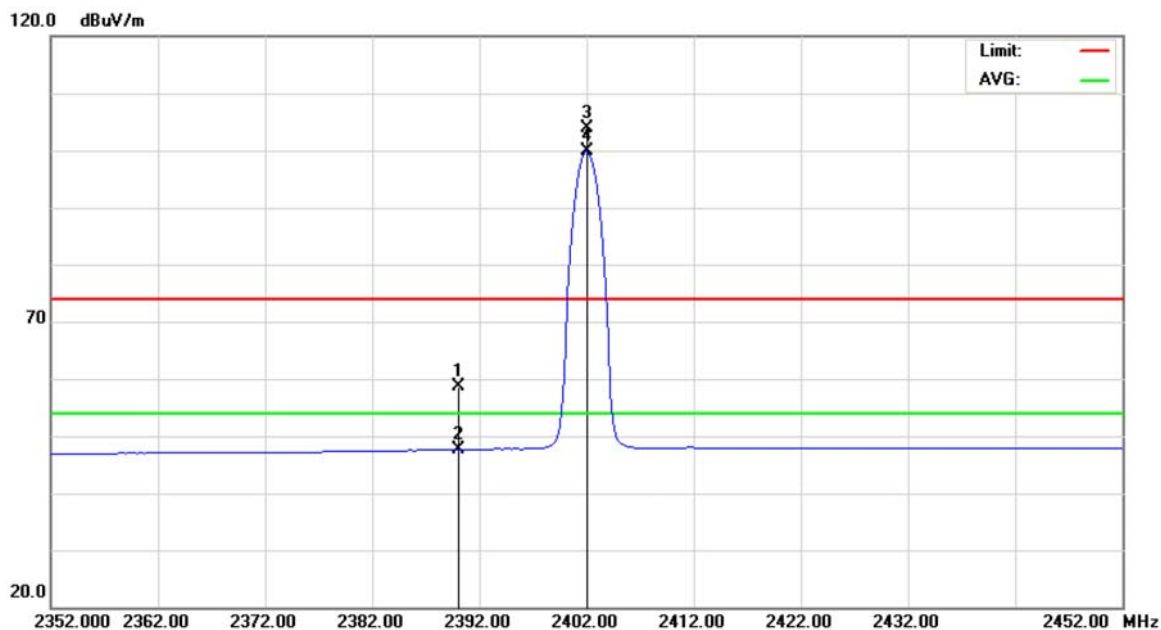


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4803.913	46.00	8.26	54.26	74.00	-19.74	peak	
2		4803.913	31.23	8.26	39.49	54.00	-14.51	AVG	
3		7208.337	43.34	16.29	59.63	74.00	-14.37	peak	
4	*	7208.337	30.40	16.29	46.69	54.00	-7.31	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		

**Polarization: Horizontal**

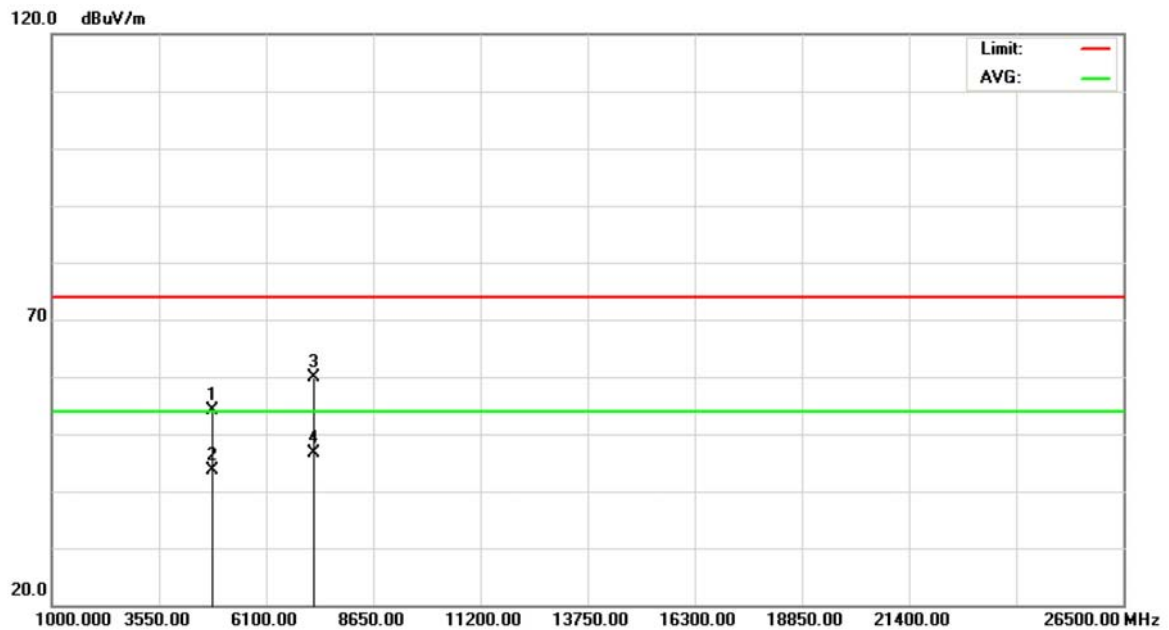


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	24.65	34.09	58.74	74.00	-15.26	peak	
2		2390.000	13.48	34.09	47.57	54.00	-6.43	AVG	
3	X	2402.000	69.68	34.16	103.84	74.00	29.84	peak	
4	*	2402.000	65.60	34.16	99.76	54.00	45.76	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		

**Polarization: Horizontal**

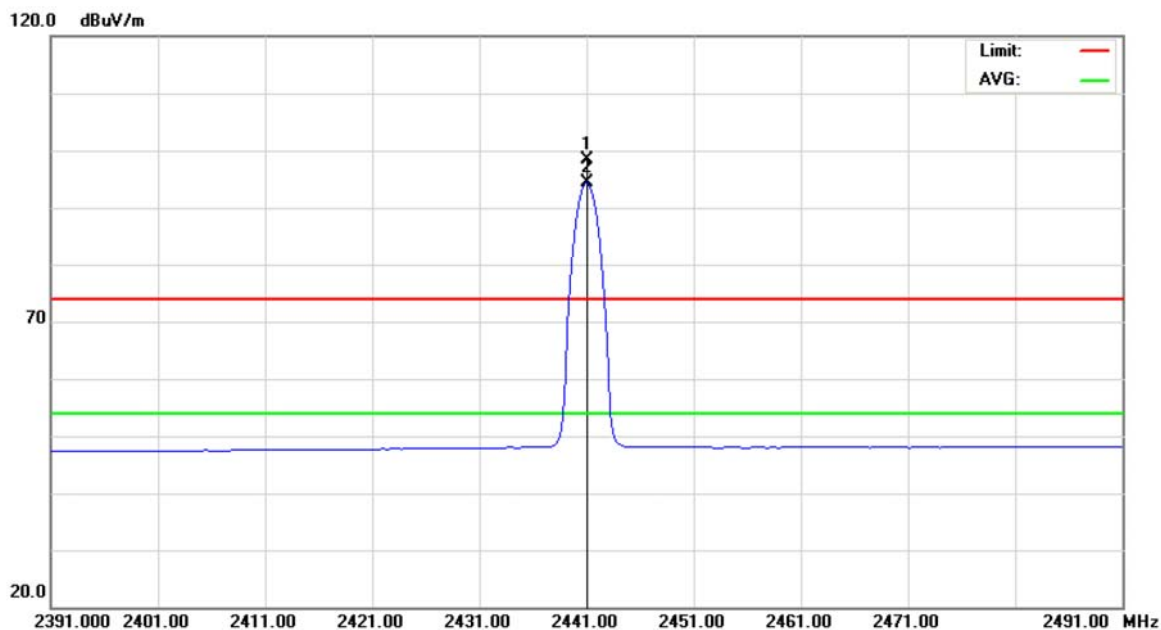


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4803.962	45.91	8.26	54.17	74.00	-19.83	peak	
2		4803.962	35.28	8.26	43.54	54.00	-10.46	AVG	
3		7208.263	43.71	16.29	60.00	74.00	-14.00	peak	
4	*	7208.263	30.36	16.29	46.65	54.00	-7.35	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2441 MHz		

**Polarization: Vertical**

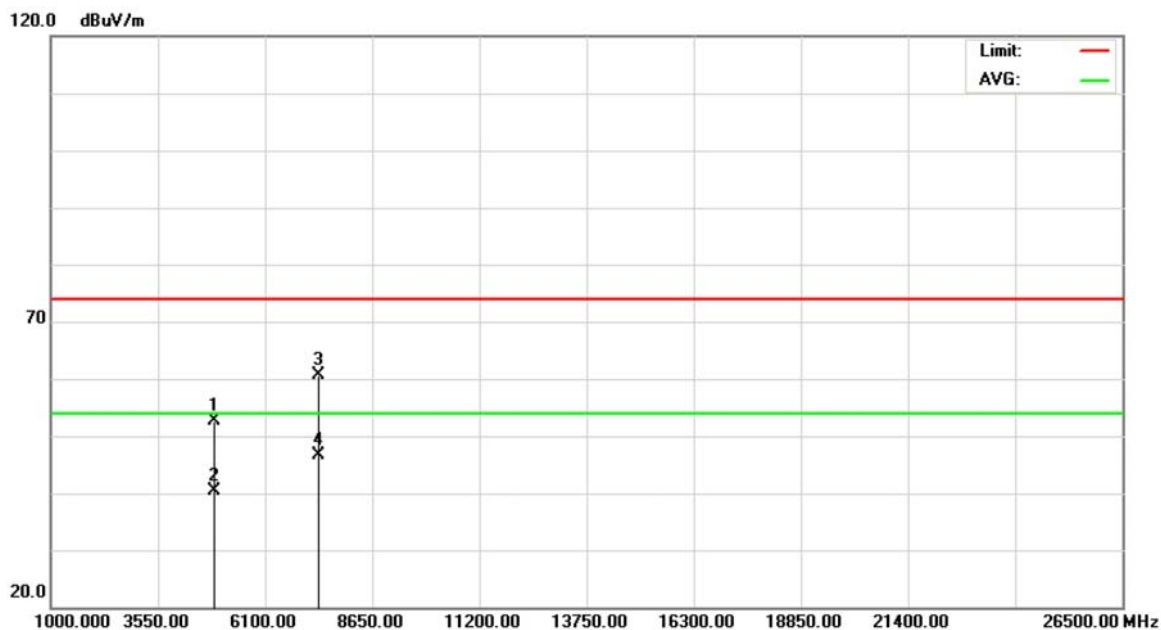


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2441.000	63.93	34.37	98.30	74.00	24.30	peak	
2	*	2441.000	59.89	34.37	94.26	54.00	40.26	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2441 MHz		

**Polarization: Vertical**

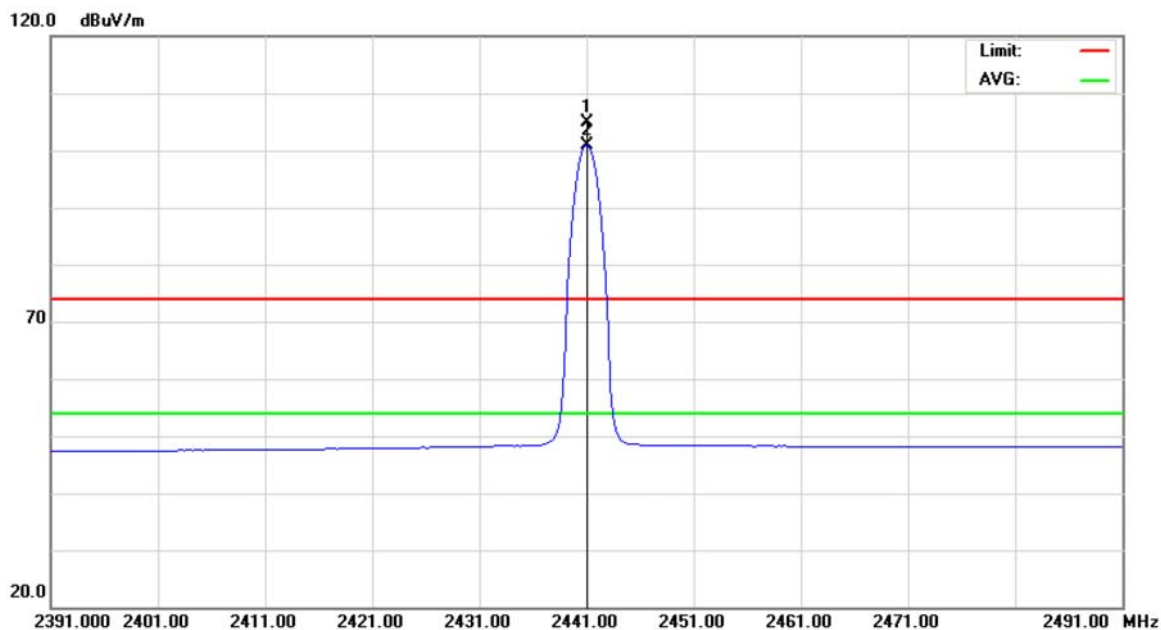


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4881.962	44.11	8.42	52.53	74.00	-21.47	peak	
2		4881.962	31.98	8.42	40.40	54.00	-13.60	AVG	
3		7321.112	43.98	16.75	60.73	74.00	-13.27	peak	
4	*	7321.112	29.87	16.75	46.62	54.00	-7.38	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2441 MHz		

**Polarization: Horizontal**

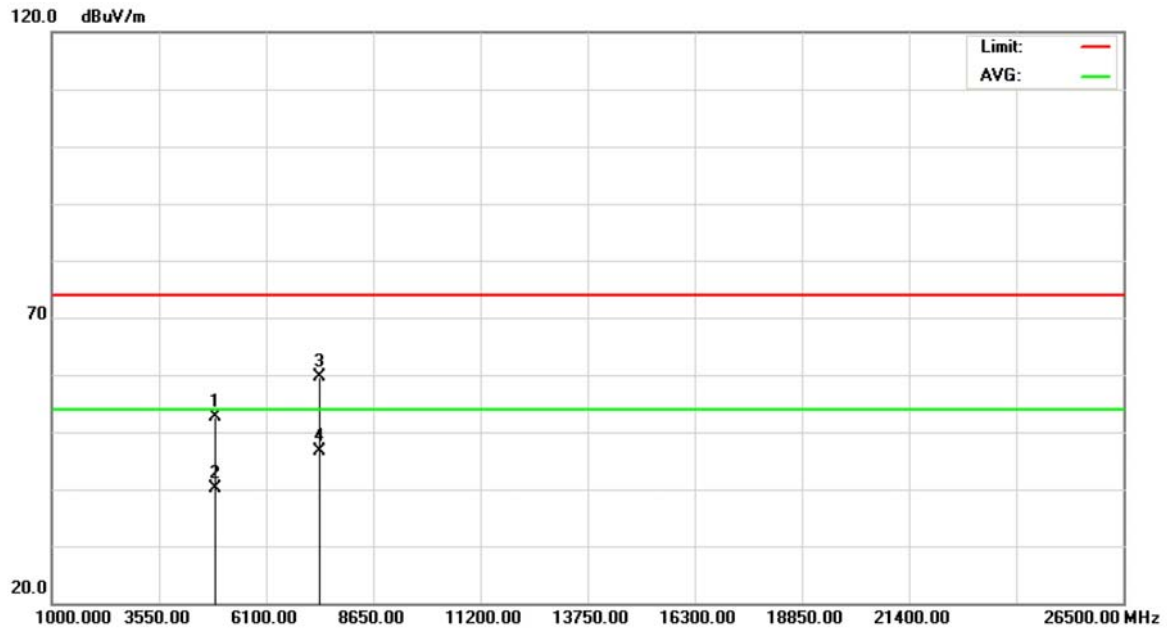


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2441.000	70.63	34.37	105.00	74.00	31.00	peak	
2	*	2441.000	66.59	34.37	100.96	54.00	46.96	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2441 MHz		

**Polarization: Horizontal**

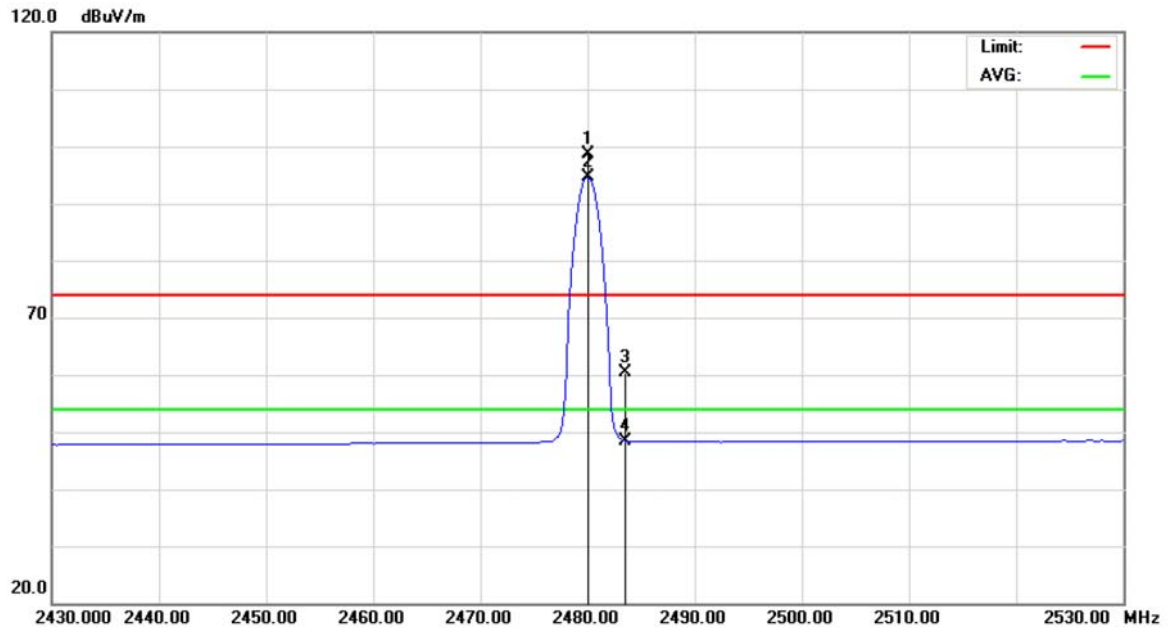


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4882.000	44.32	8.42	52.74	74.00	-21.26	peak	
2		4882.000	31.75	8.42	40.17	54.00	-13.83	AVG	
3		7322.212	42.97	16.75	59.72	74.00	-14.28	peak	
4	*	7322.212	29.80	16.75	46.55	54.00	-7.45	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		

**Polarization: Vertical**



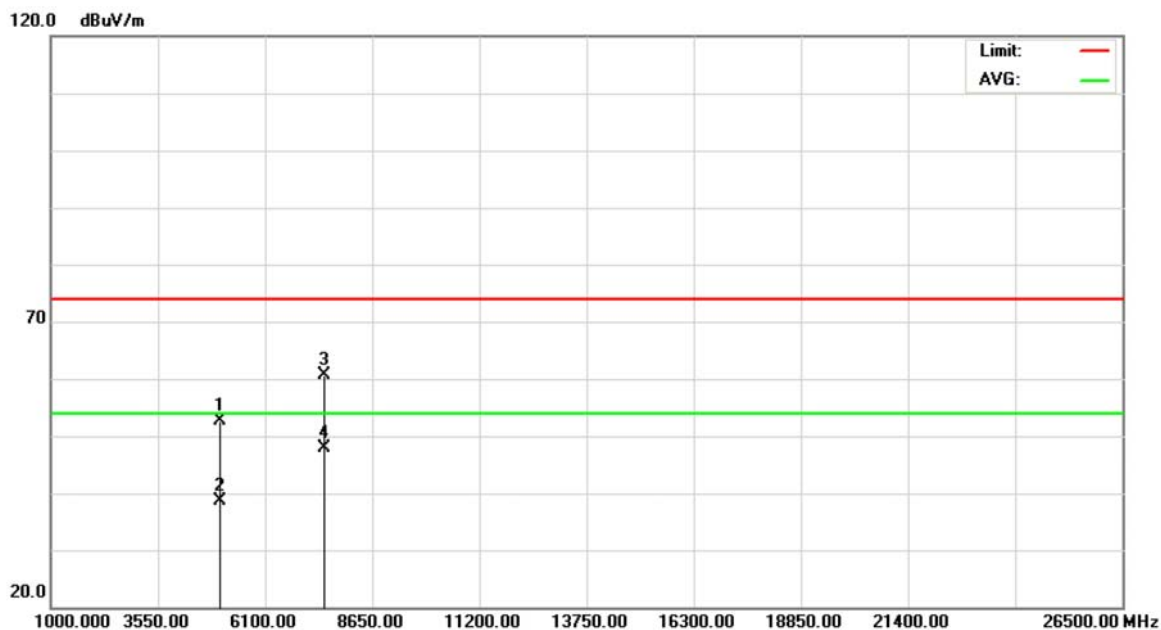
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2480.000	64.13	34.58	98.71	74.00	24.71	peak	
2	*	2480.000	60.05	34.58	94.63	54.00	40.63	AVG	
3		2483.500	25.88	34.60	60.48	74.00	-13.52	peak	
4		2483.500	13.85	34.60	48.45	54.00	-5.55	AVG	





E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		

**Polarization: Vertical**

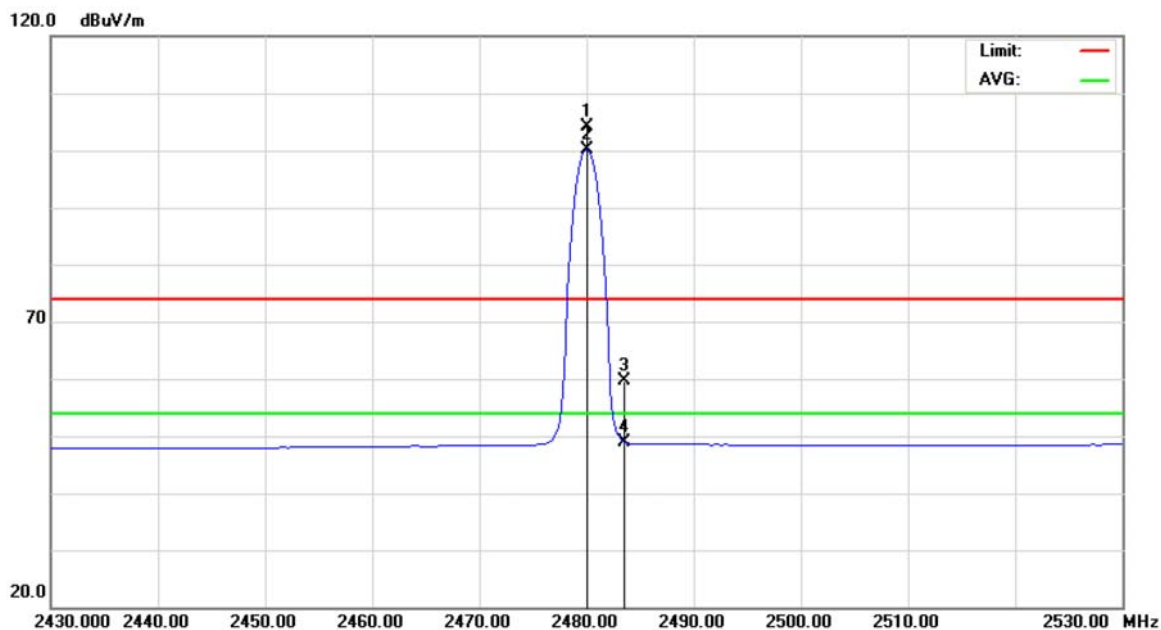


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4959.788	44.15	8.58	52.73	74.00	-21.27	peak	
2		4959.788	30.13	8.58	38.71	54.00	-15.29	AVG	
3		7440.800	43.45	17.23	60.68	74.00	-13.32	peak	
4	*	7440.800	30.58	17.23	47.81	54.00	-6.19	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		

**Polarization: Horizontal**

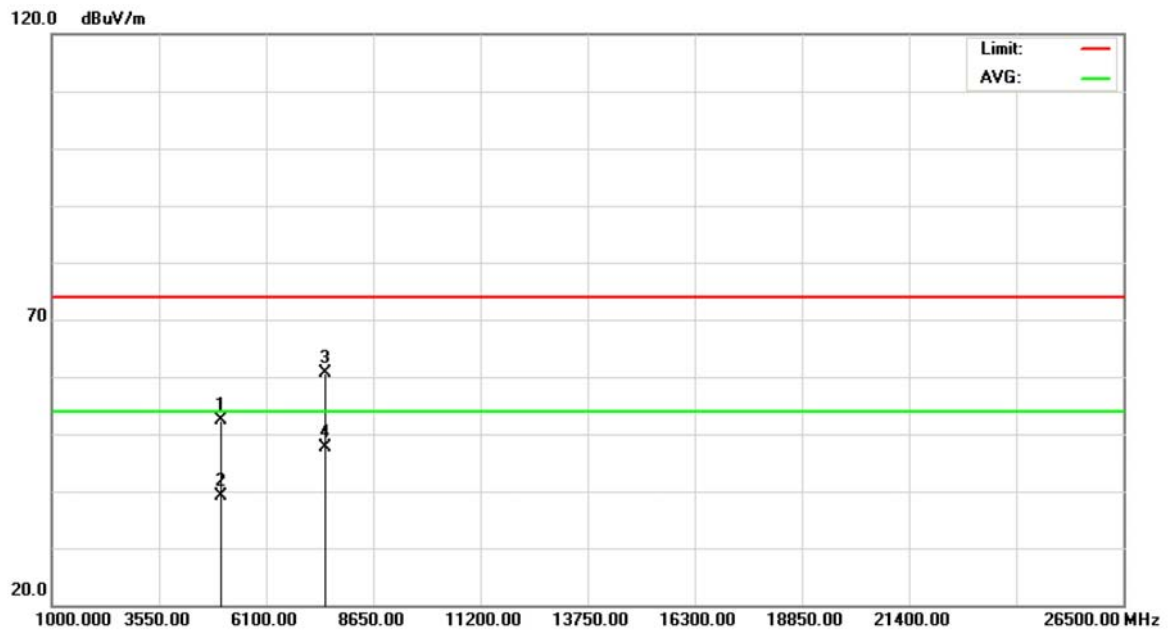


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2480.000	69.63	34.58	104.21	74.00	30.21	peak	
2	*	2480.000	65.60	34.58	100.18	54.00	46.18	AVG	
3		2483.500	25.14	34.60	59.74	74.00	-14.26	peak	
4		2483.500	14.37	34.60	48.97	54.00	-5.03	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		

**Polarization: Horizontal**



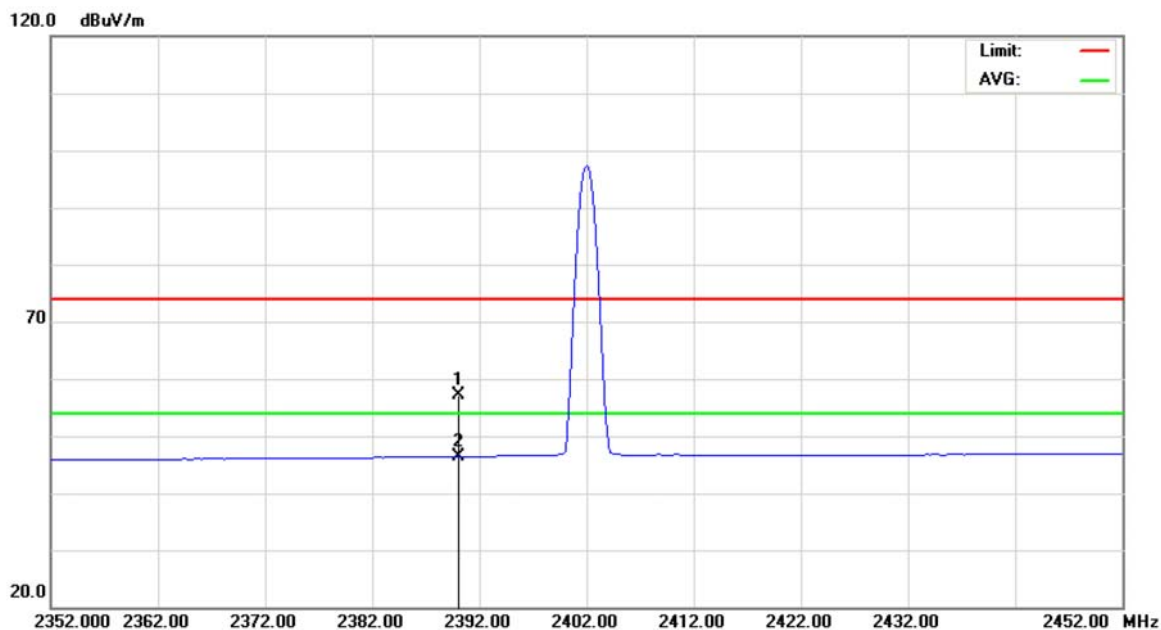
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4959.900	43.87	8.58	52.45	74.00	-21.55	peak	
2		4959.900	30.62	8.58	39.20	54.00	-14.80	AVG	
3		7440.663	43.41	17.23	60.64	74.00	-13.36	peak	
4	*	7440.663	30.51	17.23	47.74	54.00	-6.26	AVG	



## 9.9 TEST RESULTS (RESTRICTED BANDS)

E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

**Polarization: Vertical**

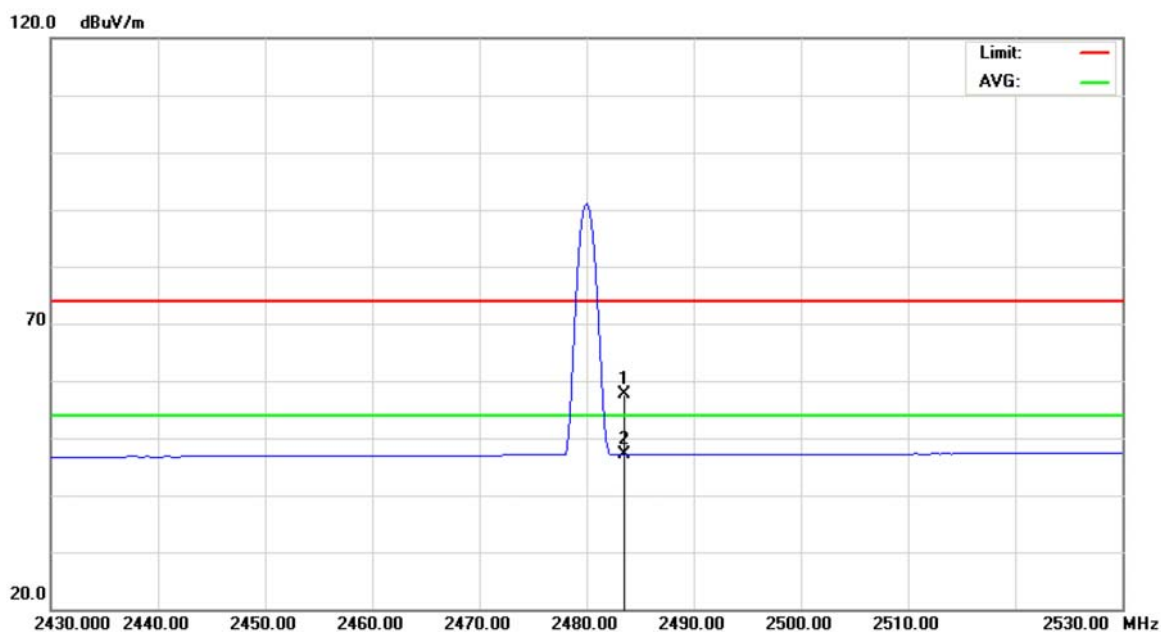


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	23.85	33.25	57.10	74.00	-16.90	peak	
2	*	2390.000	13.11	33.25	46.36	54.00	-7.64	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

**Polarization: Vertical**

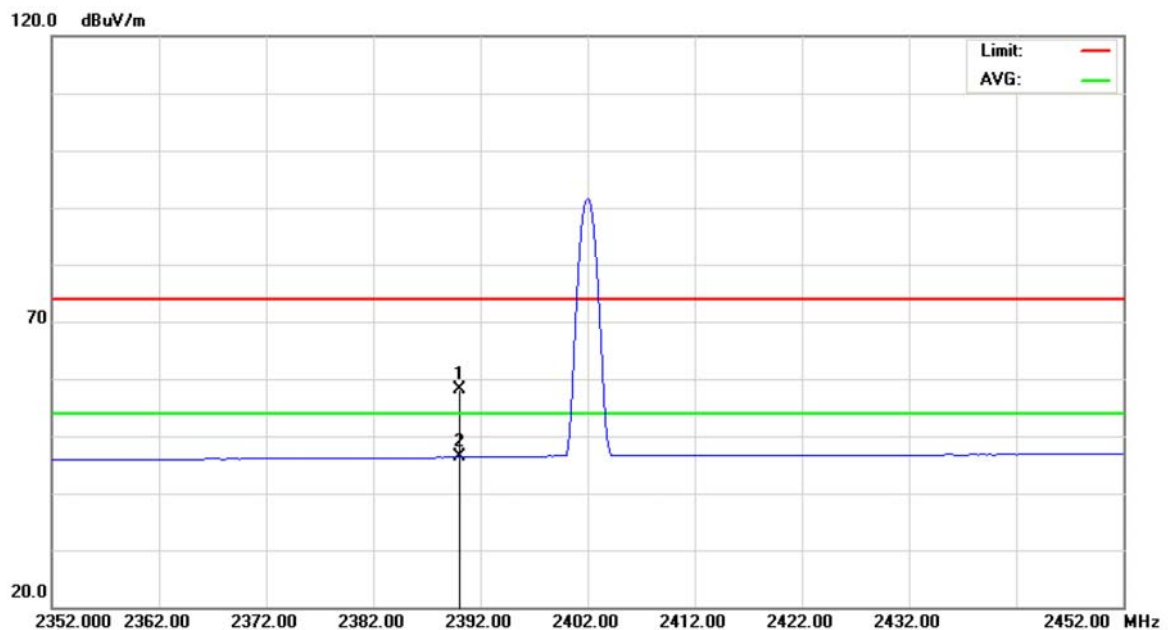


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	24.00	33.75	57.75	74.00	-16.25	peak	
2	*	2483.500	13.36	33.75	47.11	54.00	-6.89	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

**Polarization: Horizontal**

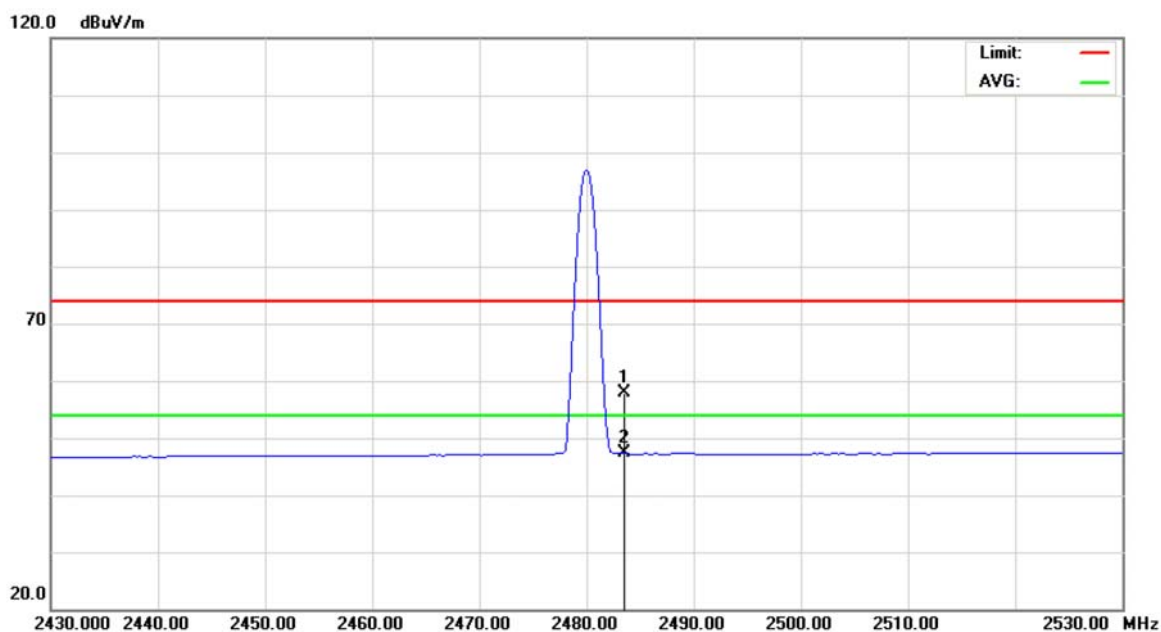


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	24.90	33.25	58.15	74.00	-15.85	peak	
2	*	2390.000	13.04	33.25	46.29	54.00	-7.71	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

**Polarization: Horizontal**

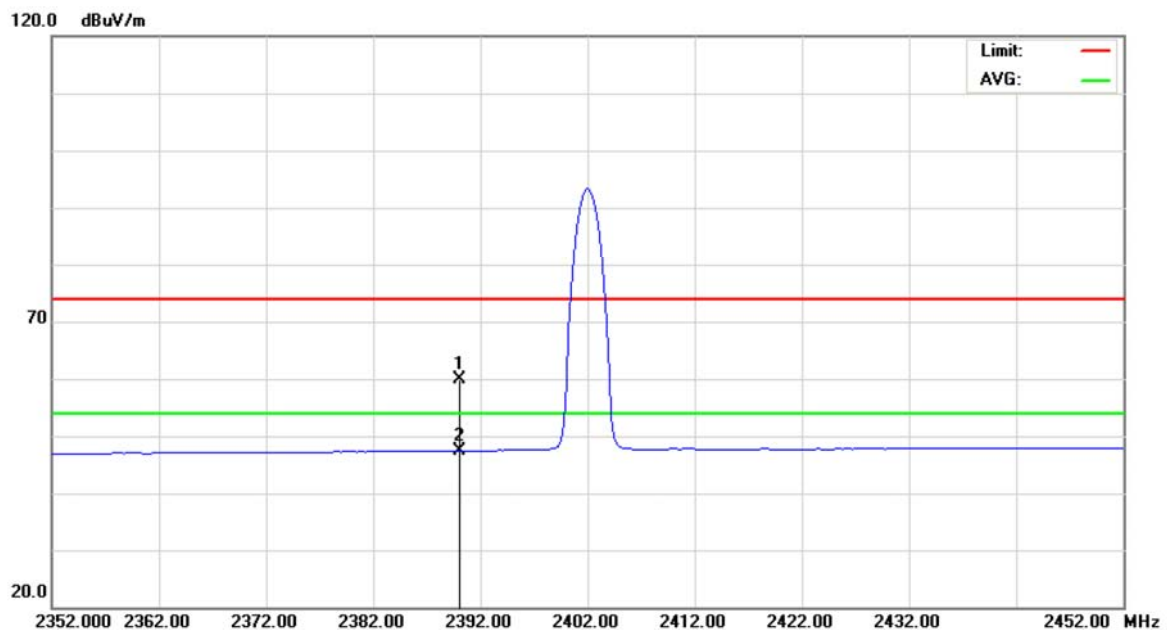


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	24.15	33.75	57.90	74.00	-16.10	peak	
2	*	2483.500	13.54	33.75	47.29	54.00	-6.71	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

**Polarization: Vertical**



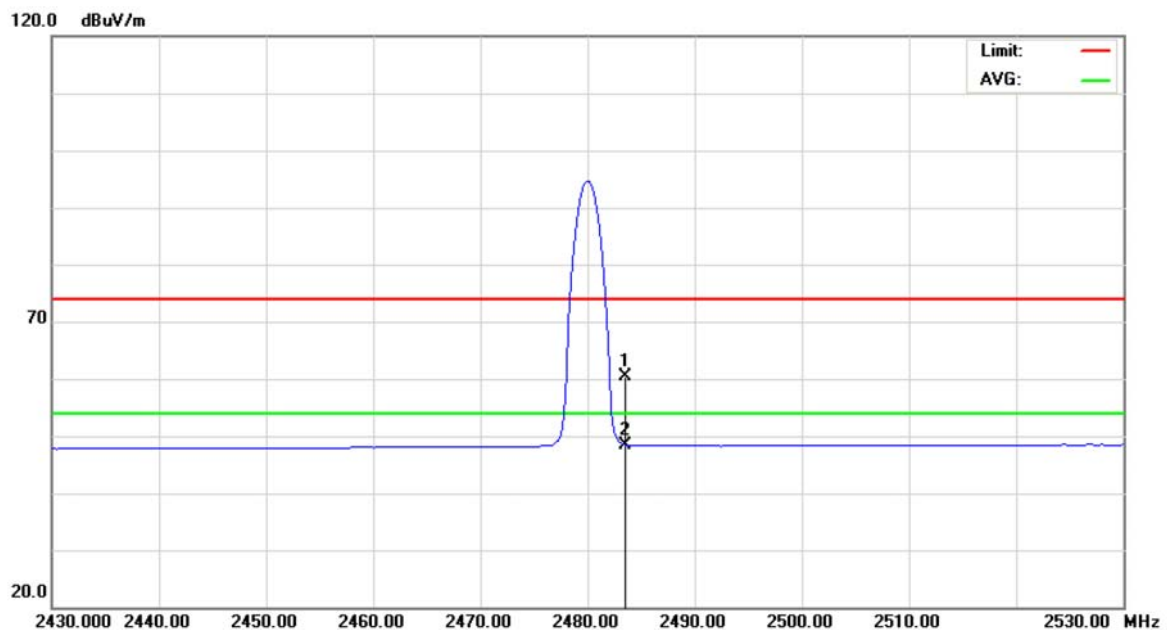
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	25.80	34.09	59.89	74.00	-14.11	peak	
2	*	2390.000	13.31	34.09	47.40	54.00	-6.60	AVG	





E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

**Polarization: Vertical**

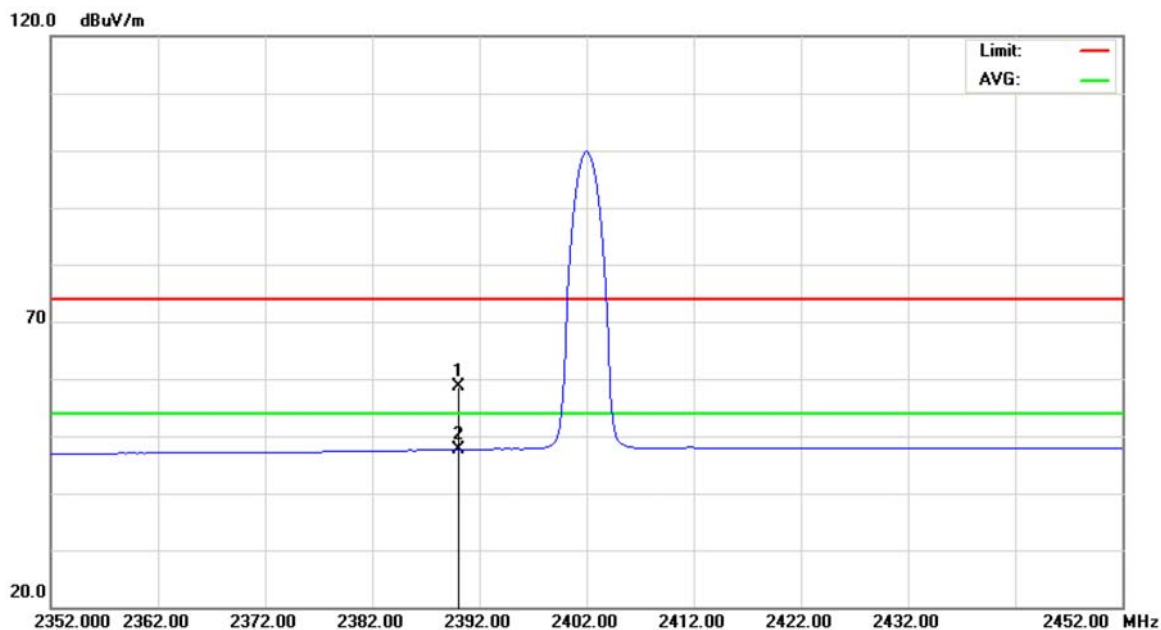


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	25.88	34.60	60.48	74.00	-13.52	peak	
2	*	2483.500	13.85	34.60	48.45	54.00	-5.55	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

**Polarization: Horizontal**

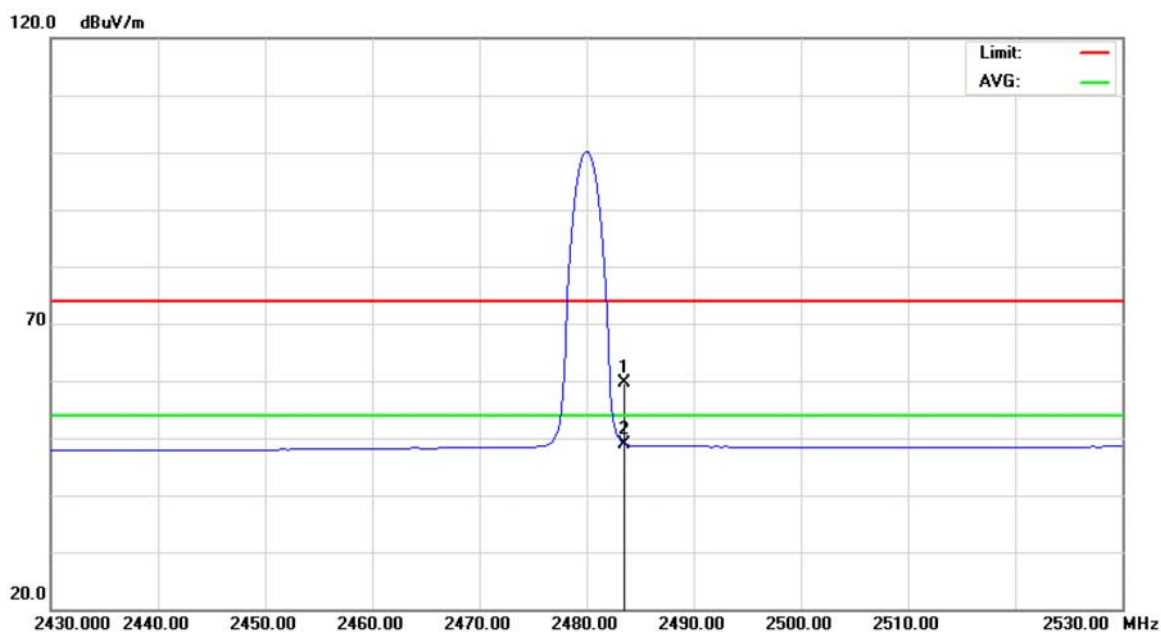


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	24.65	34.09	58.74	74.00	-15.26	peak	
2	*	2390.000	13.48	34.09	47.57	54.00	-6.43	AVG	



E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

**Polarization: Horizontal**



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	25.14	34.60	59.74	74.00	-14.26	peak	
2	*	2483.500	14.37	34.60	48.97	54.00	-5.03	AVG	



## 10 NUMBER OF HOPPING FREQUENCY

### 10.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Number of Hopping Channel	2400-2483.5	shall use at least 15 channels

### 10.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 01, 2013

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

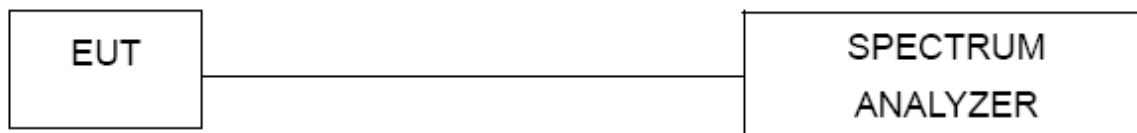
### 10.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

### 10.4 TEST PROCEDURES

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 100 kHz, VBW=100 kHz, Sweep time = Auto.

### 10.5 TEST SETUP LAYOUT



### 10.6 DEVIATION FROM TEST STANDARD

No deviation

### 10.7 EUT OPERATING CONDITIONS

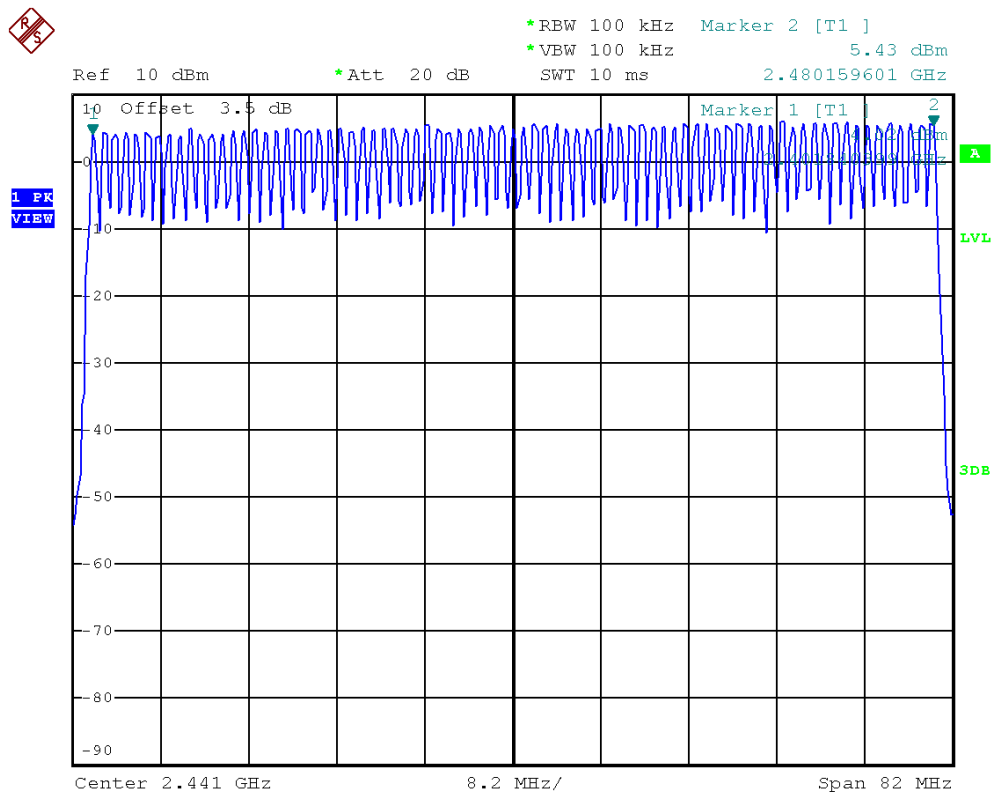
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.



## 10.8 TEST RESULTS

E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps		

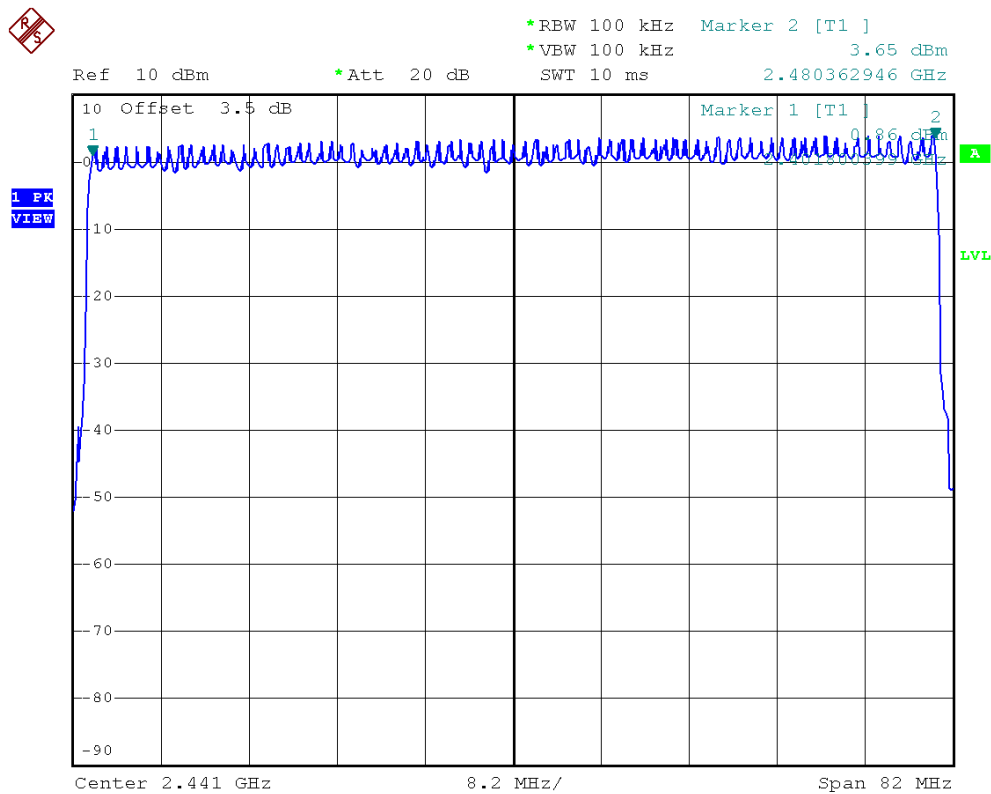
Number of Hopping Channel	Limit	Result
79	15	Pass





E.U.T	PDA Scanner	Model Name	HT682
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps		

Number of Hopping Channel	Limit	Result
79	15	Pass





## 11 AVERAGE TIME OF OCCUPANCY

### 11.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Average time of occupancy	2400-2483.5	shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

### 11.2 MEASUREMENT INSTRUMENTS LIST

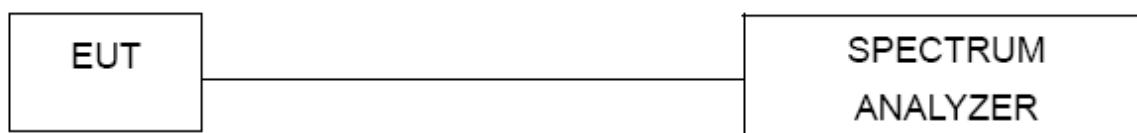
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 01, 2013

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

### 11.3 TEST PROCEDURES

- The transmitter output (antenna port) was connected to the spectrum analyzer
- Set RBW of spectrum analyzer to 100 kHz and VBW to 100 kHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.
- Set the EUT for DH5, DH3 and DH1 packet transmitting.
- Measure the maximum time duration of one single pulse.
- DH5 Packet permit maximum  $1600 / 79 / 6 = 3.37$  hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $3.37 \times 31.6 = 106.6$  within 31.6 seconds.
- DH3 Packet permit maximum  $1600 / 79 / 4 = 5.06$  hops per second in each channel (3 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $5.06 \times 31.6 = 160$  within 31.6 seconds.
- DH1 Packet permit maximum  $1600 / 79 / 2 = 10.12$  hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $10.12 \times 31.6 = 320$  within 31.6 seconds.

### 11.4 TEST SETUP LAYOUT



### 11.5 DEVIATION FROM TEST STANDARD

No deviation



## **11.6 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.



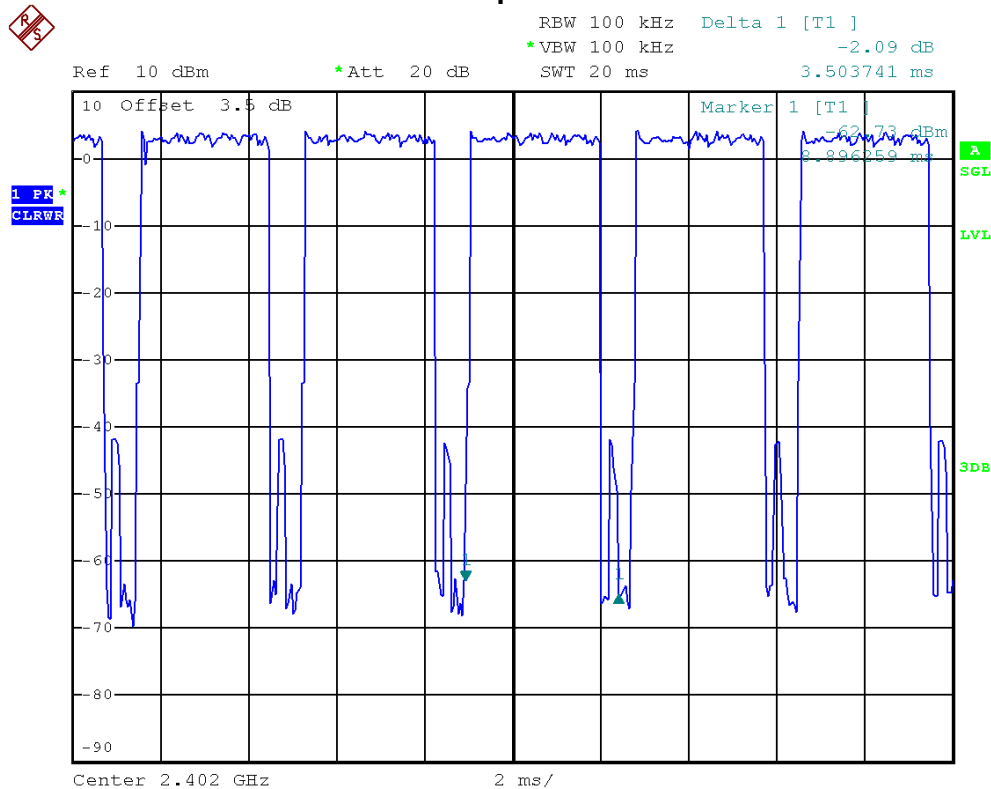


## 11.7 TEST RESULTS

E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2402 MHz		

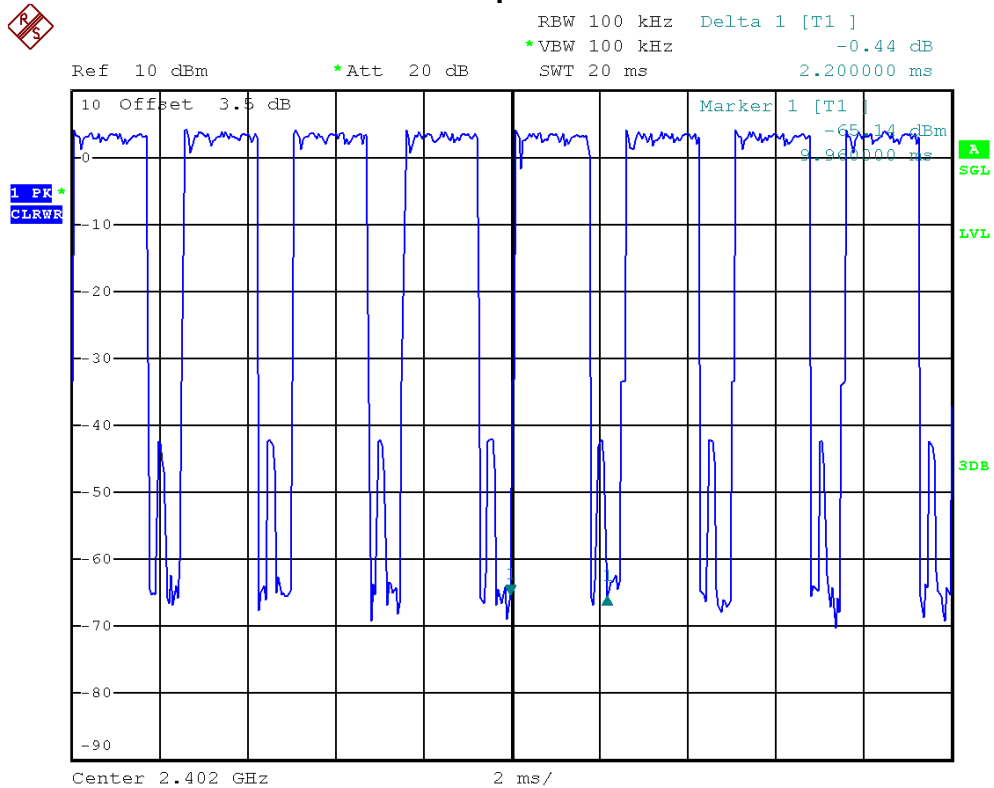
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Result
DH5	2402 MHz	3.5037	0.3737	0.4	PASS
DH3	2402 MHz	2.2000	0.3520	0.4	PASS
DH1	2402 MHz	1.0006	0.3202	0.4	PASS

### Bluetooth/1 Mbps/2402 MHz/DH5

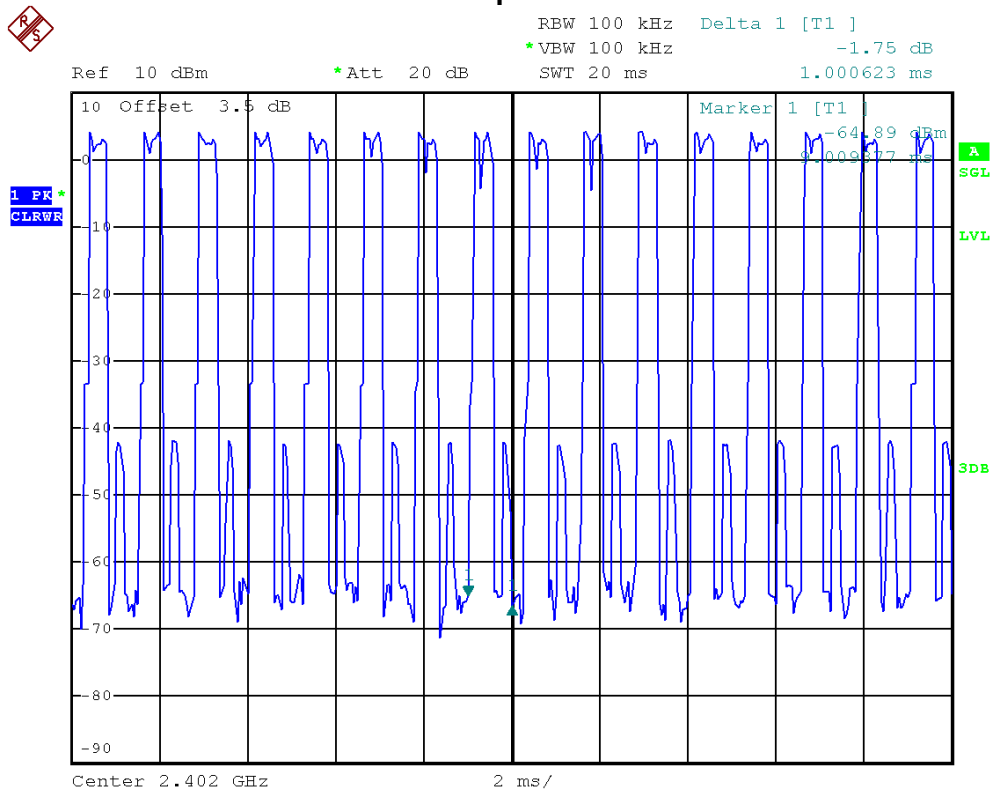




### Bluetooth/1 Mbps/2402 MHz/DH3



### Bluetooth/1 Mbps/2402 MHz/DH1

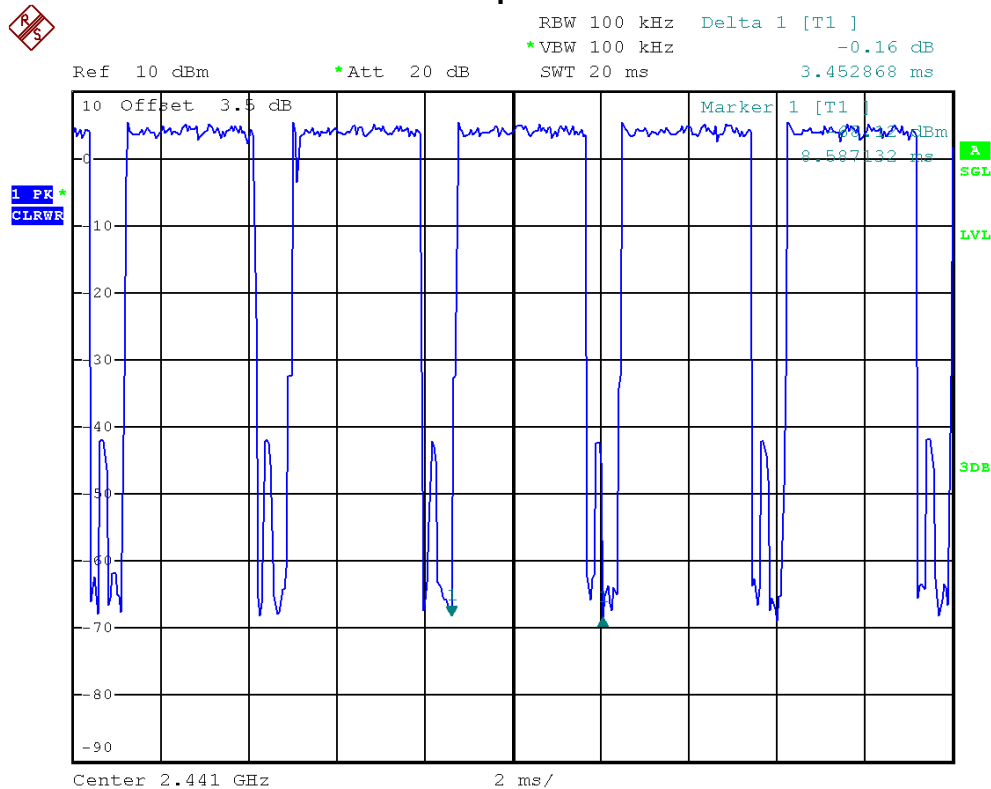




E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2441 MHz		

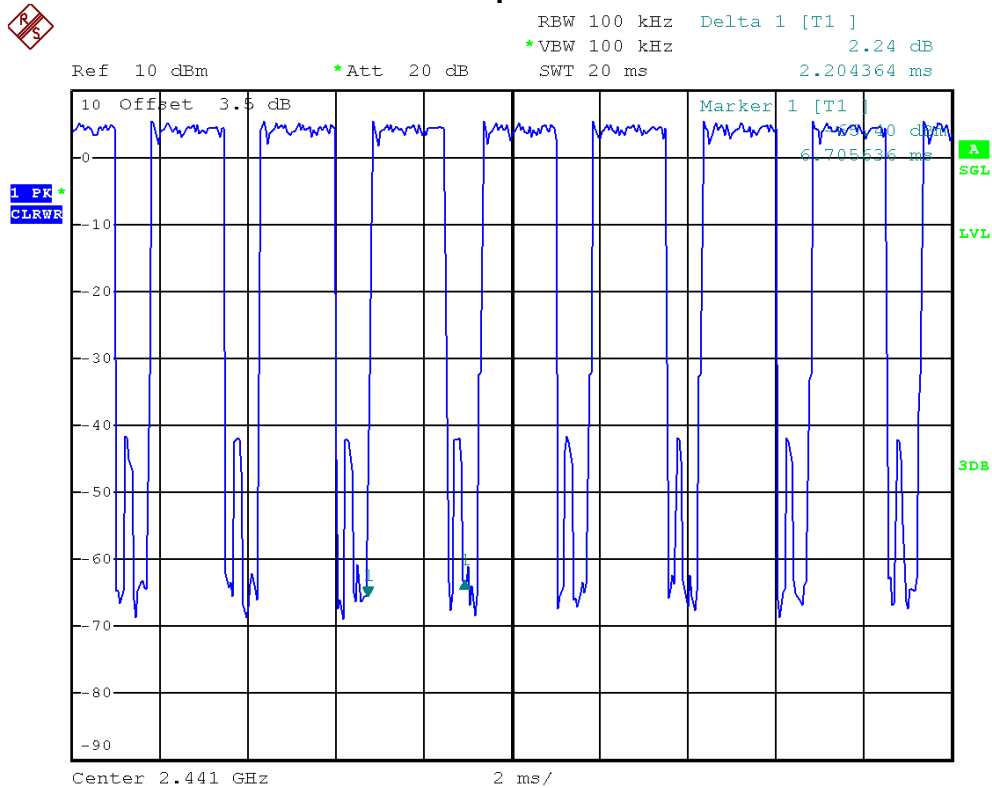
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Result
DH5	2441 MHz	3.4529	0.3683	0.4	PASS
DH3	2441 MHz	2.2044	0.3527	0.4	PASS
DH1	2441 MHz	0.9626	0.3080	0.4	PASS

### Bluetooth/1 Mbps/2441 MHz/DH5

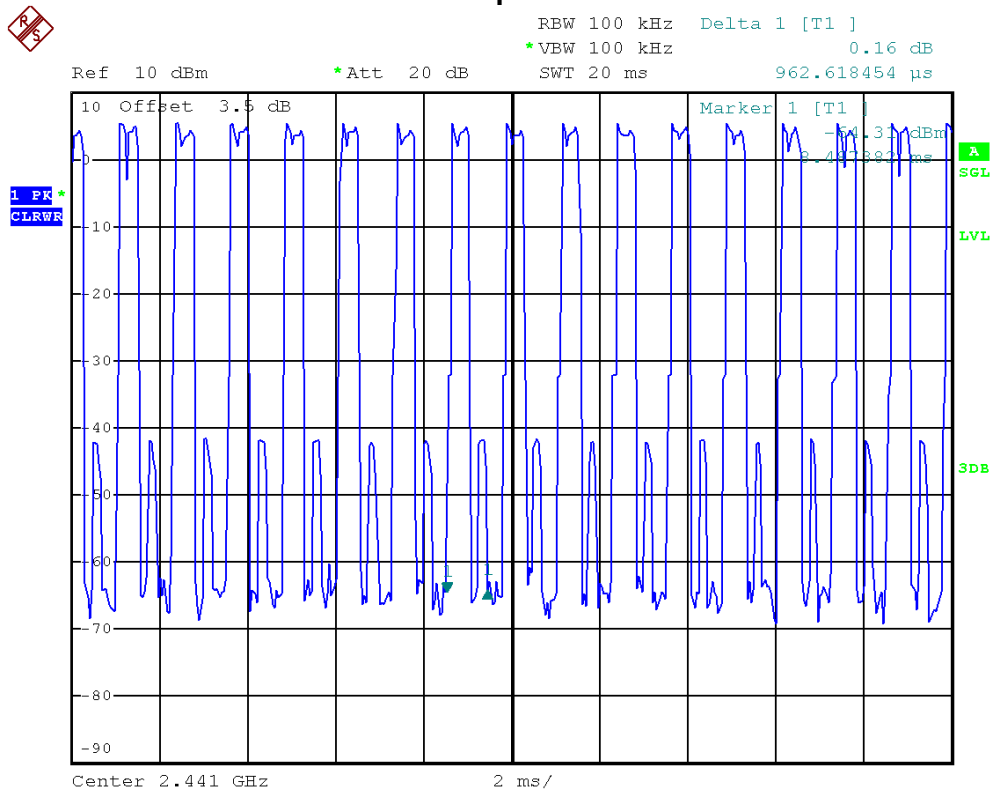




### Bluetooth/1 Mbps/2441 MHz/DH3



### Bluetooth/1 Mbps/2441 MHz/DH1

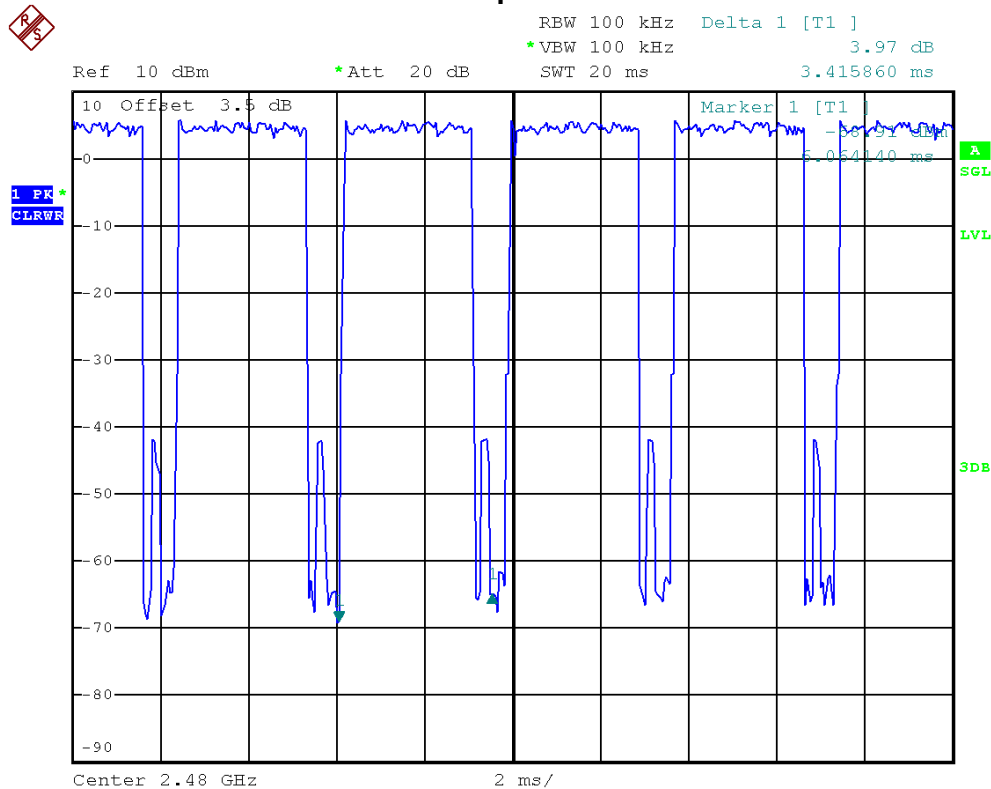




E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/1 Mbps/2480 MHz		

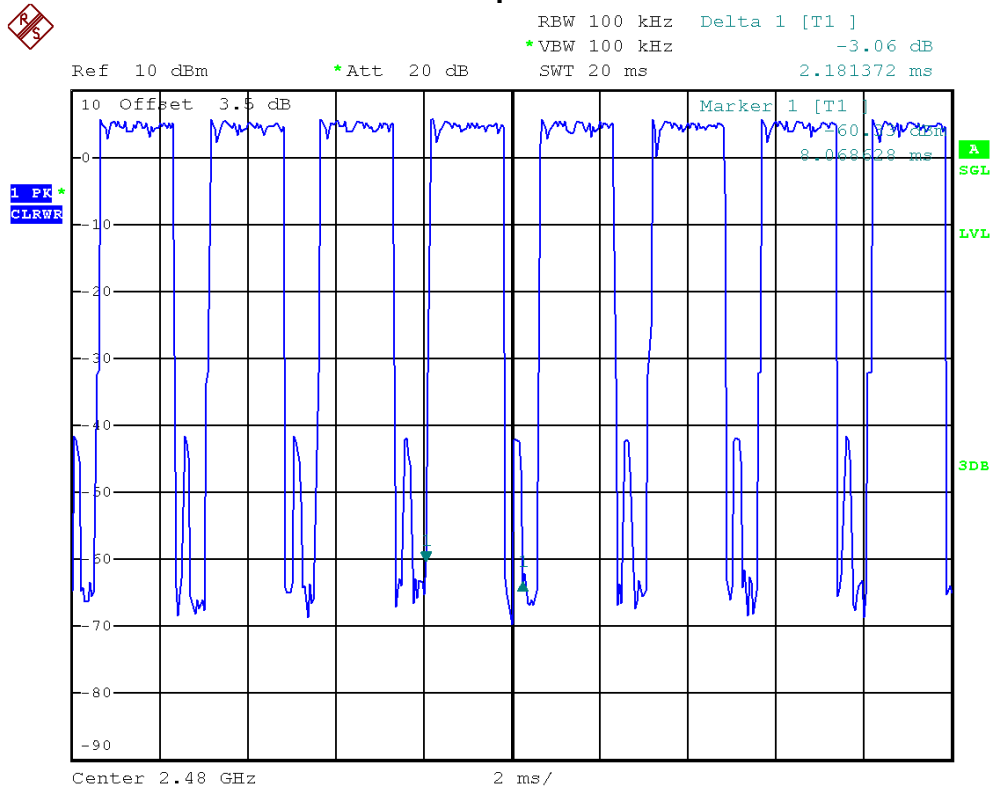
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Result
DH5	2480 MHz	3.4159	0.3644	0.4	PASS
DH3	2480 MHz	2.1814	0.3490	0.4	PASS
DH1	2480 MHz	0.9405	0.3010	0.4	PASS

### Bluetooth/1 Mbps/2480 MHz/DH5

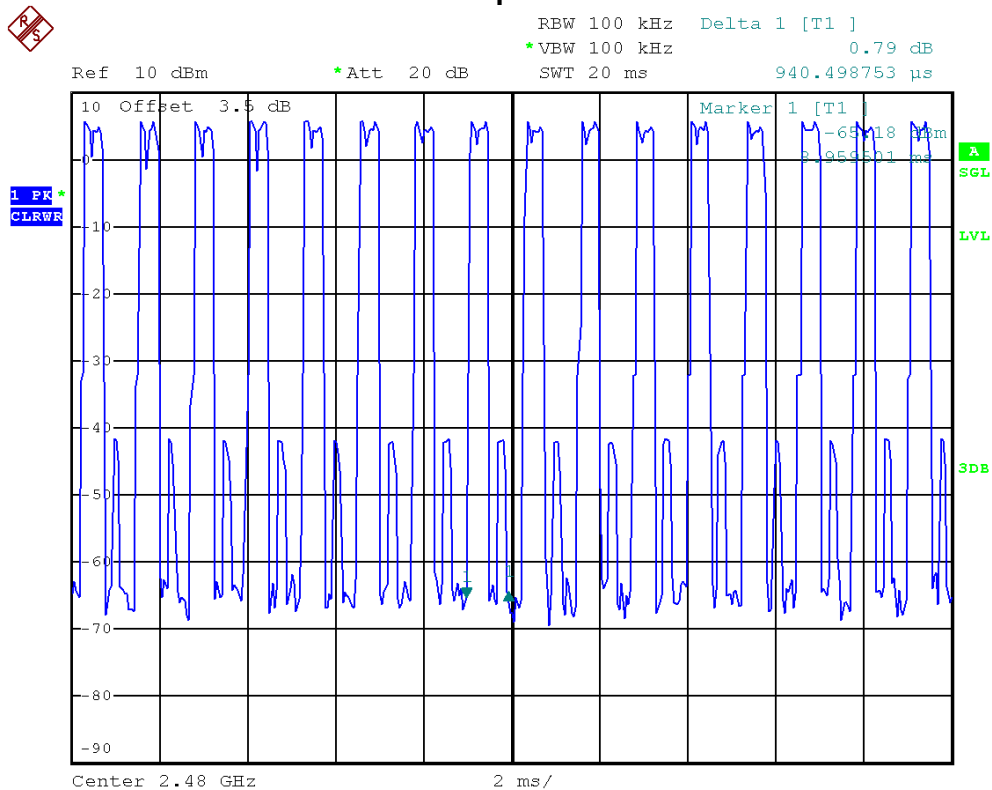




### Bluetooth/1 Mbps/2480 MHz/DH3



### Bluetooth/1 Mbps/2480 MHz/DH1

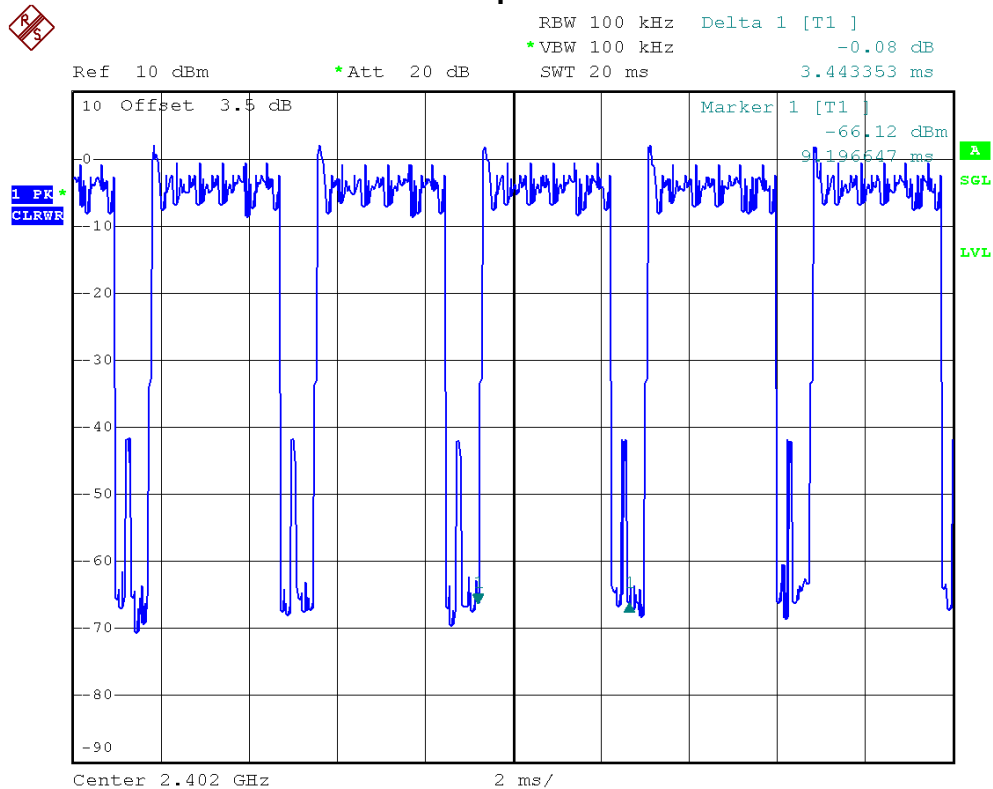




E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2402 MHz		

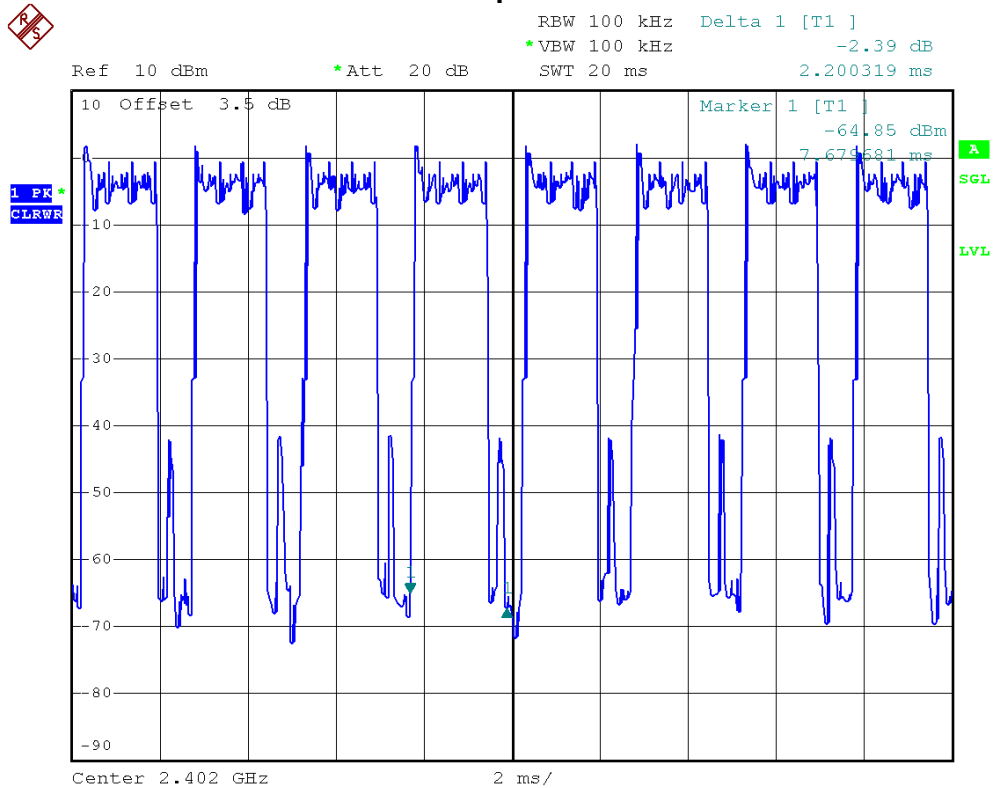
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Result
DH5	2402 MHz	3.4434	0.3673	0.4	PASS
DH3	2402 MHz	2.2003	0.3521	0.4	PASS
DH1	2402 MHz	0.9605	0.3074	0.4	PASS

### Bluetooth/3 Mbps/2402 MHz/DH5

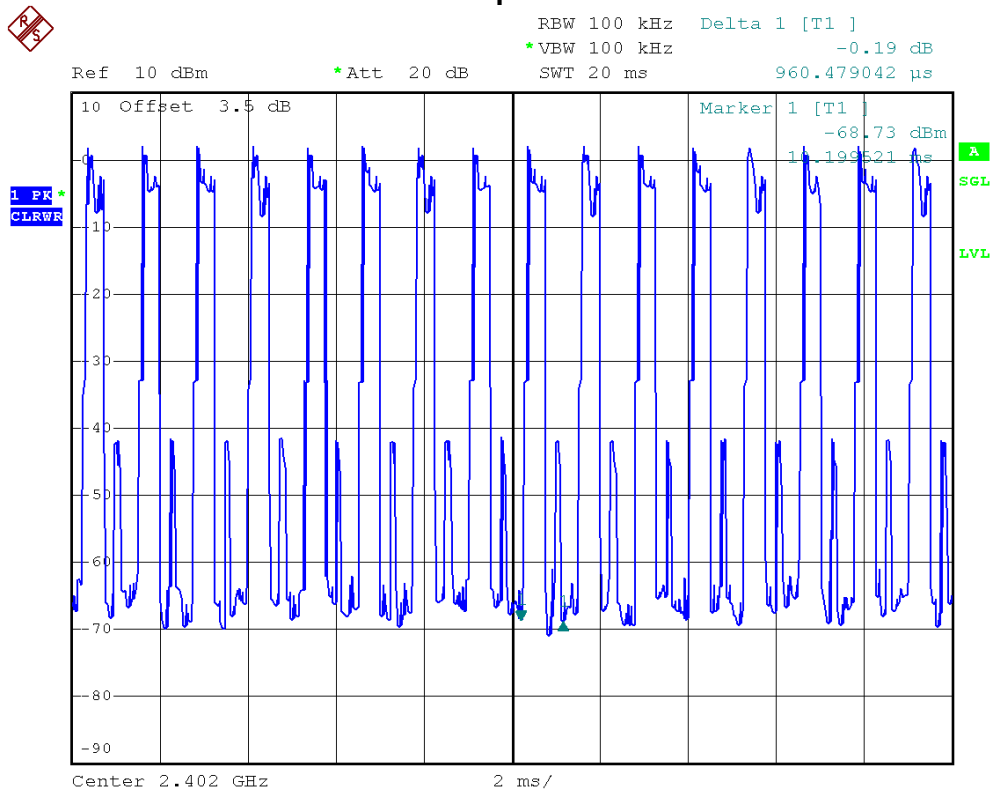




### Bluetooth/3 Mbps/2402 MHz/DH3



### Bluetooth/3 Mbps/2402 MHz/DH1



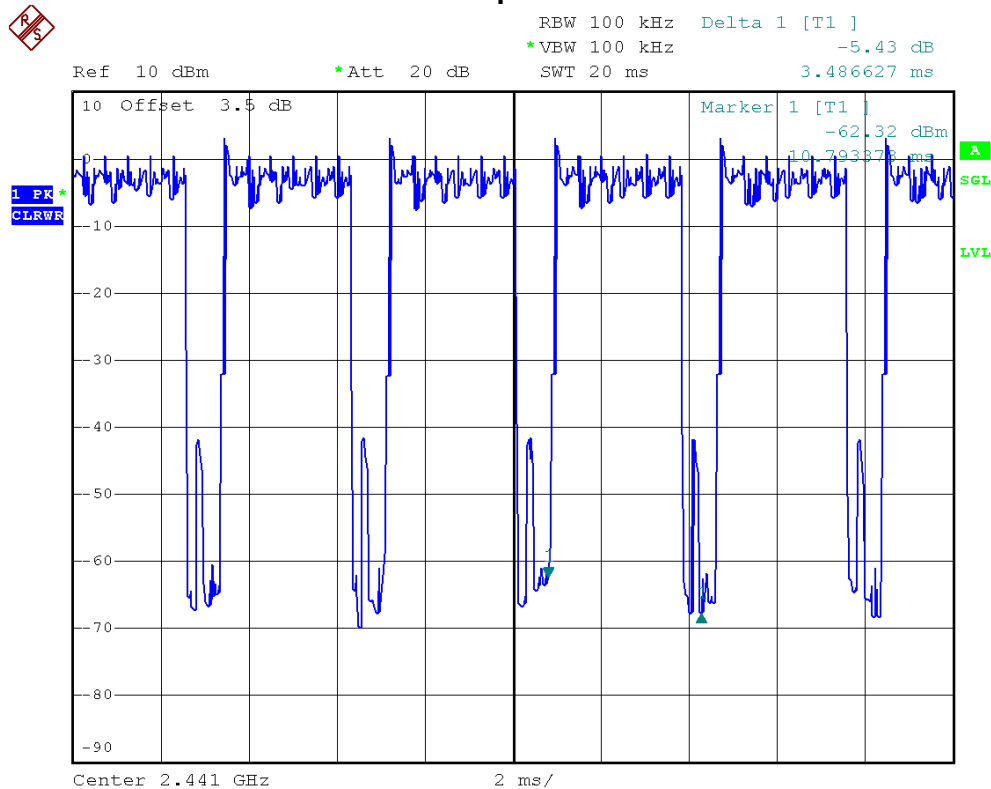




E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2441 MHz		

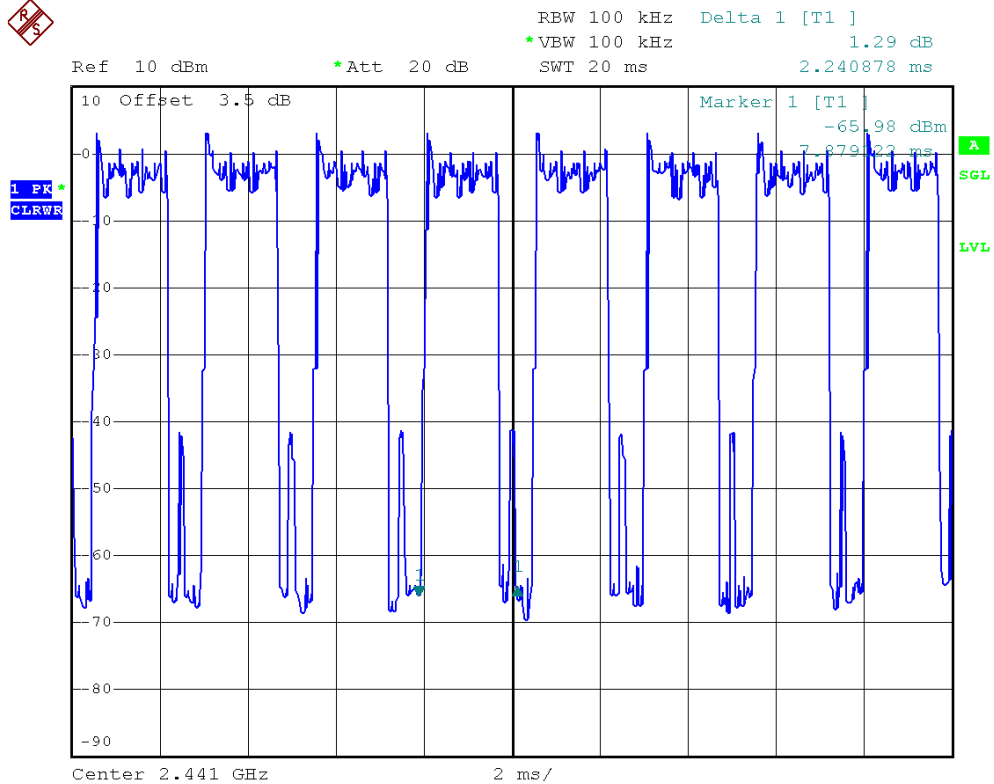
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Result
DH5	2441 MHz	3.4866	0.3719	0.4	PASS
DH3	2441 MHz	2.2409	0.3585	0.4	PASS
DH1	2441 MHz	0.9602	0.3073	0.4	PASS

### Bluetooth/3 Mbps/2441 MHz/DH5

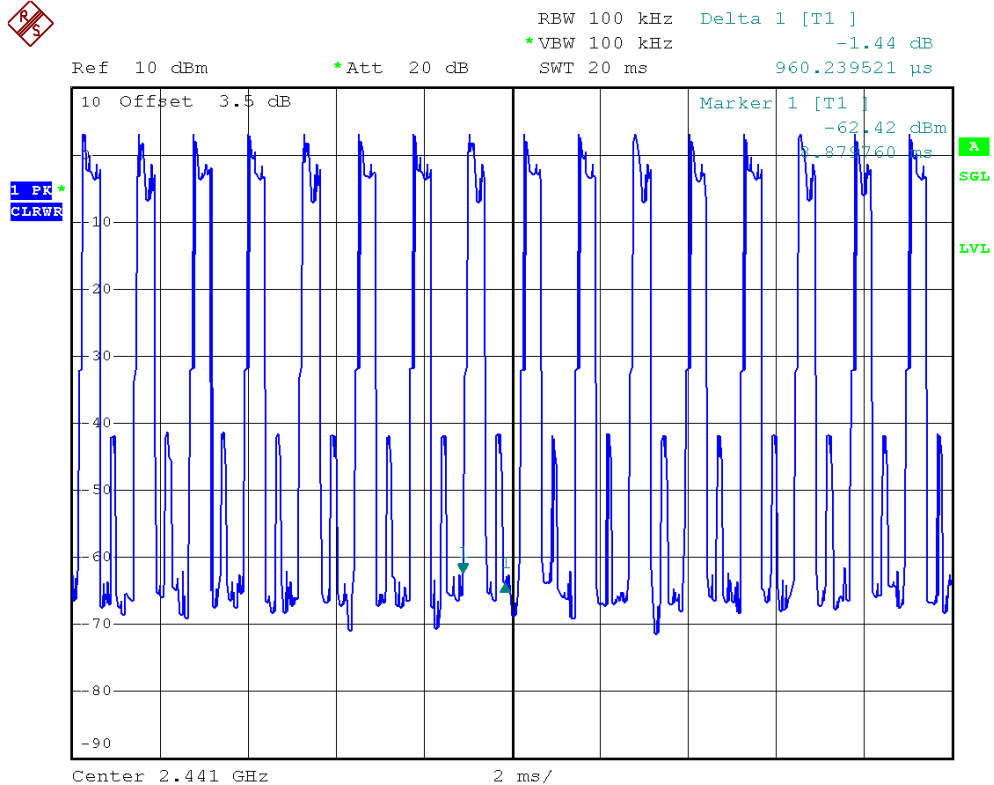




### Bluetooth/3 Mbps/2441 MHz/DH3



### Bluetooth/3 Mbps/2441 MHz/DH1

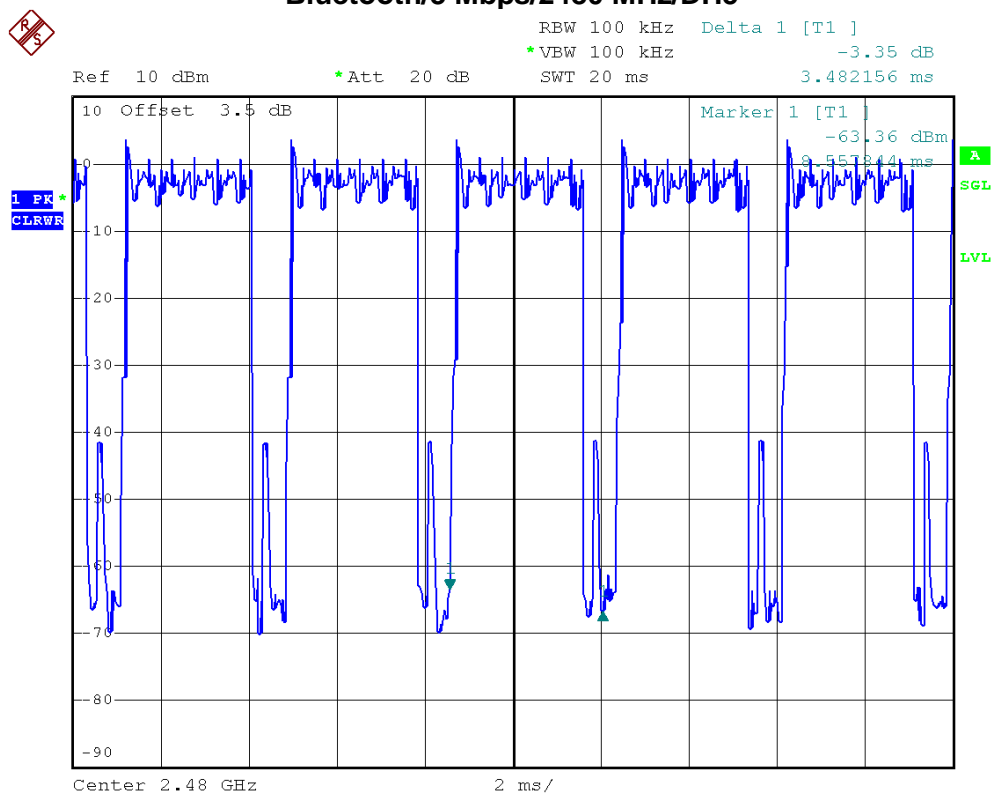




E.U.T	PDA Scanner	Model Name	HT682
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	Bluetooth/3 Mbps/2480 MHz		

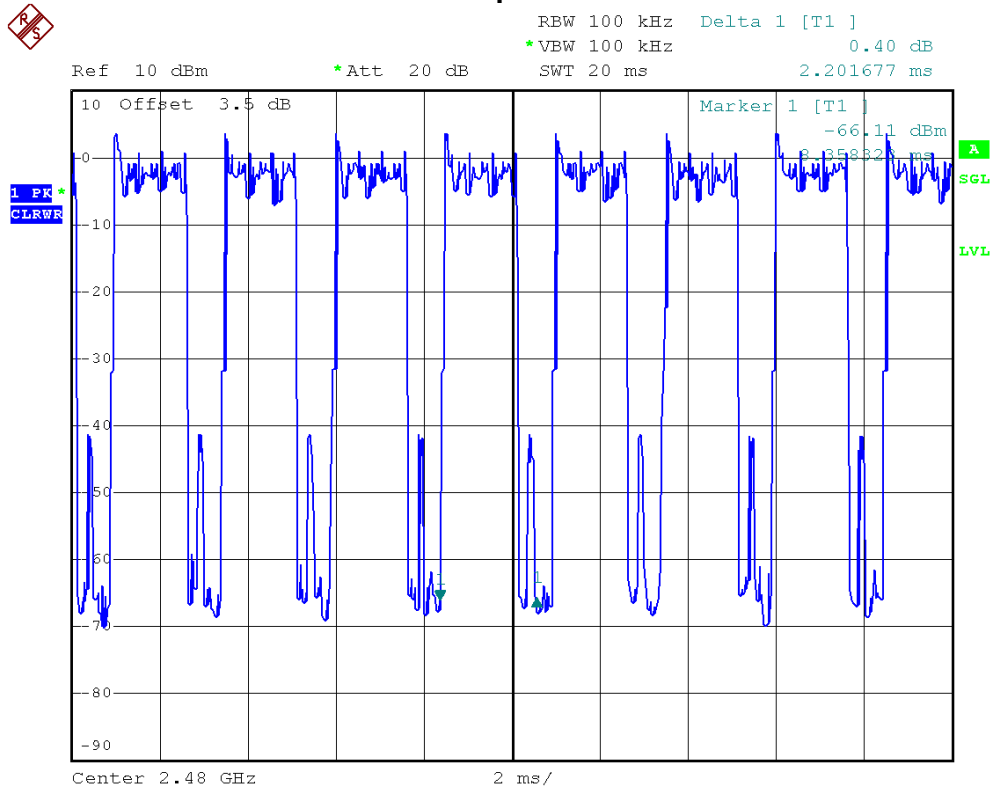
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Result
DH5	2480 MHz	3.4822	0.3714	0.4	PASS
DH3	2480 MHz	2.2017	0.3523	0.4	PASS
DH1	2480 MHz	0.9621	0.3079	0.4	PASS

### Bluetooth/3 Mbps/2480 MHz/DH5

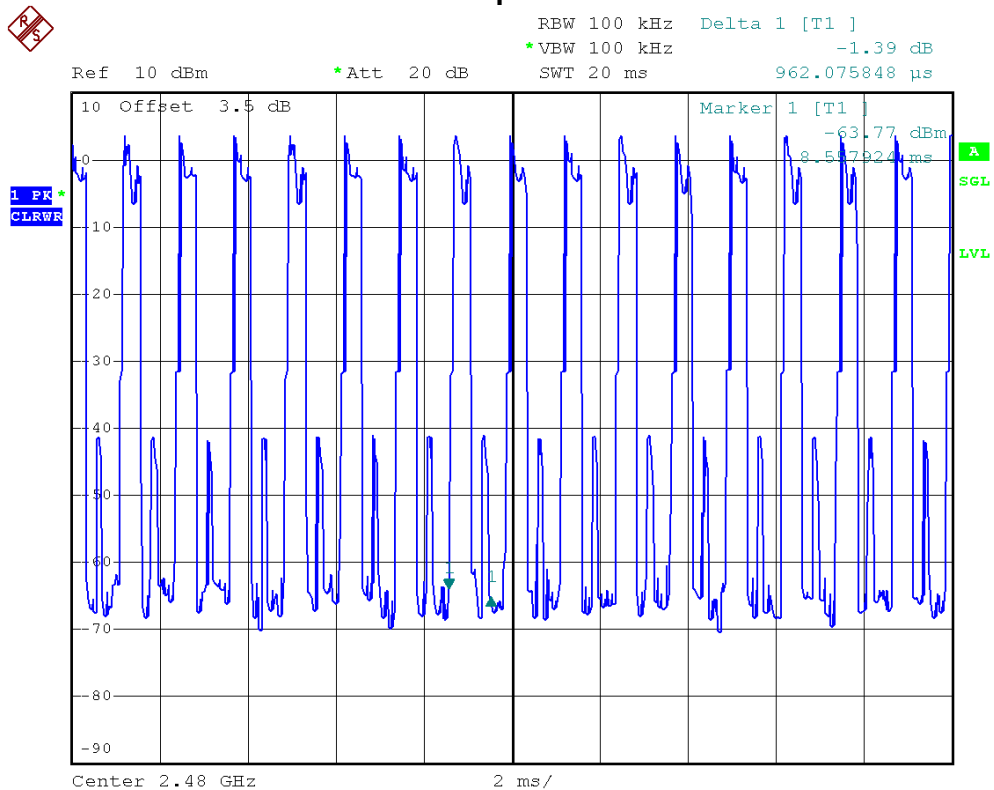




### Bluetooth/3 Mbps/2480 MHz/DH3



### Bluetooth/3 Mbps/2480 MHz/DH1





## 12 RF EXPOSURE COMPLIANCE

### 12.1 LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

NOTE: f = frequency in MHz ; \*Plane-wave equivalent power density.

### 12.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Jul. 22, 2013
2	Power Meter Sensor	Anritsu	MA2411B	1126001	Jul. 22, 2013

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

### 12.3 MPE CALCULATION METHOD

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = Peak RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

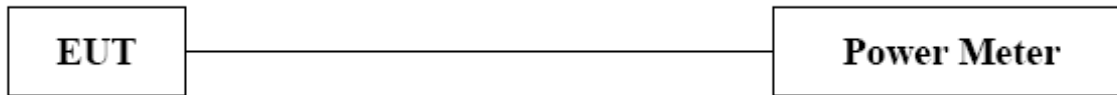
The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



#### **12.4 TEST SETUP LAYOUT**



#### **12.5 DEVIATION FROM TEST STANDARD**

No deviation

#### **12.6 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

#### **12.7 TEST RESULTS**

The power is so low so there is no need for RF calculations.